

Guide to statistics in European Commission development co-operation

2017 edition



MANUALS AND
GUIDELINES

eurostat 

**Guide to statistics in
European Commission
development co-operation**

2017 edition

*Europe Direct is a service to help you find answers
to your questions about the European Union.*

Freephone number (*):

00 800 6 7 8 9 10 11

(* Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

More information on the European Union is available on the Internet (<http://europa.eu>).

Luxembourg: Publications Office of the European Union, 2017

PDF: ISBN 978-92-79-65763-4
ISSN 2315-0815
doi:10.2785/30851
Cat. No: KS-GQ-17-002-EN-N

Print: ISBN 978-92-79-68718-1
ISSN 2363-197X
doi:10.2785/23610
Cat. No: KS-GQ-17-002-EN-C

Theme: General and regional statistics

Collection: Manuals and guidelines

© European Union, 2017

Reproduction of content other than photos is authorised, provided that the source is acknowledged.

For more information, please consult: <http://ec.europa.eu/eurostat/about/policies/copyright>

Copyright for the photographs: cover photo: © Aree Barbar/Shutterstock, Chapter B.3: © FXQuadro/Shutterstock, Chapter D.10: © Don Victorio/Shutterstock, Chapter D.15: © SAHACHATZ/Shutterstock, Chapter D.15: © Fedor Selivanov/Shutterstock, Chapter D.22: © Lucian Coman/Shutterstock, Chapter D.23: © Monkey Business Images/Shutterstock, Chapter D.23: © Micky Wiswedel/Shutterstock, All other photos: public domain @pixabay.com.

For reproduction and use of these photos, permission must be sought directly from the copyright holder.

Foreword

Reliable statistics are essential for measuring progress in reaching development goals and providing essential information about the effectiveness of policies and programmes. They help governments to improve their policies and to stay transparent and accountable for the delivery of development results. High-quality statistics are a key element towards better measurement, monitoring and management of the results of development assistance.

With the adoption of the Sustainable Development Goals (SDGs) at the UN Sustainable Development Summit in September 2015, the demand for quality statistics has increased considerably. To monitor the progress towards these 17 goals and their corresponding 169 targets, countries have been asked to strengthen the collection of baseline data. Many developing countries will need to be supported through capacity building and technical assistance.

The 2017 edition of the Guide aims to inform you about the role of statistics in the development process. It provides you with information on the identification and development of actions to support statistics and the use of statistical indicators to define and follow-up on co-operation programmes, including sector policies.

The Guide has been designed as a dynamic interactive tool providing technical references and guidance on statistics, through nearly 2500 active hyperlinks to documents and further information.

It provides an overview of statistics in a wide range of sectors, from agriculture to social statistics, and from sustainable development indicators to business statistics. The presentation of data in different sectors covers key concepts and definitions, main statistics and indicators as well as typical challenges in each sector and recommended improvement actions.

Finally, the Guide is intended to help its readers to look for further information on statistics for development cooperation, including the main international initiatives, result management and indicators. It explains the organisation, functioning and products provided by the national statistical systems as well as the key international quality frameworks and principles.

I hope you will find the new, updated edition of the Guide useful and would encourage you to let us know if you think that we can improve it further.



Mariana Kotzeva

Acting Director-General, Eurostat

Acknowledgements

Eurostat is grateful to those who provided their contributions towards the compilation of this Guide. This tool is the result of the work of a task force initiated by the Eurostat Statistical Cooperation Unit, coordinated successively by Susana Martins and Mihaela Bogatu and supervised by Ceri Thompson. The main author and editor of the Guide has been Knut Utvik, Artemis Information Management S.A. The specific statistical domains covered in the Guide's Part D have been written by Virginia Balea, Willibald Croi, Marie-Noëlle Dietsch, Mathieu B. Djayeola, Neil Dourmashkin, Gaston L. N. Gohou, Nathalie Grand, Paddy Hillyard, Deborah Horn, Michel Houssiau, Antónia Huttl, Stéphane Quefelec, Deo Ramprakash, Liv Hobbelstad Simpson and Volker Stabernak.

Unit A3 would like to thank all the contributors to this Guide from DG Development and Co-operation - EuropeAid, DG Translation, EU Delegations and Eurostat for their support.

The layout and the interactive content of the Guide have been prepared by Mario Colantonio, Artemis Information Management S.A.

All statements on policies within this publication are given for information purpose only. They do not constitute an official policy position of European Commission and are not legally binding.

For more information:

Eurostat, the statistical office of the European Union,

Bâtiment Joseph Bech,
5 rue Alphonse Weicker
L-2721 Luxembourg

<http://ec.europa.eu/eurostat>

Unit A3: Statistical cooperation

ESTAT-STATISTICAL-COOPERATION@ec.europa.eu

Contents

Foreword	3
Acknowledgements	4
Part A: Introduction: The Guide to the Guide	15
A.0.1. Why a Guide to statistics in European Commission development co-operation and who should read it.....	15
A.0.2. What is in the Guide	16
A.0.2.1. Statistics in Development	16
A.0.2.2. Support for Statistics	16
A.0.2.3. Statistics for Development Policies	17
A.0.3. How to read the Guide	18
A.0.4. How the Guide is developed	19
Part B: Statistics in Development	25
B.1. Statistics for development co-operation.....	25
B.1.1. Millennium Development Goals.....	25
B.1.2. Sustainable Development Goals.....	26
B.1.3. National development strategies and the demand for statistics	28
B.1.4. Managing for Development Results.....	30
B.1.5. The follow-up of the Busan High Level Forum.....	39
B.1.6. EU development policies: the 'Agenda for Change', budget support, the European Consensus on Development...40	
B.2.1. Official statistics and their fundamental principles	47
B.2.1.1. Defining official statistics	47
B.2.1.2. The fundamental principles of official statistics.....	48
B.2.1.3. Legal framework for statistics.....	53
B.2.2. The statistical process	54
B.2.2.1. Main types of statistical operations.....	54
B.2.2.2. The statistical production process step by step	56
B.2.3. National Statistics Systems: who does what.....	56
B.2.3.1. Users of official statistics.....	56
B.2.3.3. Statistical data producers	58
B.2.4. The role of international and regional organisations with statistical activities	59
B.2.4.1. International organisations.....	59
B.2.4.2. Regional organisations.....	66
B.3. Statistics and indicators in the European Commission development aid process.....	71
B.3.1. The role and importance of statistics and indicators in the aid context	71
B.3.2. Typology of development indicators	72
B.3.3. Indicators and statistics in the European Commission development cycle.....	74
B.3.3.1. Statistics in Programming and development country attribution	74
B.3.3.2. Statistics and budget support	77
B.3.3.3. Statistics and Identification	77

B.3.3.4. Statistics and Formulation / Implementation.....	78
B.3.3.5. Statistics and Evaluation.....	78
B.3.4. Eurostat Indicators Database	80
B.4. Statistics across policy sectors	83
B.4.1. Sustainable Development Goals indicators.....	83
B.4.1.1. Beyond 2015 – Strategy for post-Millennium Development Goals	83
B.4.1.2. The Sustainable Development Goals, their targets and indicators.....	84
B.4.1.3. GDP and beyond – measuring progress, well-being and sustainable development.....	86
B.4.2. Indicators for poverty reduction strategies	87
B.4.3. European Commission policy intervention areas and related statistical activities	88
Part C: Support for Statistics	93
C.5. How to decide on a statistical action.....	93
C.5.1. The importance of National Statistical Systems.....	93
C.5.2. Assessing the capacity of the National Statistical System	96
C.5.3. The concept of quality in statistics.....	101
C.5.4. Looking at the National Statistical System as a whole.....	105
C.6. How to bring assistance to statistics.....	109
C.6.1. Statistical strategy	109
C.6.1.1. Why a Statistical Strategy.....	109
C.6.1.2. National Strategies for Development of Statistics	109
C.6.2. Capacity building in statistics.....	112
C.6.3. Co-ordinating with other programmes and other development partners.....	115
C.6.3.1. Co-ordinated financing for statistical capacity building	115
C.6.3.2. Co-ordination of partners and activities	117
C.7. The European Commission's support to statistics	121
C.7.1. Objectives for statistics actions: statistics as policy support.....	121
C.7.2. Matching outputs to objectives: the logical framework of a statistics action.....	121
C.7.3. Providing European Commission support for statistics	122
C.7.3.1. The European Commission's implementation instruments and statistics	122
C.7.3.2. Eurostat's role in supporting statistical capacity building in third countries.....	123
C.7.4. European Commission types of action in statistics	124
C.7.4.1. Overview.....	124
C.7.4.2. Support to the whole statistical system at national level	124
C.7.4.3. Support for large scale operations	125
C.7.4.4. Sector statistics support at national level	125
C.7.4.5. Strengthening regional statistics.....	126
C.8. How to manage statistics actions	131
C.8.1. Identification / Pre-feasibility	131
C.8.2. Feasibility / Formulation	133
C.8.3. Implementation	135
C.8.3.1. Start-up phase.....	135

C.8.3.2. Implementation phase	135
C.8.3.3. Final phase	136
C.8.4. Evaluation	136
C.8.5. Support in strategy and management; advocacy	139
C.8.6. Regional and sub-regional (multi-country) projects	141
C.8.6.1. Multi-country projects	141
C.8.6.2. Regional organisations with a statistical mission or component	142
C.8.6.3. Range of regional statistic projects	143
C.8.6.4. Institutional issues	145
C.8.6.5. Project issues	146
C.8.7. Statistical Training	147
C.8.8. Other methodological support	148
C.8.9. Support for IT in statistical capacity building	149
D.9. Introduction to sector statistics covered by the Guide	155
D.10. External trade and Balance of Payments	161
D.10.1. Policy applications: what this data is used for	161
D.10.2. Concepts and definitions	161
D.10.3. Sources of data and metadata	163
D.10.4. Analysing data quality and identifying problems	164
D.10.5. Improving sector statistics	166
D.11. National Accounts, Economic Accounts and the Non-Observed Economy	173
D.11.1. Policy applications: what this data are used for	173
D.11.2. Implementation of the System of National Accounts	175
D.11.2.1. Milestones for 1993 SNA implementation	175
D.11.2.2. Implementation strategies for the 2008 SNA	175
D.11.3. National Accounts concepts and definitions	177
D.11.3.1. Gross domestic product (GDP) and Gross national income (GNI)	177
D.11.3.2. The accounts for the institutional sectors and rest of the world	177
D.11.3.3. National Accounts with Supply and Use Tables (SUT)	178
D.11.3.4. National Accounts with Supply and Use Tables (SUT) in constant prices	178
D.11.3.5. Quarterly National Accounts	179
D.11.4. National Accounts statistical classifications	179
D.11.4.1. Classification for Industries and Products	179
D.11.4.2. Classification for Final domestic expenditure	179
D.11.5. Sources of data for the National Accounts compilation	179
D.11.5.1. Organisation of the statistics	179
D.11.5.2. Data sources for National Accounts	179
D.11.6. Analysing data quality and identifying problems	181
D.11.6.1. Specific quality issues for National Accounts	181
D.11.6.2. The “non-observed” economy	181
D.11.7. Improving the National Accounts	183

D.11.7.1. Organisation of the work.....	183
D.11.7.2. Comprehensive revisions.....	186
D.12. Price statistics.....	191
D.12.1. Policy applications of the data.....	191
D.12.2. Concepts and definitions.....	192
D.12.2.1 Overview	192
D.12.2.2 The Consumer Price Index.....	193
D.12.2.3 Harmonised Consumer Price Indices.....	195
D.12.2.4 The Producer Price Index.....	196
D.12.2.5 Import and Export Prices.....	197
D.12.2.6 Prices in the National Accounts	198
D.12.2.7 Purchasing Power Parities	198
D.12.3. Sources of data and metadata.....	198
D.12.4. Analysing data quality and identifying problems	199
D.12.4.1 The Consumer Price Index.....	199
D.12.4.2 The Producer Price Index.....	199
D.12.4.3 Import and Export Prices.....	200
D.12.4.4 Prices in the National Accounts	200
D.12.4.5 Purchasing Power Parities.....	200
D.12.5. Improving sector statistics	201
D.13. Business statistics.....	205
D.13.1. Policy applications: what this data is used for	205
D.13.2. Concepts and definitions.....	206
D.13.2.1. The main types of business statistics.....	206
D.13.2.2. The framework for business statistics.....	207
D.13.3. Sources of data	208
D.13.3.1. Collecting and compiling business statistics.....	208
D.13.3.2. International sources for business statistics	209
D.13.4. Analysing data quality and identifying problems	210
D.13.4.1. Specific quality issues for business statistics.....	210
D.13.4.2. The informal economy.....	211
D.13.5. Improving sector statistics	212
D.14. Environmental statistics.....	219
D.14.1. Policy applications: what this data is used for	219
D.14.2. Air – statistics on emissions to air and ozone depleting substances.....	220
D.14.2.1. Concepts and definitions.....	220
D.14.2.2. Sources of data	221
D.14.3. Air quality indicators	222
D.14.3.1. Concepts and definitions.....	222
D.14.3.2. Sources of data	224
D.14.4. Water – statistics on emissions to water and water resources	224

D.14.4.1. Concepts and definitions.....	224
D.14.4.2. Source of data	225
D.14.5. Water quality indicators	226
D.14.5.1. Concepts and definitions.....	226
D.14.5.2. Sources of data.....	229
D.14.6. Waste – statistics on waste generation, movements of hazardous wastes, recycling and disposal.....	229
D.14.6.1. Concepts and definitions.....	229
D.14.6.2. Source of data	231
D.14.7. Biodiversity and protected areas	232
D.14.7.1. Concepts and definitions.....	232
D.14.7.2. Source of data	232
D.14.8. Land cover and land use statistics.....	233
D.14.8.1. Concepts and definitions.....	233
D.14.8.2. Source of data	234
D.14.10. Improving sector statistics.....	238
D.15. Transport statistics	243
D.15.1. Policy applications: what transport data is used for.....	243
D.15.2. Concepts and definitions.....	244
D.15.3. Sources of data	245
D.15.4. Analysing data quality and identifying problems	246
D.15.5. Improving sector statistics	248
D.16. Human settlements and housing statistics	253
D.16.1. Policy applications: what housing data is used for	253
D.16.2. Concepts and definitions.....	253
D.16.3. Sources of data	255
D.16.4. Analysing data quality and identifying problems	256
D.16.5. Improving sector statistics	257
D.17. Agricultural, forestry and fishing statistics	261
D.17.1. Policy applications: what this data is used for	261
D.17.2. Concepts and definitions.....	261
D.17.2.1 Economic Accounts for Agriculture (EAA)	262
D.17.2.2. Agricultural Price Statistics (APS)	263
D.17.2.3 Agricultural structures (farm structure)	264
D.17.2.4 Agricultural production statistics (crop and animal production).....	265
D.17.2.5 Forestry statistics.....	265
D.17.2.6 Agri-environmental statistics.....	266
D.17.2.7 Fisheries.....	266
D.17.3. Sources of data and metadata.....	267
D.17.4. Analysing data quality and identifying problems	268
D.17.5. Improving sector statistics	269

D.18. Regional and small area statistics	275
D.18.1. Policy applications: what this data is used for	275
D.18.2. Concepts and definitions.....	276
D.18.3. Sources of regional data	280
D.18.4. Analysing data quality and identifying problems	280
D.18.5. Improving regional statistics	281
D.19. Government finance and public sector statistics.....	285
D.19.1. Policy applications: what this data is used for	285
D.19.2. Concepts and definitions.....	285
D.19.2.1. Accounting principles: Cash basis versus accrual basis	285
D.19.2.2. Guidelines for government finance statistics.....	286
D.19.2.3. The coverage of the government sector and of the public sector	286
D.19.2.2. The analytic framework	287
D.19.3. Sources of data and metadata	289
D.19.4. Analysing data quality and identifying problems	290
D.19.5. Improving sector statistics	291
D.20. Justice and crime statistics	297
D.20.1. Policy applications	297
D.20.1.1. The criminal justice system.....	297
D.20.1.2. What these data are used for.....	297
D.20.1.3. Types of justice and crime statistics.....	298
D.20.2. Sources of Data and Metadata: Data available from international sources	299
D.20.3. Quality aspects	300
D.20.4. Key issues in building a system	301
D.20.5. Data protection	302
D.21. Living conditions, poverty statistics.....	307
D.21.1. Policy applications: what this data is used for	307
D.21.2. Concepts and definitions.....	308
D.21.2.1. Measuring poverty through income and consumption needs.....	309
D.21.2.2. Statistics on living conditions.....	310
D.21.2.3. Measuring social inclusion/exclusion.....	310
D.21.2.4. Social indicators and development.....	311
D.21.2.5. Social situation indicators	311
D.21.3. Sources of data and metadata	311
D.21.4. Analysing data quality and identifying problems	313
D.21.5. Improving living conditions and poverty statistics.....	314
D.22. Population and migration statistics.....	319
D.22.1. Policy applications: the uses of this data	319
D.22.2. Concepts and definitions.....	319

D.22.2.1 Overview	319
D.22.2.2. Data sources: population registers; civil registration and vital statistics; and other data sources	320
D.22.2.3. Demography	322
D.22.2.4. International Migration Statistics	323
D.22.3. Sources of data and metadata	326
D.22.4. Analysing data quality and identifying problems	326
D.22.5. Improving sector statistics	327
D.23. Education statistics	331
D.23.1. Policy applications: what education data is used for	331
D.23.2. Concepts and definitions.....	333
D.23.3. Sources of data	335
D.23.4. Analysing data quality and identifying problems	338
D.23.5. Improving sector statistics	339
D.24. Health statistics	345
D.24.1. Policy applications: what this data is used for	345
D.24.2. Concepts and definitions.....	345
D.24.2.1 Overview	345
D.24.2.2 Administrative data on health.....	346
D.24.2.3 Sample surveys on health.....	347
D.24.2.4 Coordination: health information systems.....	348
D.24.2.5 Health statistics and the SDG indicators.....	349
D.24.2.6 Spending on health: System of Health Accounts	349
D.24.3. Sources of data and metadata.....	353
D.24.4. Analysing data quality and identifying problems	353
D.24.5. Improving sector statistics	354
D.25. Income and consumption statistics	359
D.25.1. Policy applications: what this data is used for	359
D.25.2. Concepts and definitions.....	359
D.25.2.1 Gross Domestic Product, Income and Expenditure approach	360
D.25.2.2. Income distribution	362
D.25.2.3 In-kind income.....	362
D.25.2.4 Income transfers	362
D.25.2.5 Measures of poverty.....	363
D.25.2.6 Consumption patterns.....	363
D.25.2.7 Consumer goods and durables.....	363
D.25.2.8 Household wealth and debts	364
D.25.2.9 Inflation and price level indices	364
D.25.3. Sources of data and metadata.....	365
D.25.4. Analysing data quality and identifying problems	366
D.25.5. Improving household statistics	366
D.26. Sustainable Development Indicators	371

D.26.1. Policy applications: what these indicators are used for.....	371
D.26.1.1 What is sustainable development?	371
D.26.1. European Union sustainable development policies.....	372
D.26.1.2 The role of indicators.....	373
D.26.2 Concepts and definitions.....	374
D.26.2.1 Policy driven approach.....	374
D.26.2.2 Conceptual frameworks.....	374
D.26.3 Sources of data and metadata.....	375
D.26.3.1. Sustainable Development Goal indicators.....	375
D.26.3.1. United Nations Commission on Sustainable Development (CSD) indicators.....	375
D.26.3.2. EU Sustainable Development Indicators.....	377
D.26.3.3. Examples of regional and national SDI frameworks.....	378
D.26.4. Analysing data quality and identifying problems	380
D.26.5. Improving sector statistics	381
D.26.5.1. EU SDI.....	381
D.26.5.2. Recommendations on how to construct a set of SDI	381
D.27. Labour market statistics	385
D.27.1. What this data is used for	385
D.27.2. Concepts and definitions.....	387
D.27.2.1. Background.....	387
D.27.2.2. Definitions.....	387
D.27.3. Data sources	392
D.27.4. Analysing data quality and identifying problems	393
D.27.5 Improving sector statistics	394
D.28. Social Protection	401
D.28.1. Policy applications	401
D.28.2. Sources of data and metadata: scope, limits, concepts, definitions and nomenclatures	403
D.28.3. Possible output of statistics and indicators	406
D.28.4. Data sources: content, limits and quality.....	406
D.28.5. How to build a statistical action in this sector	409

A Introduction: the guide to the Guide



Part A: Introduction: The Guide to the Guide

A.0.1. Why a Guide to statistics in European Commission development co-operation and who should read it

'I have no data yet. It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts...'

Sherlock Holmes in 'A Scandal in Bohemia' by Sir Arthur Conan Doyle, 1891

The purpose of the *Guide to Statistics in European Commission Development Cooperation* is to explain why statistics are important for development cooperation, how to use them and what needs to be done to make them available. It is not intended to be a course in statistics and statistical methods. Alternative and additional reading is shown in the **To find out more** box at the end of each section.

The Guide is the fruit of a close cooperation amongst Commission services and international stakeholders in statistical co-operation for development. It is principally aimed at supporting EU staff working in development cooperation, especially in EU delegations. However, it is also relevant to other actors in statistical development programmes. In particular, it aims to aid practitioners who need to know more about statistics in development cooperation context. This Guide explains why and how statistics are relevant to their work and what they need to do in various situations. It provides the information required for Commission staff to undertake the following tasks:

- Use statistical indicators to design and monitor development programmes;
- Identify and develop statistics support actions;
- Promote the use of statistics at each stage of the aid cycle;
- Advocate for early consideration of which statistics and indicators will be needed for implementation, evaluation and impact assessment (and what is required to obtain these).

The *Guide* aims to answer a few basic questions about development statistics:

- **Part A**, this *Introduction*, is a guide to when and how to consult the Guide
- **Part B: Statistics in Development** looks at why and how statistics enter the development process and how to understand and check data
- **Part C: Support for Statistics** considers when and how the European Community needs to act to make sure that good

quality statistics are available to support its development goals

- **Part D: Statistics for Policy Issues** looks at how statistics can be used and supported to achieve European Commission policy aims in the context of Commission sector policy areas.

If you think that **statistics are important but bread is more urgent**, please ask yourself on what information you base your answers to these questions: '**How much bread?**' and '**Where is it needed?**' Development fundamentally is about people and about eliminating poverty. In order to manage the process, it is essential to measure it. While statistics may not directly reduce poverty or hunger, they are an essential component of a complex process; without adequate statistical data it is by no means certain that actions to reduce poverty will be directed at the right problem, that they will be effective or that they will result in sustained improvements.

It is obvious that good and reliable statistics are necessary to donors, in order to assess where aid is most needed, to use resources efficiently, to measure progress and to evaluate results. There is broad consensus that the Sustainable Development Goals (SDGs) identify the desired outcomes as well as the means for measuring progress. Thus, statistics are vital to 'Managing for Development Results' with shared accountability and focus on results.

A key issue is the need for good country-specific and country-owned policies and institutions. Better statistical data and improved analysis can create a political will for changes. Without good statistics, governments cannot deliver efficient administration, good management, and evidence-based policy making. An effective and efficient national statistical system, providing regular and reliable data on the economy and the well-being of the population, is an important indicator of good policies and a crucial component of good governance.

Statistics also provide a means for the media, non-governmental organisations and any citizen to monitor the activities of government. The ability to provide regular and reliable data on the economy and the well-being of the population is an important indicator of good policies and institutions. When the statistical system produces quality data which is trusted by the public, transparency increases and accountability is promoted. The quality and availability of data depend on the capacity of the institutions involved in the national statistical system, which are often undervalued and underfunded.

Now read on, this *Guide* will help you find what you want to know.

A.0.2. What is in the Guide

A.0.2.1. STATISTICS IN DEVELOPMENT

Part B: Statistics in Development looks at why and how statistics enter the development process and how to read and check data.

Chapter B.1, Statistics for development cooperation, explains the increased demand for development statistics from a global policy perspective by examining the international initiatives which focus on performance measurement and results-based policy making. The initiatives covered are:

- Millennium Development Goals,
- Sustainable Development Goals
- National Development Strategies and the need for statistics,
- Managing for Development Results,
- Busan High Level Forum on Aid Effectiveness and the Global Partnership for Effective Development Co-operation
- Busan Action Plan for Statistics.

The discussion of the 'Agenda for Change', budget support and the European Consensus on Development places the global initiatives in a European context.

The outcome of these policy initiatives is increased demand for:

- indicators to measure progress toward policy goals,
- indicators to inform the preparation, monitoring and evaluation of individual policies and instruments,
- indicators to prepare, monitor and evaluate development actions.

Many, probably the majority, of these indicators are based on statistics.

Chapter B.2, How statistics are made, gives a minimally technical introduction to the production of statistics. Official statistics is a public good, consisting of data published by government agencies or by regional and international organisations such as the UN, together with explanations of how the data were compiled (metadata). The chapter looks at:

- the fundamental principles of statistics: what makes for useful data and legal framework for statistics;
- the process of statistics operations from analysis and design to dissemination of results;
- the institutional framework: the national statistical system and how it relates to users of statistics;
- the role of regional and international organisations in producing statistics and in standardising concepts and methods.

Chapter B.3, Statistics and indicators in the European Commission development aid process, examines the indicators used to inform the policies discussed in [chapter B.1](#). It places the various types of indicators used by the European Commission in the context of their use at each stage in the programme cycle and in reporting to provide visibility and accountability.

Chapter B.4, Statistics across policy sectors, then focuses on international policy-related indicators:

- Sustainable Development Goals (SDG) indicators,
- Indicators commonly used for Poverty Reduction Strategies.

It includes a cross-reference between the European Commission's policy sector definitions and statistical activities.

A.0.2.2. SUPPORT FOR STATISTICS

Part C: Support for Statistics considers when and how the European Commission needs to act to ensure that statistics are available to support its development goals. Part C is more applied and 'hands on' than Part B.

Chapter C.5, How to decide on a statistical action, considers support actions for statistics capacity and/or strengthening the demand for statistics. The chapter starts with a presentation of 'quality' in statistics: what should a developing country's statistical system be able to provide for its users? It then considers how to evaluate a country's statistics and the system that produces them. In passing, it explains how to construct the Commission's standard data tables.

Chapter C.6, How to bring assistance to statistics, provides guidance on whether and how to give support to statistics. It discusses the relationship of statistics strategy with national development and poverty reduction strategies and analyses the development and implementation of statistics strategies. The chapter also discusses capacity building in statistics, covering the link to statistical strategy documents and practical considerations.

Having looked at what is to be done, the chapter then moves on to examine in general how statistics actions are to be done. Coordination at various levels is addressed: who can do what and what needs to be done to ensure coherence and eliminate duplication?

Chapter C.7, The European Commission's support to statistics, starts at the point when the development partners accept that there is a need for external support to statistics. The chapter aims to inform the decision about whether and how the European Commission should be involved. It first considers the Commission's development statistics activities in the context of country / regional strategies and programmes, including any statistics strategy. It continues by looking at the purpose of statistics actions and how they are linked to the development objectives using the logical framework. The chapter finishes with a practical look at the various types of European Commission statistics interventions, showing links with policies, identifying areas of cooperation, listing examples and providing action points.

Chapter C.8, How to manage statistics actions, starts at the decision that a European Commission statistics intervention is justified to achieve the goals agreed with its development partners. This chapter presents guidance on how to prepare actions to support statistics capacity building and major statistical projects. It provides practical advice for preparing and evaluating terms of reference at each stage of the programme cycle.

A.0.2.3. STATISTICS FOR DEVELOPMENT POLICIES

Part D: Statistics for Policy Issues looks at how statistics can be used and supported for decision making and monitoring achievements in the context of European Commission sector policy areas.

Part D is organised according to the statistics activities defined in the **UNECE Classification of International Statistical Activities**. An overview of the correspondent policy areas defined by the **European Consensus on Development** can be found in **Box 9.1 (chapter D.9)**.

Each chapter follows a more or less standard structure, presenting statistics in the context of sector policies, followed by information on their use, quality analysis and any support required. The chapter structure is as follows:

1. Policy applications and the statistics to inform them
2. Sources of data and metadata
3. The limits of data and how to check data quality in the statistical activity
4. How to build a statistical action in the sector

Part D Statistics for Policy Issues cover the following statistical domains; organised according to the corresponding policy areas as defined by the European Consensus on Development (see **section B.1.5**) :

Trade and Regional Integration

- D.10 External trade and Balance of Payments
- D.11 National accounts, economic accounts and the non-observed economy
- D.12 Price statistics
- D.19 Government finance and public sector statistics (placed under the policy area 'Governance, Democracy, Human Rights and Support for Economic and Institutional Reforms' below)
- D.13 Business statistics

Environment, Sustainable Management of Natural Resources

- D.14 Environmental statistics

Infrastructure, Communications and Transport

- D.15 Transport statistics

Rural Development, Territorial Planning, Agriculture, Food Security

- D.16 Human settlements and housing statistics
- D.17 Agricultural, forestry and fishing statistics
- D.18 Regional and small area statistics

Governance, Democracy, Human Rights and Support for Economic and Institutional Reforms

- D.19 Government finance and public sector statistics
- D.20 Justice and crime statistics

Human Development

- D.21 Living conditions and poverty statistics
- D.22 Population and migration statistics
- D.23 Education statistics
- D.24 Health statistics
- D.25 Income and consumption statistics
- D.26 Sustainable development indicators

Social Cohesion and Employment

- D.27 Labour market statistics
- D.28 Social protection statistics

A.0.3. How to read the *Guide*

The aims in writing the *Guide* are:

- To present the material in a logical order, so that the *Guide to Statistics in European Commission Development Cooperation* can be read like a manual;
- To keep technical language to a minimum;
- To provide current references to more technical information, best practices and examples (wherever possible, these references are given as active hyperlinks);
- To help the user who has a specific question to find the information easily.

In order to make the user's task easier, there are text boxes at the start and end of each chapter. *The chapter in brief* box starts each chapter and provides a summary of one to two paragraphs. Most sections end with a box on *To find out more*, which provides references, hyperlinks and supporting information for further research.

The table of contents is provided in detail so that most key terms can be easily found. Hyperlinks are also provided to Eurostat's Concepts and Definitions Database (CODED) and OECD's Glossary of Statistical Terms, as well as to the International Statistical Institute's (ISI) Multilingual Glossary of Statistical Terms. At the end of the *Guide*, the user finds an extensive *Index* with active links to the places in the text where the specific terms appear.

Cross-referencing between chapters is necessary to allow the reader to enter the *Guide* at any point and to avoid repetition; automated cross-references between related topics can be found throughout the *Guide*.

The *Guide* is prepared primarily to be used as an electronic document, and is disseminated electronically in PDF format. To navigate through the text and find related information, the user can simply click on the interactive links from the *Table of Contents*, the *Index* or the cross-references given throughout the *Guide*. To consult external references over the Internet, the user just has to click on the hyperlinks in the text itself or in the 'To find out more ...' boxes. The user may also use the normal 'search' facility for PDF documents to find the information of interest, searching on specific keywords or key terms.

Here is an example of how a user might find the information sought by starting at his / her point of interest in the *Guide*:

- Budget support: index gives reference to [section C.8.1 How to manage statistics actions: Identification / Pre-feasibility](#). Cross-references are then followed to:
 - [section C.5.2 How to decide on a statistical action / Assessing the capacity of the National Statistical System](#)
 - and from there to [section C.6.1 How to bring assistance to statistics / Statistical strategy](#)

To find out more...

These boxes, provided at the end of most sections, summarise reference documents and in most cases give hyperlinks to them, e.g.:

- [Eurostat's Concepts and Definitions Database \(CODED\)](#)
- [OECD's Glossary of Statistical Terms](#)
- [International Statistical Institute's \(ISI\) Multilingual Glossary of Statistical Terms](#)
- [European Consensus on Development](#)
- [UNECE's Classification of International Statistical Activities](#)

A.0.4. How the *Guide* is developed

The Guide is being further developed to support its users in their work. Your views are therefore sought on its future. You may follow the development and the discussions around the Guide through the [interest group on the Guide and on statistics in development cooperation on 'Capacity4dev.eu'](#), EuropeAid's interactive platform to enhance knowledge through the exchange of practices on effective international co-operation. You are also encouraged to provide your comments and suggestions on the Guide by [e-mail to Eurostat's Statistical Cooperation Unit](#).

Compared to the previous version, this edition of the Guide has been updated according to user comments and the developments in international statistical co-operation and development co-operation. This concerns in particular Part B and Part C of the Guide. Specific issues that have been introduced in this edition of the Guide include:

- The adoption of the UN Resolution "Transforming our world: the 2030 Agenda for Sustainable Development", better known as the Sustainable Development Goals (SDGs)
- The establishment of a monitoring framework for measuring progress towards achieving the SDGs, comprising 230 indicators
- The adoption of the Paris Agreement on Climate Change by the Meeting of the Parties to the United Nations Framework Convention on Climate Change
- A number of other development policy and sector specific developments
- The hyperlinks to references, further information and other resources have been maintained and updated as required

An 'Outline of Knowledge' of main topics covered by the Guide is available through Eurostat's '[Statistics Explained](#)' website. The 'Statistics Explained' portal presents statistical topics and European statistics in an easily understandable way, completed by a statistical glossary and links to further information and the latest data and metadata. The [outline of knowledge of the Guide in 'Statistics Explained'](#) consists of a set of articles highlighting important topics of statistics in development co-operation, based on concise and easy-to-understand extracts from the Guide to statistics in European Commission development cooperation.

An e-learning training programme has been developed, focusing on how to use the Guide efficiently to address statistical issues faced when working in and with developing countries, from finding, assessing and using national statistics, via advocating for statistics as a vital element of good governance, to building general and sectoral statistical capacity.

The Guide can be freely downloaded from Eurostat's website on international statistical cooperation: <http://ec.europa.eu/eurostat/web/international-statistical-cooperation-tools/capacity-building-tools/the-guide>.

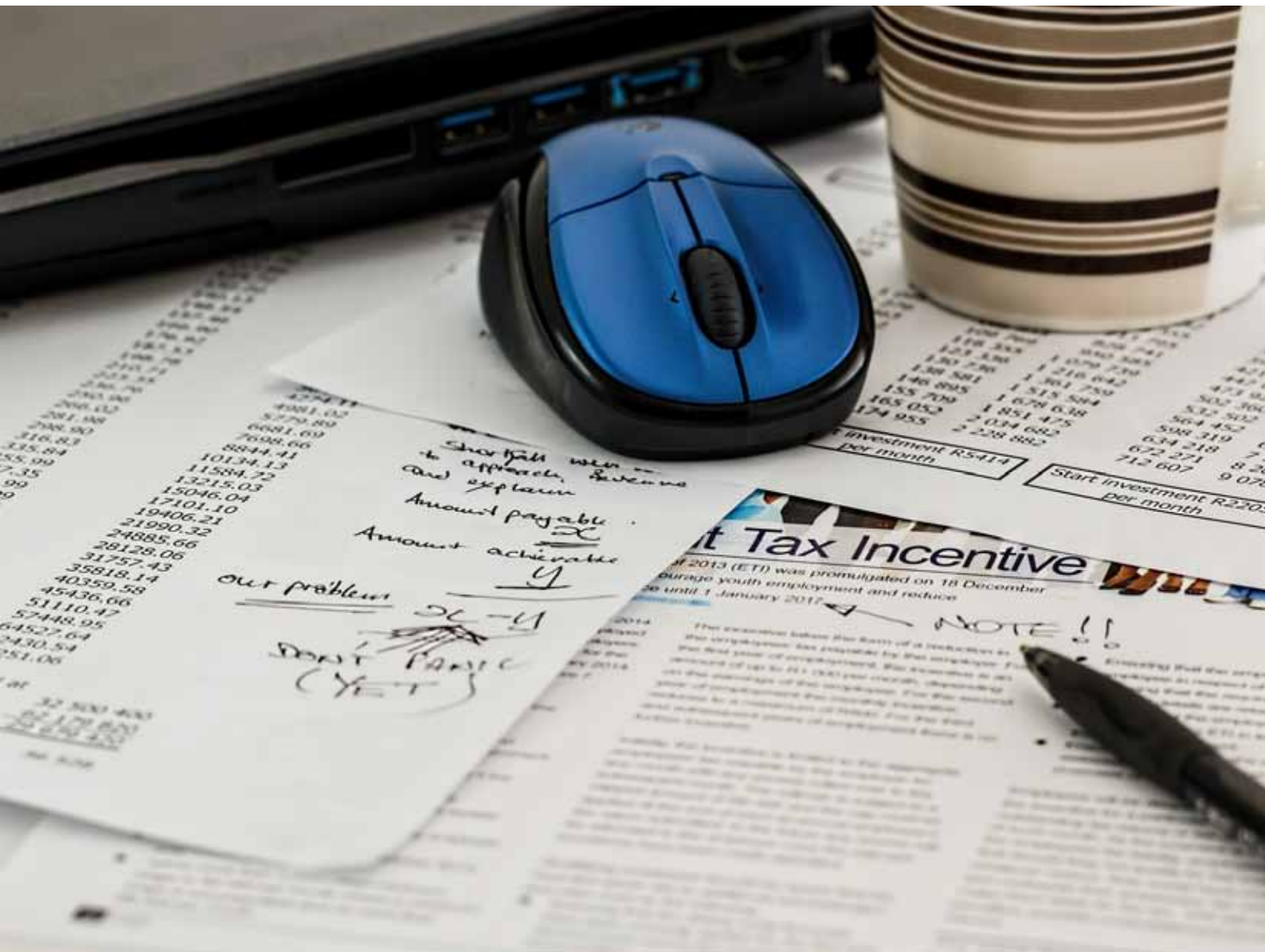
To find out more...

Please send comments, suggestions or requests for information on the Guide to:

ESTAT_STATISTICAL_COOPERATION@ec.europa.eu

B

Statistics in development



B.1

Statistics for development co-operation



Part B: Statistics in development

The chapter in brief

This chapter explains the increasing demand for statistics in developing countries by examining the international initiatives which focus on performance measurement and results-based policy making. It begins with the global approaches, covering the Millennium Development Goals, Poverty Reduction Strategies and Managing for Development Results, with a special focus on the outcomes of the Busan High Level Forum and on the Marrakech Action Plan for Statistics. The discussion of the 'Agenda for Change' places the global initiatives in a European context.

B.1. Statistics for development co-operation

B.1.1. MILLENNIUM DEVELOPMENT GOALS

The Millennium Declaration was signed in September 2000. It committed the 189 signatory nations to work together to achieve eight goals:

- Goal 1: Eradicate extreme poverty and hunger
- Goal 2: Achieve universal primary education
- Goal 3: Promote gender equality and empower women
- Goal 4: Reduce child mortality
- Goal 5: Improve maternal health
- Goal 6: Combat HIV/AIDS, malaria and other diseases
- Goal 7: Ensure environmental sustainability
- Goal 8: Develop a global partnership for development

The Millennium Development Goals (MDG) provided the agreed overall aims of development policy, to be reached by 2015. They formed a framework for development partners to work coherently towards common goals. The progress towards these targets was assessed through 21 quantifiable targets with 60 linked statistical indicators.

These indicators enabled regular monitoring of progress toward the MDG targets at national and global level. The UN Statistics Division provided a [concise overview over main regions and their progress towards the MDGs](#).

This core international policy agreement was innovative in that it brought measurement of outcomes and comparison of these across countries into the centre of development policy and practice. Making these measurements and drawing valid comparisons and conclusions are considerable challenges to statistics in developing countries (see [section B.4.1](#)). Managing

for Development Results, the Paris Declaration on Aid Effectiveness and the Marrakech Action Plan for Statistics are to a large extent initiatives that were born as the consequence of the demands for measurement of the MDG.

The Inter-Agency Expert Group on MDG indicators (IAEG), the United Nations Statistics Division (UNSD) and the UN Regional Commissions organised a [series of regional workshops on monitoring of the MDGs](#). These workshops addressed countries' needs in building capacity for production and analysis of MDG indicators and other development indicators. The workshops also provided information and advice on implementing international and national recommendations to improve the monitoring of MDG indicators. Some of the key recommendations of these workshops were:

- Effective coordination of national statistical systems. This involved a central role for the NSI, a national MDG monitoring committee, establishment of a national MDG database and efficient data transmission (SDMX recommended)
- Resolving discrepancies between national and international data. This involved documenting international and national methodologies and models (metadata), more efficient and coordinated data requests and data transmission (SDMX). It also included better notification systems when national data are modified by international agencies.
- Development of a MDG monitoring framework in countries, supported by the IAEG and its Partners, taking national characteristics into account.
- Improvement of the statistical capacity of the NSI and NSS, involving workshops, training seminars and establishment of metadata systems at national level.

The IAEG published an updated wiki on the MDG indicators in 2012, replacing the Handbook from 2003. This [wiki on "Indicators for Monitoring the Millennium Development Goals"](#) contains information on all 60 MDG indicators. The wiki was tailored to practical needs, focusing on methods to produce the MDG indicators, underlining that national sources should be used for compiling indicators when the required data are available and of reasonable quality. For each indicator, the wiki presents the definition of each MDG indicator, which MDG goal and target the indicator informed and the rationale behind it, with links to relevant publications and websites. The method of computation for each indicator is described, supplemented with information on the main data sources and the periodicity, as well as comments on the indicator and its limitations. There are also comments on specific disaggregation and gender issues.

To find out more...

about Millennium Development Goals:

- **MDG background:** <http://www.un.org/ga/president/61/letters/03-PGA-Background08Nov06.pdf>
- **Official list of MDG targets and indicators:** <http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Indicators/OfficialList.htm>
- **wiki on "Indicators for Monitoring the Millennium Development Goals" (2012)**
- **Asian Development Bank: Administrative data sources for compiling Millennium Development Goals and related indicators (2010)**
- **United Nations Economic Commission for Africa – African Centre for Statistics: Handbook on data sources and estimation of development indicators in African countries – Millennium Development Goals (2011)**
- **PARIS21's Task Team for Improved Statistical Support for Monitoring Development Goals carried out six case studies (a summary of the key conclusions of the MDG country studies and a summary of the MDG international study to complement the country case studies are also available)**

B.1.2. SUSTAINABLE DEVELOPMENT GOALS

The target year for the Millennium Development Goals was 2015. To build on the efforts towards achieving the MDGs and to continue to efforts to assure all people a better future, the international community joined forces to prepare an ambitious post-2015 development agenda. In June 2012, 20 years after the original 'Earth Summit' in Rio de Janeiro, the **UN Conference on Sustainable Development "Rio+20"** took place in Rio. The outcome document of the conference, entitled **"The future we want"**, was adopted by the UN General Assembly in July 2012 (see section B.4.1).

The principles agreed in the "The future we want" resolution formed a basis for the open process towards the development agenda post-2015. In July 2014, the UN General Assembly's Open Working Group on Sustainable Development Goals (SDGs) presented a proposal for new development goals, to be achieved by 2030. The proposal contained 17 main development goals, sub-divided into 169 concrete targets. These cover a broad range of sustainable development issues and build on the principles agreed in the "The future we want" Resolution.

The Sustainable Development Goals were formally adopted at the UN Sustainable Development Summit 25–27 September 2015 in New York, under the title **"Transforming our world: the 2030 Agenda for Sustainable Development"**. The SDGs focus on areas of critical importance for humanity and the planet, summarised in the following main headings:

- **People:** ending poverty and hunger;
- **Planet:** protection of the planet for future generations;
- **Prosperity:** ensuring that all human beings can enjoy a prosperous and fulfilling life in harmony with nature;

- **Peace:** societies free from fear and violence respecting human rights;
- **Partnership:** strengthening the spirit of global solidarity with the participation of all countries, all stakeholders and all people.

The SDGs balance the three dimensions of sustainable development: economic, social and environmental. The SDGs are global in nature and universally applicable. However, each government can set its own national priorities in the context of this framework. The 17 SDGs are:

- **Goal 1:** End poverty in all its forms everywhere.
- **Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
- **Goal 3:** Ensure healthy lives and promote well-being for all at all ages.
- **Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- **Goal 5:** Achieve gender equality and empower all women and girls.
- **Goal 6:** Ensure availability and sustainable management of water and sanitation for all.
- **Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all.
- **Goal 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- **Goal 9:** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- **Goal 10:** Reduce inequality within and among countries.
- **Goal 11:** Make cities and human settlements inclusive, safe, resilient and sustainable.
- **Goal 12:** Ensure sustainable consumption and production patterns.
- **Goal 13:** Take urgent action to combat climate change and its impacts.
- **Goal 14:** Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- **Goal 15:** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.
- **Goal 16:** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.
- **Goal 17:** Strengthen the means of implementation and revitalize the global partnership for sustainable development.

To monitor the progress towards these 17 goals and their 169 targets, a global monitoring framework that is both robust and simple is needed. In March 2015, the United Nations

Statistical Commission created an **Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs)**, composed of the statistical offices of 28 UN member states and including regional and international agencies as observers. Following internal and open consultations, the IAEG-SDGs presented its **Report to the 47th session of the UN Statistical Commission**. The existing MDG indicators were incorporated into this new framework. This global monitoring framework for the SDG, comprising some 230 indicators, was agreed by the UN Statistical Committee in March 2016.

The SDG indicators have initially been classified into 3 tiers, according to how developed the methodology is and to which extent the required data are available:

- **Tier I:** an established methodology exists and data are already widely available;
- **Tier II:** a methodology has been established but, the required data are not easily available;
- **Tier III:** an internationally agreed methodology has not yet been developed.

The list of SDG indicators, agreed upon by the UN Statistical Commission in March 2016, will be subject to refinements and improvements as methods and data availability improve.

The SDG monitoring framework comprises indicators at several levels:

- **Global indicators**, which form the core of all other sets of indicators;
- **Indicators at regional, national and sub-national levels**, developed by the UN member states to complement the global indicators, taking into account national circumstances;
- **Thematic indicators**, being developed in a number of areas.

Data will be produced by national statistical systems, ensuring national ownership. Countries are asked to strengthen collection of baseline data in order to better measure progress for each of the SDGs. A core element of the global indicator framework is the disaggregation of data and the coverage of particular groups of the population, in order to fulfil the main principle of the 2030 Agenda of “leaving no one behind”. Thus, statistical capacity building is essential for national statistical systems to meet the demands of the 2030 Agenda.

On 1 January 2016, the world officially began the implementation of the 2030 Agenda for Sustainable Development. In July 2016, the UN Secretary-General released the first “**Sustainable Development Goals Report**”, based on information provided by the SDG global indicators. This first report on the SDGs provides a baseline of where the world stands at the start of the efforts towards achieving the SDG. The SDG Report analyses selected indicators from the global indicator framework for which data are available. These serve as examples to highlight some critical gaps and challenges.

At the same time as this first SDG Report, the **Global SDG Indicators Database** was launched. This database presents country level data and global and regional aggregates compiled through the UN System and other international organisations.

The work of the IAEG-SDGs continues to support the implementation of the SDG indicators framework. This support includes the finalisation of the initial tier system for indicators, establishing a process for the refinement of indicators, reviewing and accompanying the work plans for Tier III indicators, assigning responsible agencies for the remaining indicators, reviewing the data flows from the national level to the regional and global levels and discussing best practices for delivery of data.

The United Nations has also established the World Data Forum, which met for the first time in Cape Town in January 2017. The UN WDF brings together public and private measurements experts, statistical producers, information system specialists, and users as well as all other key stakeholders to discuss data for sustainable development and further.

To find out more...

about Sustainable Development Goals and SDG indicators:

- UN Resolution 70/1 (2015) on “Transforming our world: the 2030 Agenda for Sustainable Development: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E
- The Sustainable Development Goals: <https://sustainabledevelopment.un.org/sdgs>
- Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) to the 47th session of the UN Statistical Commission (including list of proposed SDG indicators): <http://unstats.un.org/unsd/statcom/47th-session/documents/2016-2-SDGs-Rev1-E.pdf>
- Work of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs): <http://unstats.un.org/sdgs/iaeg-sdgs/>
- The SDG Indicators Global Database: <http://unstats.un.org/sdgs/indicators/database/>
- The SDG Indicators metadata repository: <http://unstats.un.org/sdgs/metadata/>

B.1.3. NATIONAL DEVELOPMENT STRATEGIES AND THE DEMAND FOR STATISTICS

Many developing and developed countries prepare medium-term national development strategies that seek to achieve and sustain economic growth, reduce poverty and usually increase employment. Other economic, social and increasingly environmental objectives are often incorporated. National development strategies have evolved into a means of quantifying medium term objectives to provide a framework for public policy. The quantification of medium term strategies has led to increased demand for statistics for policy preparation and monitoring.

The European Commission's Country Strategy Papers / Regional Strategy Papers (CSPs/RSPs) and National Indicative Programmes / Regional Indicative Programmes (NIPs/RIPs) are developed to follow and support the National Development Strategies in the developing countries. This is also the case for the EU Member States and for other development partners. The targets of the national strategies have become more quantified, in other words easier to measure both in terms of goals and in terms of progress. The donors are therefore increasingly requiring more, better and up-to-date statistics, in order to determine targets for aid, assess progress and to evaluate overall achievement.

National Development Strategies can take various forms. The World Bank-supported Poverty Reduction Strategies (PRSs), which cover around 70 low income countries, are one form of development strategy. PRSs are not applicable to middle income countries. Nevertheless, PRSs can be used as a general model of the demand for statistics for strategic planning and development. As such, they can also serve as useful models or inspiration for the increasingly widespread country-defined strategies for growth and development.

Poverty Reduction Strategies, summarised in the Poverty Reduction Strategy Papers (PRSPs), have formed the basis of all concessional lending by the World Bank Group (for development) and the International Monetary Fund (for macroeconomic stability) since September 1999. The PRSP was primarily used as the basis of multilateral processes such as debt reduction through the HIPC (Highly Indebted Poor Countries) mechanism. Thus, PRSPs have become a key instrument for low-income countries' relationships with the donor community. Their objective is to improve the impact of government policies on poverty reduction. They are nationally owned and prepared by governments through a participatory process that involves civil society and development partners, notably the World Bank and the International Monetary Fund.

A Performance Assessment Framework (PAF) is the core tool for the joint assessment by government and development partners of implementation of the national strategy and reform programme. The PAF is a government-owned document that prioritises reform measures and agreed targets in priority sectors within the national strategy. It provides a concise and verifiable set of indicators that is regularly revised

in line with progress. Most PRSPs have an associated PAF. The PAF and its implications for statistics are considered in section B.4.2.

PRSPs and other development strategies, such as National Development Plans, are structured to identify and specify country policies and activities that will support the country's overall economic and social goals. The logical framework of a PRSP, for example, is structured as follows:

- **Objectives:** the country's overall goals, such as economic growth; human development and poverty reduction; and good governance;
- **Development outcomes:** the policy objective - specific desired results to be attained;
- **Outputs:** the consequences of activities and policies;
- **Activities / policies:** actions to be undertaken in this framework.

In the process of promoting democracy and good governance, strengthening the statistical system and the quality of its statistics enhances the accountability of decision-makers, by giving parliaments, national auditors, media and citizens the chance to monitor performance. If the national statistics of a country are lacking quality, the national development strategy should highlight the support to statistics as a priority. However, the production of statistical data should not be a target in itself but should be supported as a means towards good governance. Advocacy for evidence-based decision-making is essential. From the donors perspective, statistics are also a tool for monitoring and evaluating the effectiveness of co-operation actions and therefore help them to achieve their commitments regarding the Managing for Development Results initiative (see section B.1.3.) and the Paris Declaration on Aid Effectiveness (see section B.1.4.).

Box 1.1: The policy framework of the Kenya Vision 2030 Medium-Term Plan 2008-2012

The Kenya Vision 2030 Program is Kenya's long-term development strategy, covering the period from 2008 to 2030. It aims to transform Kenya into a newly industrialised, "middle-income country providing a high quality life to all its citizens by the year 2030". The Vision 2030 is based on a 3-pillar structure, comprising an economic pillar, a social pillar and a political pillar. The Vision 2030 is to be implemented in successive five-year Medium-Term Plans. These plans are considered by the World Bank as fulfilling the requirements of a PRSP. Following the first Kenya Vision 2030 Medium-Term Plan, covering the period 2008-2012, the second Kenya Vision 2030 Medium Term Plan covered the period 2013-2017. The table below presents the policy framework of the first Kenya Vision 2030 Medium-Term Plan, showing the policy goals (development outcomes), the specific outputs required to attain these goals and the government activities and policies required to deliver the outputs. Many of the outputs are not measured by statistics, for example "Constitutional supremacy" (column 3 – political pillar). Other outputs are measurable, at least in principle: "Reduced illiteracy" (column 3 – social pillar) and "School enrolment rates" (column 3 – social pillar) are examples.

Objectives	Development Outcomes	Outputs	Activities / Policies
Economic pillar: Macroeconomic stability	Raise the national GDP growth rate to 10% by 2012	<ul style="list-style-type: none"> Improvement of six key sectors: tourism, agriculture, wholesale and retail trade, manufacturing for the regional market, business process off-shoring and financial services 	<ul style="list-style-type: none"> Development of Kenya's coast and new tourist sites Preparation and passage of consolidated agricultural policy and reform legislation Strengthening of the informal trade in order to raise the market share of products sold through formal channels Improvement of efficiency and competitiveness at firm level Providing business services via the Internet to companies and organisations in the developed world (attracting leading IT suppliers to Kenya) Facilitate the transformation of the banking sector mainly through the implementation of legal and institutional reforms Develop model for pension comprehensive reform
	Rise of national savings 5 further outcomes	
Social pillar: Building a just and cohesive society that enjoys equitable social development in a clean and secure environment.	Globally competitive education and training	<ul style="list-style-type: none"> Reduced illiteracy Increase access to education Improve transition from primary to secondary school Integration of special needs for education into learning and training institutions 	<ul style="list-style-type: none"> Integrating early childhood into primary education Roll out the "voucher system" in 5 poor districts Recruitment of more teachers for primary & secondary level Build and equip new secondary schools Reforming secondary curricula Modernizing teacher training Strengthening partnerships with the private Computer supply programme Increase of government's financial assistance to vulnerable groups 4 further actions ...
	High quality health care system 5 further outcomes...	<ul style="list-style-type: none"> Provision of robust health infrastructure network Improved access to health care Lower infant and maternal mortality Promotion of partnerships with the private sector in health care Access to health care for people excluded from health care for financial reasons 	<ul style="list-style-type: none"> Devolution of funds and management of health care to the communities and district medical officers De-link the Ministry of Health from health service delivery (concentration on health policy and research) Shift the bias of the national health bill from curative to preventive care Create a national health insurance system
Political pillar: Realizing a democratic political system	Administrative reform	<ul style="list-style-type: none"> Constitutional supremacy Sovereignty of the people Equality of citizens Respect of a core set of national values, goals and ideology Viable political party system Public participation in governance Separation of powers Decentralisation 	<ul style="list-style-type: none"> Enactment and implementation of the policy, legal and institutional framework for a market based economy Adoption of a core set of national values, goals and a political ideology for a market based economy Commitment to democracy and the rule of law No discrimination of citizens Code of conduct for public services and political parties Strengthening of public transparency and accountability Reforms in legislation, the Executive and the Judiciary
	Democratic decentralisation

To find out more...

about PRSs:

- World Bank's website: <http://www.worldbank.org/en/topic/poverty>
- The IMF's website gives an introduction to Poverty Reduction Strategy Papers and stores country documents at: <http://www.imf.org/external/np/exr/facts/prsp.htm>

B.1.4. MANAGING FOR DEVELOPMENT RESULTS

B.1.4.1. Overview

Since the [International Conference on Financing for Development in Monterrey \(2002\)](#), the development community has increasingly focused on measuring the results of development and changing actions to improve the outcomes. The [Marrakech International Round Table \(2004\)](#) endorsed five principles on 'managing for results' and issued an action plan that recommends specific national and international initiatives. (For more details on the principles of Managing for Development Results, see [section B.1.3.2.](#) below.)

The [Paris Declaration on Aid Effectiveness \(2005\)](#) defines managing for results as *"managing and implementing aid in a way that focuses on the desired results and uses information to improve decision-making"*. Partner countries commit to establish result-oriented reporting and assessment frameworks and to strengthen linkages between development strategies and budget processes, while donors commit to align with partner countries assessment frameworks, rely on partner country reporting and harmonise their monitoring and reporting requirements.

The [Hanoi International Round Table \(2007\)](#) has confirmed previous commitments, reviewed progress in their implementation and focused on creating capacity for managing for results. Communities of Practice were recommended as vehicles for country-level work on implementing practical aspects of the agenda.

The [Accra Agenda for Action \(AAA\)](#) from 2008 aimed at accelerating progress towards the objectives laid down in the Paris Declaration on Aid Effectiveness. It strengthens the donor's commitment to working through national systems in the recipient countries and increasing transparency and predictability. Conditions should be based on the developing country's own development objectives and restrictions on developing countries buying of goods and services relaxed. A strong focus is on increasing aid's value for money, through management for results. This involves capacity building, accountability and transparency, as well as enhanced cooperation and coordination with local governments and civil society organisations.

The [Fourth High Level Forum on Aid Effectiveness \(2011\)](#) took stock of the progress made since Accra in 2008. It has set out a new framework for increasing the quality of aid: the [Global Partnership for Effective Development Cooperation](#). Although the core function of the Global Partnership is to ensure political level accountability, there was a strong focus on results in the outcome document, on sustainable development, and on enhancing developing countries' capacities, aligned with the priorities and policies set out by developing countries themselves.

Several international initiatives were established in response to these global objectives, which include: PARIS 21, the Census Trust Fund, the International Household Survey Network, the DAC Joint Venture on Managing for Results, the MDG Indicators Expert Group, the Marrakech Action Plan monitoring committee.

At the African level, processes for promoting managing for results and the development of statistics are well established. The [African Statistical Coordination Committee \(ASCC\)](#) and [African Statistical Commission \(StatCom-Africa\)](#) are accompanied by the Africa Symposium on Statistical Development (ASSD) and the Forum of the African Statistical Development (FASDEV) which includes countries and donors. The [Reference Regional Strategic Framework for Statistical Capacity Building in Africa \(RRSF\)](#) was adopted in 2007 as a regional implementation framework for the Marrakech Action Plan for Statistics (MAPS). The RRSF is a key instrument for coordinating and mainstreaming statistics development in Africa towards managing for development results. Its overarching strategy is the design of National Statistical Development Strategies (see [chapter C.6.1](#)). The RRSF has generated a momentum for statistical development in Africa. Progress has been made regarding coordination of statistical activities in Africa, e.g. advocacy for statistics through the [African Charter on Statistics](#) and [African Statistics Day](#) celebrations, joint statistical capacity-building workshops and other activities, mainstreaming of gender in the NSS and their activities and [development of NSDS](#) within countries. A network of [RRSF coordinators at regional and national levels](#) has been created.

The [DAC \(OECD Development Assistance Committee\) Joint Venture on Managing for Results](#) has produced a [Sourcebook](#) of applications of the managing for results principles. It is also producing capacity assessment tools for national discussions on managing for results. To be effective, these externally driven efforts to build capacity require domestic demand to see results.

To find out more...

- 'Managing for Development's results' website: <http://www.mfdr.org/1About.html>
- [Paris Declaration on Aid Effectiveness \(2005\) and the Accra Agenda for Action \(2008\)](#)
- [The Fourth High Level Forum in Busan \(2011\)](#)

B.1.4.2. Principles of Managing for Development Results

The **Managing for Development Results (MfDR)** initiative was influenced by experience with the Poverty Reduction Strategies, outlined in [section B.1.2](#).

The Monterrey Conference on Financing for Development in 2002 called for "better measuring, monitoring and managing for results". To achieve this, reliable and relevant data are needed. The objectives of the meeting were to ensure that aid would be used as effectively as possible and that aid could be demonstrated to have an impact on policy objectives, especially the achievement of the Millennium Development Goals. The 'Managing for Development' approach was therefore developed to be "a management strategy focused on development performance and on sustainable improvements in country outcomes. It provides a coherent framework for development effectiveness in which performance information is used for improved decision-making, and it includes practical tools for strategic planning, risk management, progress monitoring, and outcome evaluation (1)".

Box 1.2: The principles of Managing for Development Results

The five principles of Managing for Development Results, to be used at all levels and within a variety of interventions (national, sector, program, project and organisation) are:

- Focusing the dialogue on results at all phases of the development process;
- Aligning programming, monitoring, and evaluation with results;
- Keeping measurement and reporting simple;
- Managing for, not by, results;
- Using results information for learning and decision-making.

To better manage their development processes towards desired outcomes, developing countries need better measuring, monitoring and managing for results: adopting results-based approaches to public sector management, building national capacity for results-based monitoring and evaluation and strengthening statistical capacity. Effective monitoring and evaluation (M&E) shows the extent to which specific activities or programs contribute to achieving national outcomes. M&E systems depend on careful definition of objectives and identification of indicators and measurement tools.

(1) Managing for Development Results "Emerging Good Practice in Managing for Development Results – Sourcebook", 3rd Edition (2008)

Box 1.3: Ten steps to a results-based monitoring and evaluation system

1. Conducting a readiness assessment
2. Agreeing on outcomes to monitor and evaluate
3. Selecting key indicators to monitor outcomes
4. Baseline data on indicators: *Where are we TODAY?*
5. Planning for improvement: Selecting results targets
6. Monitoring for results
7. Role of evaluations
8. Reporting findings
9. Using findings
10. Sustaining the monitoring and evaluation system within the organisation

Source: "Ten Steps to a Results-Based Monitoring and Evaluation System" by Jody Zall Kusek and Ray C. Rist (World Bank, 2004)

Box 1.4: Multiple levels on which monitoring and evaluation can be applied

- **Project level:** a relatively short term focussed endeavour, often by one donor organisation in co-operation with partner agencies;
- **Programme level:** a longer term endeavour of one or more donor agencies in co-operation with multiple partner agencies;
- **Sector level:** a sector-wide longer term programmatic approach with the involvement of multiple donors and sector-specific partner agencies;
- **Organisational level:** the whole of programmatic efforts of a single donor organisation, in co-operation with other donors and partner agencies
- **National country level:** the effects of all programming of international donors and national efforts (ODA and non-ODA) on development and poverty alleviation;
- **Regional level:** looking at the effects of specific region-wide interventions and policies and the summative information of nation-based statistics in order to compare regional development trends and patterns;
- **Global level:** looking at the effects of specific global interventions and policies and the summative information of nation-based statistics in order to identify global development trends and patterns;

Source: *Managing for Development Results "Monitoring and Evaluation: Enhancing Development Results"* (2007)

In general, **Statistical capacity** governs the ability to collect and use statistics to feed into the M&E system. Building public sector capacity to collect and use statistical data empowers countries as they seek to exercise stronger public management leadership.

Box 1.5: Results chain in results-based management

- Impact** The higher-order objective to which a development intervention is intended to contribute;
- Outcome** The likely or achieved short-term and medium-term effects of an intervention's outputs;
- Output** The products, capital goods and services which result from a development intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes;
- Activity** Actions taken or work performed through which inputs (such as funds, technical assistance and other types of resources) are mobilized to produce specific outputs;
- Inputs** The financial, human and material resources used for the development intervention.

Source: OECD/DAC "Glossary of Key Terms in Evaluation and Results Based Management" (2002)

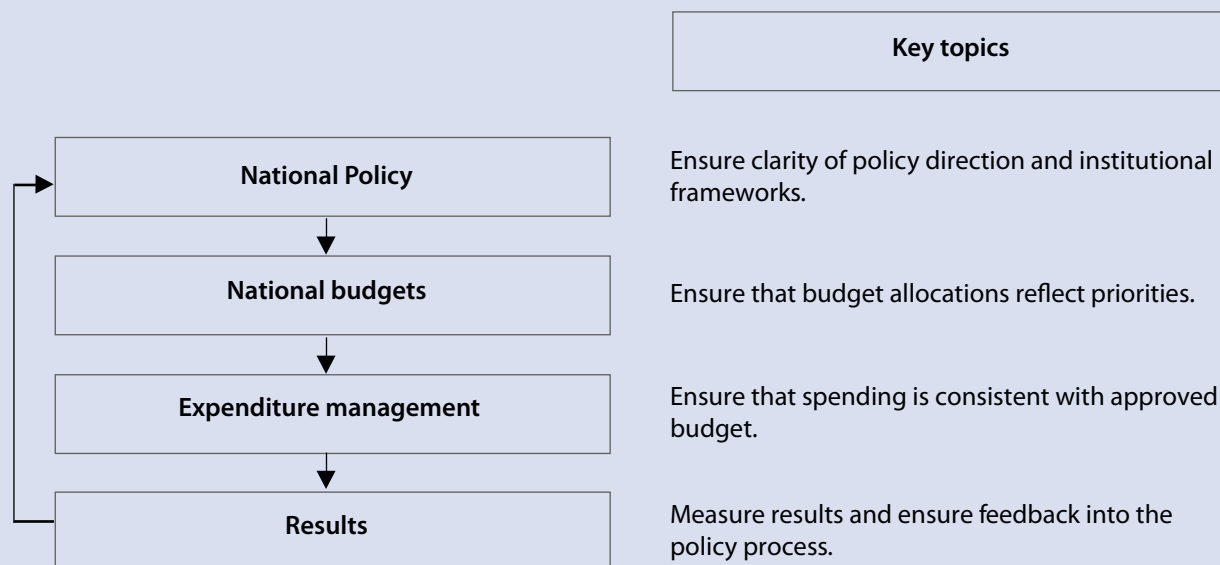
To find out more...

- About Managing for Development Results: <http://www.mfdr.org>. Detailed documentation is found in the [Sourcebook](#)
- Third Roundtable on Development Results, 2007: [Better Data for Better Results](#)

Management for Development Results therefore requires the systematic application of statistics to development. The "Managing for Development Results" initiative identified the **need for improved statistics** and so brought demand for statistics into the mainstream of development planning. The outcome was the Marrakech Action Plan for Statistics (MAPS).

Box 1.6 Budgeting and financial planning results

Source: *Managing for Development Results "Planning and Budgeting: Linking Policy, Planning and Budgeting"* (2007)



B.1.4.3. The statistical implications of Managing for Development Results

B.1.4.3.1. The Marrakech Action Plan for Statistics

The [Marrakech Action Plan for Statistics \(MAPS\)](#) is an agreed set of common principles and a work programme designed to support statistics systems so that they can fulfil the measurement needs of Managing for Development Results.

MAPS was an outcome of the 2004 second Managing for Development Results meeting of over 200 developing country and development agency representatives. The discussions focused on country level issues: harmonising monitoring and evaluation around national strategies and systems in order to provide useful reporting on results; donor coordination of support to planning and statistical systems; and monitoring and evaluation capacity that countries need to manage development.

The conclusions of the Marrakech meeting was a key input to the Paris Declaration on Aid Effectiveness principles on development progress to the planning and statistics systems.

Box 1.7: The Marrakech Action Plan for Statistics

The Marrakech Action Plan for Statistics (MAPS) defines six key actions to support statistics systems, so that they can provide the data needed for Managing for Development Results. These key actions are:

1. Promote strategic planning for developing statistical systems
2. Prepare for the 2010 census round
3. Increase investment in statistical systems
4. Set up an international network to better coordinate support for household surveys
5. Make immediate improvements in key areas, especially the MDGs
6. Improve coordination and accountability of the international statistical system

The Action Plan therefore identified the key actions in support of publicly available statistics that required international support. It was a mixture of strategic and policy actions (points 1, 3 and 6) and specific statistical actions (points 2, 4 and 5). Points 1-3 required action carried out at the national level; points 4-6 required international collaboration. Several important initiatives to strengthen statistics in developing countries emanated from these key actions:

1. Mainstream strategic planning of statistical systems

- Incorporate national strategies for the development of statistics (NSDSs) into strategic planning processes such as PRSPs and include them in the policy dialogue between developing countries and donors;

- Prepare NSDS for all low-income countries by 2006;
- Ensure that donor-specific statistical programs support national statistical plans;
- Continue advocating and providing training and financial support from PARIS21 and the [World Bank](#).

Response: The PARIS21 consortium promotes dialogue and advocacy for statistics and coordinates the development and implementation of the NSDS methodology. See [section C.6.1](#) for further information on NSDSs and PARIS21. PARIS21 has integrated NSDSs into strategic planning in its advocacy presentations and associated documents, notably: [Counting down poverty: The role of statistics in world development](#). On a technical level, the paper [Measuring Up to the Measurement Problem: The role of statistics in evidence based policy-making](#) addresses the issue largely in the context of the PMMP (Poverty Monitoring Master Plan - linked to the PRSP); there is also discussion of the MTEF (Medium Term Expenditure Framework). PARIS21 maintains [a list of NSDSs at various states of preparation and implementation](#).)

2. The 2010 Census Round

- Develop an overall strategy for funding and conducting censuses in low income countries. Research on census costs and operational methods should be made to determine practical measures to reduce costs and maximize timely dissemination and use of census results.
- Research in order to improve methods to estimate population regularly at national and sub-national levels.
- Assist national statistical offices to advocate regular censuses and to secure funding within countries and from the donor community.
- Build national technical capacity to develop management skills to prepare a strategy and a costed plan and discuss with donors and users.

Despite the use of modern information technology, censuses are large-scale operations and remain costly but need to be as cost-efficient as possible. The main costs components are census maps, population enumeration, data capture, processing, analysis, preparation of reports and dissemination. There is a fine balance between keeping census costs to a minimum and preserving the unique advantages of a census; unless sufficient resources are available at each stage of the census, the quality and value of the entire census can be jeopardized.

Response: These questions were addressed by the [United Nations Population Fund \(UNFPA\)](#), the UN Statistics Division [Census Knowledge Base](#) and, for Africa, by the [2006 Africa Symposium on statistical development](#). The [World Programme on Population and Housing Censuses website](#) covers information on when the 235 participating countries and areas carried out their censuses, the census methodological guidelines, the Census Knowledge Base

(including national experiences and know-how) and up-to-date news and information relating to the 2010 Census Round. Despite the name, in some countries the censuses of the 2010 Census Round were carried out as late as 2014; also in countries who carried out their census in or around 2010, the processing, analysis and dissemination of census data lasts several years. Population statistics are described in more detail in [chapter D.22](#).

3. Increase Financing for Statistical Capacity Building

- Integrate financing needs from different agencies and initiatives to make it easier for donors to see the full picture of needs and make reliable commitments.
- Bring donors together in an annual joint event and try to engage new donors.
- Existing statistical capacity building activities are largely part of investment projects in other sectors. Identify statistical capacity building projects better and link them with general budget support and Poverty Reduction Support Credits, using a strategic planning process.
- Support long-term statistical investment projects (see detailed action plan in reference). A balance is needed between grants, loans, and country resources.

Response: A concerted approach to planning and monitoring the increase in support to statistics was developed, called the 'Scaling up' of Statistical Capacity Building. This consists of two elements: a 'sector-wide' approach to statistics combined with pooled donor funding. The European Commission's position is that the two elements are sufficient: existing mechanisms can be used for the pooled funding. Corresponding to the concerted approach, a set of international financing instruments has been established: the [Trust Fund for Statistical Capacity Building \(TFSCB\)](#) provides grants to developing countries for statistical capacity building activities, especially for planning and development of a NSDS or similar mid-term statistics development plans; the [Statistics for Results Facility Catalytic Fund \(SRF-CF\)](#) is a multi-donor fund administered by the World Bank, providing grants mainly for implementation of the NSDS or similar statistical development plans according to a coordinated and sector-wide approach; [STATCAP](#) is a World Bank loan programme to finance statistical capacity building, normally financing the implementation of the NSDS or similar plan. These instruments are described in more detail in [Box 1.8](#) and in [section C.6.3](#).

Box 1.8: International financing instruments for statistical capacity building**Trust Fund for Statistical Capacity Building (TFSCB)**

The [Trust Fund for Statistical Capacity Building \(TFSCB\)](#) is a global grant facility. Its objective is to strengthen national statistical systems in support of poverty reduction strategies and other national and international development goals. This is done through sustainable improvement of the NSS's capacity to produce, analyse, disseminate and use timely statistics. TFSCB works to develop effective and efficient NSS and to promote evidence-based decision making and implementation.

TFSCB projects are relatively small and quick disbursing. Priority is given to countries eligible for support from the IDA and involved in the PRSP and NSDS process. TFSCB supports two major types of projects:

- preparation and updating of National Strategies for the Development of Statistics (NSDS);
- improving the statistical capacity in key priority areas within the framework of NSDS, regional or global strategies.

Statistics for Results Facility Catalytic Fund (SRF-CF)

The Statistics for Results Facility (SRF) aid the scaling up support for statistics. Its goal is to increase developing countries' capacity to formulate development policies and for evidence-based decision making. In support of this, the [Statistics for Results Facility Catalytic Fund \(SRF-CF\)](#) provides grants to:

- Stimulate support for implementing the NSDS or similar statistical development plan;
- Promote a system-wide approach in statistics at country level;
- Promote improved coordination and partnership between statistics users and producers;
- Deliver more efficient and effective aid and technical assistance for strengthening statistical systems and results measurement.

A country requesting support from the SRF-CF must have a national statistical plan (NSDS or similar) and be willing to establish a national partnership in statistics. Eligible countries must in particular agree to put into effect the [UN Fundamental Principles of Official Statistics](#), in particular to ensure that users have confidence in the quality and integrity of national statistics;

STATCAP

The Statistical Capacity Building Program [STATCAP](#) provides countries with loans to finance comprehensive or sectoral statistical capacity building projects, typically the implementation of a NSDS. STATCAP provides flexible financing, for meeting recurrent costs, financing investments and making best use technical support and advice. Each project is based on an assessment of the country's needs and existing capacity. Projects typically include actions to improve or strengthen:

- Statistical policy and the regulatory and institutional framework: legislation safeguarding independence and confidentiality, mechanisms for efficient management and coordination;
- Statistical infrastructure: the business register, sampling frames, classifications, database structures and geographic information systems;
- Statistical operations and procedures; Human resources; and
- Physical infrastructure and equipment.

The criteria for use of the STATCAP programme are:

- the preparation of an NSDS or statistical master plan;
- national commitment and leadership to strengthen the national statistical system;
- willingness to comply with good statistical practice;
- participation in global development and monitoring activities;
- use of sustainable implementation arrangements.

To assess progress, countries are encouraged to use frameworks such as the IMF's [General Data Dissemination System and Data Quality Assessment Framework](#), the [UN Fundamental Principles of Official Statistics](#).

4. Set Up an International Household Survey Network

- Organize a Household Survey Network to share information and mobilise international support for more efficient household surveys in developing countries.
- Develop recommendations for household-based economic and social data, taking into account multinational survey programs and developing countries' need to monitor their development.
- Work with experienced data archivists and data users to establish a global information centre containing household survey and metadata; establish good dissemination practices which promote analysis and research while protecting the confidentiality of survey respondents.

Response: The [International Household Survey Network \(IHSN\)](#) was set up as an informal partnership of international organizations seeking to improve the availability, quality and use of survey data in developing countries. Sample surveys play a critical role in supporting the planning, implementation and monitoring of development policies and programs. To target poverty reduction, one needs consistent and coherent household-based socio-economic data sets. IHSN provides a platform to better coordinate and manage socio-economic data collection and analysis. It provides support for efficient and effective approaches to conducting surveys in developing countries, providing methodologies, practical tools and guidelines for household surveys in developing countries. Key objectives of IHSN are:

- Improved [coordination of internationally-sponsored survey programs](#) with emphasis on timing, sequencing, frequency and cost-effectiveness;
- Provision of harmonized technical and methodological guidelines by the international community, in particular related to data collection instruments;
- Availability of a [central survey data catalogue](#) to better inform users of the availability of survey and census data from all sources;
- Provision of [guidelines and best practices for survey implementation](#) to foster documentation, dissemination and preservation of microdata according to international standards and best practices.

Furthermore, the [Accelerated Data Program \(ADP\)](#) helps countries improving their survey programs and increasing the use and value of survey data. ADP provides technical and financial support to documentation and dissemination of survey data, as well as for improving national survey methods. ADP helps developing countries to set up national survey databanks, as well as to define national data collection standards to improve comparability of data across different national sources. ADP is further described in [Box 5.2](#).

5. Urgent Improvements for MDG Monitoring by 2005

- A review of the principal indicators for poverty, education, health, the environment, and global partnership by expert groups from participating agencies, to recommend in 2004 to the MDG Indicators Expert Group improvements to the MDG indicators after 2005;
- Establish a small, interagency editorial board to work with the Office of the Secretary General on the production of a five year review of the MDGs in 2005;
- Provide training and tools to improve country understanding, capacity to monitor and to report on MDGs and other national goals.

Response: The MDGs, their targets and the linked statistical indicators are described in detail in [section B.1.1](#). A variety of organisations were engaged in training and monitoring capacity building. These activities to build and improve the monitoring framework for the global development policies and to strengthen countries statistical capacities were further strengthened in the years up to the MDG target date of 2015. This work is taken further in the post-2015 development agenda, as described in [section B.1.2](#) on the Sustainable Development Goals (SDG) and the SDG monitoring framework.

The “High-level Group for Partnership, Coordination and Capacity-Building for Post-2015 Monitoring” was founded at the 46th session of the UN Statistical Commission. Several EU Member States are members of this group. The High-level Group aims at establishing a global partnership for sustainable development data and consults closely with the IAEG-SDGs on issues related to statistical capacity-building and technical assistance. In particular, the group focusses on:

- Providing strategic leadership for the SDG implementation concerning statistical monitoring and reporting;
- Promoting national ownership of the post-2015 monitoring system and fostering capacity-building, partnership and coordination;
- Addressing the need of funding statistical capacity-building;
- Advising on how the data revolution can be harnessed to support the SDG implementation process;
- Reviewing and making recommendations, in cooperation with the IAEG-SDGs, on common (cross-country) data infrastructures to exploit the possibilities of new technologies;
- Promoting dialogue and partnerships between the statistical community and other stakeholders working on the implementation and monitoring of the SDGs and their targets.

6. Increase Accountability for the International Statistical System (See section B.1.4)

- Adopt statement of principles on international organizations' responsibilities in their official statistical activities. Submit statement to UN Statistical Commission, other interested parties. Encourage international agencies to adopt statement as core values guiding their activities;
- Improve interagency activity coordination: establish a core work program reporting mechanism for international agencies to allow an exchange of views on improvements needed;
- Collect information on international spending on statistical activities by agency, functional area and intended results. Hence, assess effectiveness and identify areas for additional resources.

Response: The UN's development of the Principles Governing International Statistical Activities in 2005 is covered in section B.2.1. The PARIS21 [Partner Report on Support to Statistics \(PRESS\)](#) provides details of donor support to statistics, which enables verification of their support to national statistical plans.

B.1.4.3.2. The Dakar Declaration on Development of Statistics

Subsequent to Marrakech, support for statistics development featured at the Third Roundtable on Managing for Development Results in Hanoi (2007) which focused in particular on statistical capacity building. Good progress was observed concerning the implementation of MAPS. Under the [Accra Agenda for Action \(AAA\)](#), developing countries committed to strengthen the quality of policy design, implementation and assessment by improving co-ordination and linkage of various sources of information, including national statistical systems, budgeting, planning, monitoring and evaluations of policy performance. Furthermore, aid would be made more transparent by facilitating parliamentary oversight and implementing greater transparency in public financial management. Statistics are central to MfDR, but higher quality is needed. Three main lessons learned were a reaffirmation of the relevance and need for continuing implementing MAPS, the need to increase funding on NSDSs (including funding from the countries themselves) and an emphasis on the importance of disseminating to the public.

In November 2009, the participants to the PARIS21 Consortium meeting adopted the [Dakar Declaration on the Development of Statistics](#), recognising that a lot had been achieved since 2000 to improve the monitoring of the Millennium Development Goals, but that much still remained to be done to deliver the vision of the Marrakech Action Plan for Statistics (MAPS).

B.1.4.3.3. The Busan Action Plan for Statistics

The Busan High-Level Forum on Aid Effectiveness (2011) noted the need for transparent, country-led and country-level results frameworks, based on a manageable number of output and outcome indicators. In support of the objectives of greater transparency, accountability and sustainable results, the Busan HLF endorsed a renewed action plan for statistics, the '[Busan Action Plan for Statistics](#)'. This action plan builds on the success of the Marrakech Action Plan for Statistics over the last decade, while providing directions for the coming decade.

The [Busan outcome document](#) recorded the following commitment:

"We will partner to implement a global Action Plan to enhance capacity for statistics to monitor progress, evaluate impact, ensure sound, results-focused public sector management, and highlight strategic issues for policy decisions."

The Busan Action Plan for Statistics recognises the complementary roles of developing countries, bilateral development partners, and international agencies and encourages a co-ordinated, system-wide approach to capacity development. The goal is to establish statistical systems that produce high-quality statistics that are relevant to policy makers and accessible to citizens. These statistical systems should be sustainable with the resources available domestically and, where needed, from external sources.

The Busan Action Plan for Statistics proposes five broad actions, which aim to produce large and sustainable improvements in statistical capacity:

Action 1: Strengthen and re-focus national and regional statistical strategies with particular emphasis on improving statistical systems that address country-level development priorities. A key aim is to increase in-country capacity to respond to emerging and unforeseen needs. Strategies should be updated to reflect new challenges and opportunities and integrate international and domestic data collection activities.

Action 2: Implement standards for data preservation, documentation, and dissemination that permit broader public access to statistics.

Action 3: Develop programs to increase the knowledge and skills needed to use statistics effectively for planning, analysis, monitoring, and evaluation, thus increasing transparency and accountability and improve accessibility of statistics at the national and international levels.

Action 4: Build and maintain results monitoring instruments to track outcomes of all global summits and high level forums. Rigorous monitoring of global initiatives requires collaboration between national and international statistical organizations. Outcome documents should specifically recognize the need for statistical capacity

development, including technical assistance, training, and financial support.

Action 5: Ensure financing for statistical information is robust and that funding instruments and approaches reflect the new modalities and actors in development finance.

The implementation of the Busan Action Plan for Statistics requires substantial effort and investment across the range of development actors, with developing countries playing an important leadership role.

PARIS21 and the World Bank prepared a [plan for implementation of the Busan Action Plan for Statistics](#), presented to the 43rd session of the United Nations Statistical Commission (2012). PARIS21 and the World Bank also coordinate and work with relevant agencies to ensure that accountabilities are determined and indicators monitoring progress are established. Progress is reported through the Global Partnership for Effective Development Cooperation. The United Nations Statistical Commission will play an important role in ensuring that this work remains a priority for the statistical community; it will receive biennial progress reports.

To find out more...

Main international initiatives for the development of statistics

- [Managing for Development Results: Marrakech Action Plan for Statistics \(2004\)](#)
- [PARIS21: Dakar Declaration on Development of Statistics \(2009\)](#)
- [Busan High Level Forum on Aid Effectiveness: Busan Action Plan for Statistics \(2011\)](#)
- [PARIS21 and the World Bank: Implementation of the Busan Action Plan for Statistics \(2012\)](#)

Key resources and documents

- [International Household Survey Network](#)
- [Accelerated Data Programme](#)
- [United Nations Population Fund \(UNFPA\)](#)
- [UN Statistics Division: Census Knowledge Base](#)
- [World Programme on Population and Housing Censuses website](#)
- [2006 Africa Symposium on statistical development](#)
- [Reference Regional Strategic Framework for Statistical Capacity Building in Africa \(RRSF\)](#), the [RRSF website with national coordinators](#) and the [AfDB RRSF website](#)

International financing instruments for statistical capacity building

- [Trust Fund for Statistical Capacity Building \(TFSCB\)](#)
- [Statistics for Results Facility Catalytic Fund \(SRF-CF\)](#)
- [STATCAP Statistical Capacity Building Program](#)

Mainstreaming strategic planning of statistical systems – advocating for statistics

- [PARIS21: Counting down poverty: The role of statistics in world development](#)
- [PARIS21: Measuring Up to the Measurement Problem: The role of statistics in evidence based policy-making](#)

B.1.5. THE FOLLOW-UP OF THE BUSAN HIGH LEVEL FORUM

B.1.5.1. Busan follow-up process

The Busan outcome document mandated the Working Party on Aid Effectiveness to agree on working arrangements of the Global Partnership for Effective Development Cooperation. The Post-Busan Interim Group was formed in early 2012 for this purpose. The Working Party on Aid Effectiveness held its final meeting in Paris on 28-29 June 2012 and endorsed the Global Partnership Mandate and governance and the global monitoring framework negotiated by the Post-Busan Interim Group. The meeting also endorsed a common open standard for publication of information on the development cooperation resources. The agreed standard brings together the existing standards of the [International Aid Transparency Initiative \(IATI\)](#) and the [standards of the OECD Development Assistance Committee \(DAC\)](#). This delivers one of the key commitments agreed in Busan and donors, including the European Commission, have to draw their individual implementation schedules of the standard by the end of the year.

The Working Party on Aid Effectiveness ceased to exist after the June 2012 meeting and the Global Partnership will carry out the Busan follow-up work. In this context, the global monitoring framework tracks progress on the commitments and actions agreed in 2011 at the Fourth High Level Forum on Aid Effectiveness.

B.1.5.2. Mandate and governance of the Global Partnership

The core function of the Global Partnership is to ensure political level accountability and support to the implementation of Busan commitments at the country level. The main forum of the Global Partnership is a ministerial level meeting organised every 18-24 months. These meetings are open to all stakeholders that have endorsed the Busan outcome document. The first one took place in Mexico City on the 15-16 April 2014.

The governance body of the Global Partnership consists of a Steering Committee that prepares the agendas of ministerial meetings based on country level evidence and topics relevant to Busan follow-up. Donors are represented in the Steering Committee, as are partner countries, emerging economies, multilateral banks, civil society organisations, private sector and parliaments.

The OECD Secretariat and the UNDP provide a joint support team to the Global Partnership both at the global and country levels. The key activities are related to monitoring and analysis of evidence as well as to supporting country level accountability frameworks, the latter particularly through UNDP country offices.

B.1.5.3. Global monitoring framework

The [global monitoring framework](#) includes ten indicators. These indicators do not cover all the Busan commitments, but focus on some key commitments: country results frameworks, enabling environment for civil society, engagement of private sector, transparency, predictability, aid as part of national budgets approved by parliaments, mutual accountability frameworks, gender equality, effective institutions (including quality and use of country systems) and untied aid.

The approach to the global monitoring changes from the one applied in the Paris Declaration monitoring process. While Paris surveys (2006, 2008, 2010) were conducted as globally managed processes, Busan monitoring is going to rely on information collected through country level accountability frameworks and existing global datasets covering the agreed ten indicators. Information available from these sources will be put together and analysed together with qualitative data by the OECD/UNDP joint support team. The evidence is collected for and debated in the ministerial meetings.

The global monitoring framework endorsed in the final Working Party meeting contains the indicator headlines (e.g. themes) and targets. The indicator details are defined. There are two groups of indicators. Five are measured using information collected from individual developing countries and aggregated to offer a global overview of progress, while the remaining five indicators rely on other existing global processes or desk reviews.

Participation in the global monitoring is voluntary, however, all development stakeholders, including South-South providers, are encouraged to participate in it.

B.1.5.4. Country level implementation of Busan commitments

As agreed in Busan, implementing aid and development effectiveness commitments should focus at the country level. Partner country leadership in setting local priorities as well as establishing and strengthening accountability frameworks is elemental in this work.

Implementing Busan commitments and supporting partner country leadership requires both individual and collective efforts from the side of development partners. The EU and Member States can be key stakeholders in this work and should continue strengthening their collective action at the country level. The EU and Member States have in place a broad spectrum of guidance for this purpose: the EU Common Position for Busan, the Operational Framework on Aid Effectiveness and the [EU Code of Conduct on Complementarity and Division of Labour](#). In line with the Busan outcome document and Council Conclusions on the Agenda for Change, the collective action of the EU and its Member States could bring particular added value in the following themes:

Country-Level Results Frameworks: Rely to the maximum extent possible on country-level results frameworks as tools to monitor outputs and outcomes drawn from the development goals of partner countries.

Mutual Accountability Frameworks: Country-level mutual accountability frameworks capture local priorities on aid and development effectiveness.

Reduced Fragmentation and Joint Programming: Support country level predictability and transparency - and therefore also accountability.

Busan Building Blocks: the Busan High Level Forum introduced eight Building Blocks, which are voluntary alliances taking Busan commitments forward. Several of the Building Blocks are currently planning pilots in different partner countries. The eight Building Blocks are:

- Fragile States
- South-South Cooperation
- Public Private Cooperation
- Climate Finance
- Transparency
- Effective Institutions and Policies
- Results and Accountability
- Managing Diversity and Reducing Fragmentation

To find out more...

about the [Busan High Level Forum on Aid Effectiveness](#) and its follow-up:

- [The Busan Action Plan for Statistics](#)
- [The Global Monitoring framework](#)

B.1.6. EU DEVELOPMENT POLICIES: THE 'AGENDA FOR CHANGE', BUDGET SUPPORT AND THE EUROPEAN CONSENSUS ON DEVELOPMENT

B.1.6.1. 'Agenda for Change'

The European Commission Communication (COM(2011) 637) '[Increasing the impact of EU Development Policy: an Agenda for Change](#)' underlines that the EU aims to help create growth in developing countries, enabling them to lift themselves out of poverty. EU aid focuses on sectors that create a basis for inclusive and sustainable growth, including:

- Good governance, including respect of human rights and democracy; gender equality, role of civil society and the fight against corruption,
- Social protection, health and education,
- Supporting a favourable business environment and deeper regional integration,
- Sustainable agriculture and clean energy, helping to provide safeguards against external shocks and turn challenges of food security and climate change into opportunities for growth.

To ensure best value for money, this is accompanied by differentiated development partnerships, coordinated EU action and improved coherence among EU policies.

Box 1.9: The main points of the 'Agenda for Change'

- An increased share of EU country and regional cooperation programmes dedicated to the policy priorities of (i) human rights, democracy and other key elements of good governance and (ii) inclusive and sustainable growth for human development;
- The concentration of EU activities in each country on a maximum of three sectors;
- An increased volume and share of EU aid to the countries most in need and where the EU can have a real impact, including fragile states;
- Enhanced importance of human rights, democracy and good governance trends in determining the mix of instruments and aid modalities at country level;
- Continued support for social inclusion and human development through at least 20% of EU aid;
- A greater focus on investing in drivers for inclusive and sustainable economic growth, providing the backbone of efforts to reduce poverty;
- A higher share of EU aid through innovative financial instruments, including under facilities for blending grants and loans;
- A focus on helping reduce developing countries' exposure to global shocks such as climate change, ecosystem and resource degradation, and volatile and escalating energy and agricultural prices, by concentrating investment in sustainable agriculture and energy;
- Tackling the challenges of security, fragility and transition;
- Joint EU and Member States response strategies based on partners' own development strategies, with a sectoral division of labour;
- A common EU results reporting framework;
- Improved Policy Coherence for Development, including through new thematic programmes that build synergies between global interests and poverty eradication.

The 'Agenda for Change' underlines that the EU must target its resources where they are needed most to address poverty reduction and where they could have greatest impact. While grant-based aid should not feature in cooperation with more advanced developing countries already on sustained growth paths, many developing countries remain heavily reliant on external support to provide basic services to their people. In between, there is a spectrum of situations requiring different policy mixes and cooperation arrangements. A differentiated EU approach to aid allocation and partnerships is therefore key to achieving maximum impact and value for money. The EU should also continue to recognise the particular importance of supporting development in its own neighbourhood and in Sub-Saharan Africa. It should, in all regions, allocate more funds than in the past to the countries most in need, including fragile states.

More precisely, EU development assistance should be allocated according to:

- Country needs: assessed using several indicators, taking into account, inter alia, economic and social/human development trends and the growth path as well as vulnerability and fragility indicators.

- Capacities: assessed according to a country's ability to generate sufficient financial resources, notably domestic resources, and its access to other sources of finance such as international markets, private investment or natural resources. Absorption capacities should also be considered.
- Country commitments and performance: positive account should be taken of a country's investment in education, health and social protection, its progress on the environment, democracy and good governance, and the soundness of its economic and fiscal policies, including financial management.
- Potential EU impact: assessed through two cross-cutting objectives:
 - Increasing the extent to which EU cooperation could promote and support political, economic, social and environmental policy reforms in partner countries;
 - Increasing the leveraging effect that EU aid could have on other sources of finance for development, in particular private investment.

The EU should also try to further improve the effectiveness of the aid it delivers. This can be done by making sure that Member States and the European Commission jointly prepare their strategies and programmes and better divide labour amongst themselves, in order to increase aid effectiveness.

Furthermore, EU will explore innovative ways of financing development, like the blending of grants and loans. It should also improve the coherence of its internal and external policies: European action in many areas like environment, trade, climate action, etc. affects development countries. Here, the overall impact of EU development policy can still be improved.

More detailed and up-to-date information on the 'Agenda for Change' and the connected policies and initiatives can be found on [EuropeAid's 'Agenda for Change'](#) website and in the [Development Policy topic in EuropeAid's capacity4dev.eu online community](#).

In the Communication "[A Decent Life for All: Ending poverty and giving the world a sustainable future](#)", adopted in June 2014, the Commission lays out a common approach for the EU in key international processes for development, such as the MDG Review and formulation of Sustainable Development Goals. It elaborates the EU's vision for a universal post-2015 agenda to eradicate poverty and promote sustainable development, including key principles, priority areas, potential target topics and the need for a new global partnership.

B.1.6.2. EU budget support to third countries

In October 2011, alongside the 'Agenda for Change', the European Commission also presented its Communication '[The future approach to EU budget support to third countries](#)' (COM(2011) 638). This Communication outlined reforms to the EU approach to budget support. It introduces budget support:

"Budget support involves policy dialogue, financial transfers to the national treasury account of the partner country, performance assessment and capacity-building, based on partnership and mutual accountability. It should not be seen as an end in itself, but as a means of delivering better aid and achieving sustainable development objectives by fostering partner countries ownership of development policies and reforms, as well as by implementing the aid effectiveness agenda and commitments set out in the Monterrey Consensus (2002), the European Consensus on Development (2005), the Paris Declaration on Aid Effectiveness (2005), and the Accra Agenda for Action (2008)."

A significant share of EU aid is delivered in the form of budget support: financial transfers to government budgets in developing countries, coupled with policy dialogue, performance assessment and capacity building. The 'Future approach to EU budget support' Communication presents improvements and refinements of the European Commission approach to budget support, making it more effective and efficient in delivering development results by strengthening the contractual partnerships with developing countries. To this end, this approach provides three different categories of budget support programmes:

- "Good governance and Development contract" will be set up for providing general budget support where the partner country can demonstrate a commitment to fundamental values. The EU will put more emphasis on human rights, democracy and the rule of law through a focus on dialogue with partner countries, creating incentives for reform and asking countries to commit to fundamental values.
- The promotion of sector service delivery will go through "Sector reform contracts". Sector budget support remains a useful tool even when the conditions do not exist to permit the use of a Good Governance and Development Contract.
- Budget support will be used in fragile countries on a case by case basis to ensure vital state functions and support the transition via "State Building contracts".

Budget support should contribute to the fight against corruption and fraud, and help countries to build their own financial resources, in order to reduce dependence on aid in the long run.

Box 1.10: Budget Support to address key development challenges and objectives

Budget support is provided as a "vector of change" to address five key development challenges and objectives:

- Promoting human rights and democratic values,
- Improving financial management, macroeconomic stability, inclusive growth and the fight against corruption and fraud,
- Promoting sector reforms and improving sector service delivery,
- State building in fragile states and addressing the specific development challenges of small island development states (SIDS) and overseas countries and territories (OCTs) and
- Improving domestic revenue mobilisation and reducing dependency on aid.

The European Commission generally provides budget support using a combination of fixed tranches linked to eligibility criteria, and variable tranches that are also linked to progress in meeting agreed targets in for example health, education, or public financial management. The European Commission's [Guidelines for Budget Support](#) were updated in September 2012, reflecting the orientations set out in the new Budget Support Communication.

Budget support relies on a framework for conditionality and on policy dialogue, thus there is a need for baseline information to start the process. Reliable information on development results is needed to efficiently measure the performance of budget support both at general and at sector policy level. Reliable indicators are necessary to verify the extent to which variable budget support tranches can be disbursed; these indicators generally rely on statistics, thus the quality of the underlying statistics is crucial (see section C.5.3).

Quality statistics should be at the heart of budget support methodology, providing an informed baseline framework. Quality statistics also provide a basis to advocate for evidence-based decision-making with partner countries.

The section "[Budget support and dialogue with partner countries](#)" on EuropeAid's website provides more up-to-date information on European Commission budget support policies and modalities.

B.1.6.3. The European Consensus on Development as a framework for development policy

The 2005 European Consensus on Development presented the European Commission's and EU Member States' common vision on development. The EU signed the Millennium Declaration, which formed the basis for the Millennium Development Goals, a critical element of the EU development approach. The EU also had an instrumental role in shaping the 2030 Development Agenda and the Sustainable Development Goals. The SDGs take account of EU priorities for its continued support of developing countries.

The second part of the European Consensus lays out 'the European Community Development Policy to guide implementation.' The Community will concentrate on areas where it has comparative advantages. These are:

- trade and regional integration,
- the environment and the sustainable management of natural resources,
- infrastructure, communications and transport,
- water and energy,
- rural development, territorial planning, agriculture and food security,
- governance, democracy, human rights and support for economic and institutional reforms,
- conflict prevention and fragile states,
- human development, and
- social cohesion and employment.

The European Consensus on Development identifies (paragraph 115) a central role for statistics: 'The Community will consistently use an approach based on results and performance indicators. Increasingly, conditionality is evolving towards the concept of a 'contract' based on negotiated mutual commitments formulated in terms of results.' Indicators, many based on data, are to be used to allocate funds between countries, to observe progress toward policy goals, specifically on progress on the MDGs (paragraphs 15 and 95) and to monitor development activities, including specifically monitoring the budget support instrument (paragraph 114).

In addition, paragraph 15 notes that 'The EU will support partner countries' poverty reduction, development and reform strategies, which focus on the MDGs... Progress indicators and regular evaluation of assistance are of key importance to better focus EU assistance.' This implies a much wider group of policy-relevant indicators than the 'needs and performance criteria' used for fund allocation. Paragraph 95 notes that 'MDG-related performance indicators will be strengthened to better link sectoral and budget support to MDG progress and to ensure adequate funding for health and education.' The MDG indicators and poverty reduction strategy indicators are internationally accepted criteria. The

challenge is to transfer this policy commitment into actual demand for statistics and to deliver the information required.

B.1.6.4. Regional policy focus

The [joint Africa-EU Strategy](#), adopted at the 2007 Lisbon Summit, identifies regional and continental integration as one of the four main objectives of the partnership (p.2 of the strategy document). Trade and regional integration is a strategy (p.9) for achieving the partnership's overall objectives. Regional Economic Communities (RECs) and the Economic Partnership Agreements are both identified as having a role in this field. Other issues identified that have a regional context are migration (paragraph 69), agriculture and food security (72), infrastructure (75), energy (81) and science and technical capacity (87). Paragraph 48 notes that '*... Africa and the EU will strengthen their cooperation in the field of statistics with the aim of helping policy makers and other users of statistics and enhancing ongoing efforts in the coordination and harmonisation of statistics in Africa within the framework of the African Charter on Statistics.*'

The European Commission's cooperation frameworks also identify indicative areas and roles for statistics at regional level ⁽²⁾:

- ACP: MDG indicators, Social sectors, Regional integration, Monitoring-related statistical information-gathering capacities of institutions (Paris Declaration on Aid Effectiveness, etc.)
- Latin America; International trade data (regional integration; MERCOSUR)
- Asia: Economic and trade issues at regional and national level (Com(2003) 399/4)
- European Neighbourhood Policy: Harmonisation and sustainability of the statistical systems

The '[Evaluation of the Commission Support for Statistics in Third Countries](#)', found that the objectives of the European Commission's past statistical cooperation with different regions varied considerably, although all were compatible with the global development framework of the European Consensus. The programme objectives can be summarised as follows:

- ACP: Sustainable development and gradual integration into the world economy; poverty eradication (Preamble, art. 1, art. 19, Cotonou)
- Asia and Latin America: Human development and that of mutually advantageous economic cooperation with the Community (Council Regulation 443/92: preamble and article 2)
- European Neighbourhood Policy: Strengthening stability, security, and well-being (COM 2004/373)

⁽²⁾ Evaluation of the Commission Support for Statistics in Third Countries, 2007, Annex 4, Diagram 1: Intervention Logic for the SPP (Statistics Projects and Programmes) supported by the European Commission

To find out more...

about European Commission development policies:

- [‘Increasing the impact of EU Development Policy: an Agenda for Change’ \(2011\)](#)
- [European Consensus on Development \(2006\)](#)
- [Joint Africa-EU Strategy](#)
- EuropeAid website: [Development policies](#)
- [capacity4dev.eu](#) topic: [Development policy](#)

about European Commission budget support:

- [‘The future approach to EU budget support to third countries’ \(2011\)](#)
- EuropeAid: [Budget Support Guidelines - Executive Guide](#);
- [Budget Support Guidelines - Programming, Design and Management of Budget Support \(2012\)](#)
- EuropeAid website: [How the Commission provides budget support](#)
- [capacity4dev.eu](#) public group: [Economics, public finance and budget support](#)

B.2

How statistics are made



B.2. How statistics are made

The chapter in brief

The chapter presents an overview of what constitutes official statistics, how they are produced and how they are disseminated. It addresses the following issues:

- Principles of statistics production and the consequent legal framework for official statistics
- Overview of statistics operations from analysis and design to dissemination of results
- Structure of the National Statistical System, how it organises statistics production and how it relates to users of statistics
- Briefing on the role of regional and international organisations in producing statistics and in standardising concepts and methods

Most official statistics are ‘descriptive statistics’: numbers that represent observed measurements of a state or condition of a ‘population’. A population can consist, for example, of all persons, businesses or land areas in a country. The individual entities that make up the population are known as ‘population units’.

Descriptive statistics also include ‘metadata’: information about the data. Metadata consists of:

- Concepts: the characteristics, definitions and descriptions of observations or of a series of observations taken over time (time-series), including classifications
- Methods: analysis and accounts of how the data is collected and processed. In surveys, the most important element is the sample methodology, which describes how the population was observed statistically.

B.2.1. Official statistics and their fundamental principles

B.2.1.1. DEFINING OFFICIAL STATISTICS

Official statistics are statistics produced and disseminated by the specialised public organisations that make up the national and international statistical systems. Official statistics are available publicly, freely or at relatively low cost; they aim to be a unique, definitive and generally accepted public measure and record of an economic, social or environmental condition. Areas of interest can be social, economic, environmental or other subjects relevant to public policy. Examples of official statistics include numbers of children born, numbers of unemployed people and measures of the quality of water, etc. Basic commentary on data that explains the main features of the latest data (metadata) is often included in official statistics publications.

Official statistics, also called ‘public statistics’, are used to design, implement, monitor and evaluate public policies. Official statistics are published in many forms such as summary publications for the non-specialist public; press releases that can make newspaper headlines and affect financial markets; and large, detailed databases for further analysis by specialists. In recent years, the Internet has become a primary means of dissemination of statistics.

In contrast to official statistics, unofficial, private or internal statistics are not necessarily publicly available or may be published at high cost for a specialist audience. Unofficial statistics often do not aim at being unique and definitive; their methodologies can be unpublished. Opinion polls, market research and company production data are examples of unofficial statistics.

Metadata about official statistics is published, sometimes in manuals of ‘sources and methods’. The methods used to prepare the official statistics are therefore transparent. Unofficial statistics producers may or may not publish the methodology used.

In contrast to ‘descriptive statistics’, ‘theoretical statistics’ make statements that infer relationships such as causes or forecasts of future trends in data. Because these studies hypothesise causal relationships, they are generally contestable and cannot aim at being unique and definitive measurements in the same way as official statistics. For this reason, economic forecasts, social analyses and environmental projections are usually worked on outside national statistics institutes, even though they are often based on official statistics. Economics, social scientists and environmentalists are therefore more often seen as users of official statistics than as producers.

Official statistics are in certain circumstances based on statistical inferences (theoretical statistics). Examples include estimating missing data values, short term forecasts and estimation for the total population based on sample survey data.

The range of official statistics can be classified by broad subject area. This is Eurostat’s classification:

General and Regional Statistics	External trade
Economy and Finance	Transport
Population and social conditions	Environment and energy
Industry, trade and services	Science and technology
Agriculture and fisheries	

Some statistics are used in more than one subject area: for example, water quality data are used for both social and environmental indicators.

To find out more...

About the range of official statistics and metadata, see Eurostat's website at:
<http://epp.eurostat.ec.europa.eu/>

B.2.1.2. THE FUNDAMENTAL PRINCIPLES OF OFFICIAL STATISTICS

The international community of statisticians has agreed on ten 'fundamental principles' with which official statistics must comply to correctly inform the public. These principles were adopted in 1994 by the United Nations Statistical Commission (see [Box 2.1](#)). The principles state that all organisations that are responsible for producing official statistics must:

- Compile and disseminate them in an impartial manner
- Select their methods based on purely professional considerations (strict scientific principles and ethical rules).
- Ensure the protection of personal data collected from individuals and enterprises.

The [European Statistics Code of Practice](#) is based on the United Nations' 'fundamental principles', develops them further and puts them into more concrete. It comprises 15 principles with each a set of indicators of good practices covering the institutional environment, statistical processes and outputs. The European Union's institutions involved with statistics, notably Eurostat, are committed to respect this code and to periodically assess its application through good practice indicators and a detailed [questionnaire](#) developed by Eurostat in co-operation with the EU National Statistical Institutes. Information on compliance with the code by statistical authorities is published on the [Eurostat website](#).

Box 2.1: The UN's Fundamental Principles of Official Statistics

Principle 1. Official statistics provide an indispensable element in the information system of a democratic society, serving the Government, the economy and the public with data about the economic, demographic, social and environmental situation. To this end, official statistics that meet the test of practical utility are to be compiled and made available on an impartial basis by official statistical agencies to honour citizens' entitlement to public information.

Principle 2. To retain trust in official statistics, the statistical agencies need to decide according to strictly professional considerations, including scientific principles and professional ethics, on the methods and procedures for the collection, processing, storage and presentation of statistical data.

Principle 3. To facilitate a correct interpretation of the data, the statistical agencies are to present information according to scientific standards on the sources, methods and procedures of the statistics.

Principle 4. The statistical agencies are entitled to comment on erroneous interpretation and misuse of statistics.

Principle 5. Data for statistical purposes may be drawn from all types of sources, be they statistical surveys or administrative records. Statistical agencies are to choose the source with regard to quality, timeliness, costs and the burden on respondents.

Principle 6. Individual data collected by statistical agencies for statistical compilation, whether they refer to natural or legal persons, are to be strictly confidential and used exclusively for statistical purposes.

Principle 7. The laws, regulations and measures under which the statistical systems operate are to be made public.

Principle 8. Coordination among statistical agencies within countries is essential to achieve consistency and efficiency in the statistical system.

Principle 9. The use by statistical agencies in each country of international concepts, classifications and methods promotes the consistency and efficiency of statistical systems at all official levels.

Principle 10. Bilateral and multilateral cooperation in statistics contributes to the improvement of systems of official statistics in all countries.

Box 2.2: The Principles of the European Statistics Code of Practice

Principle 1: Professional Independence - The professional independence of statistical authorities from other policy, regulatory or administrative departments and bodies, as well as from private sector operators, ensures the credibility of European Statistics.

Principle 2: Mandate for Data Collection - Statistical authorities must have a clear legal mandate to collect information for European statistical purposes. Administrations, enterprises and households, and the public at large may be compelled by law to allow access to or deliver data for European statistical purposes at the request of statistical authorities.

Principle 3: Adequacy of Resources - The resources available to statistical authorities must be sufficient to meet European Statistics requirements.

Principle 4: Quality Commitment - All ESS members commit themselves to work and co-operate according to the principles fixed in the Quality Declaration of the European Statistical System.

Principle 5: Statistical Confidentiality - The privacy of data providers (households, enterprises, administrations and other respondents), the confidentiality of the information they provide and its use only for statistical purposes must be absolutely guaranteed.

Principle 6: Impartiality and Objectivity - Statistical authorities must produce and disseminate European Statistics respecting scientific independence and in an objective, professional and transparent manner in which all users are treated equitably.

Principle 7: Sound Methodology - Sound methodology must underpin quality statistics. This requires adequate tools, procedures and expertise.

Principle 8: Appropriate Statistical Procedures - Appropriate statistical procedures, implemented from data collection to data validation, must underpin quality statistics.

Principle 9: Non-Excessive Burden on Respondents - The reporting burden should be proportionate to the needs of the users and should not be excessive for respondents. The statistical authority monitors the response burden and sets targets for its reduction over time.

Principle 10: Cost Effectiveness - Resources must be effectively used.

Principle 11: Relevance - European Statistics must meet the needs of users.

Principle 12: Accuracy and Reliability - European Statistics must accurately and reliably portray reality.

Principle 13: Timeliness and Punctuality - European Statistics must be disseminated in a timely and punctual manner.

Principle 14: Coherence and Comparability - European Statistics should be consistent internally, over time and comparable between regions and countries; it should be possible to combine and make joint use of related data from different sources.

Principle 15: Accessibility and Clarity - European Statistics should be presented in a clear and understandable form, disseminated in a suitable and convenient manner, available and accessible on an impartial basis with supporting metadata and guidance.

The [African Charter on Statistics](#) is based on the UN fundamental principles and requires the statistics system of Africa to adopt and respect them. In April 2008, the Conference of African Ministers of Economy and Finance, jointly arranged by the African Union and the UN Economic Commission for Africa, approved the draft Charter. On 3 February 2009, the Charter was adopted by African Heads of State and Government. The charter officially entered into force in May 2014 when the required number of countries had ratified it.

The African Union Commission has developed guidelines and indicators to assess how far the principles of the Charter on Statistics are implemented in its member states; an action plan for implementation has also been developed. A study on the implementation by the member states showed that the countries that responded to the self-assessment questionnaire are implementing the principles of the Charter well. However, there are still some gaps when it comes to implementing the sub-principles and the level of implementation varies across the six principles of the Charter.

Box 2.3: The principles of the African Charter on Statistics

Principle 1: Professional independence

- **Scientific independence:** Statistics authorities must be able to carry out their activities according to the principle of scientific independence, particularly vis-à-vis political authorities or interest groups;
- **Impartiality:** Statistics authorities shall produce, analyze, disseminate, and comment on African statistics in line with the principle of scientific independence, and in an objective, professional and transparent manner;
- **Responsibility:** Statistics authorities and African statisticians shall employ unambiguous and relevant methods in the collection, processing, analysis and presentation of statistical data. Statistical authorities shall also have the right and duty to make observations on erroneous interpretation and improper use of the statistical information that they disseminate;
- **Transparency:** To facilitate proper interpretation of data, Statistics authorities shall provide information on their sources, methods and procedures that have been used in line with scientific standards. The domestic law governing operation of the statistical systems must be made public.

Principle 2: Quality

- **Relevance:** African statistics shall meet the needs of users;
- **Sustainability:** African statistics shall be conserved as detailed as possible to ensure their use by future generations, while preserving the principles of confidentiality and protection of respondents;
- **Data sources:** Data used for statistical purposes may be collected from diverse sources such as censuses, statistics surveys and/or administrative records. The statistics Organizations shall choose their sources in consideration of the quality and topicality of data, particularly the costs incurred by the respondents and sponsors. The use by statistics authorities of administrative records for statistical purposes shall be guaranteed by domestic law, provided that confidentiality is preserved.
- **Accuracy and reliability:** African statistics shall be an accurate and reliable reflection of the reality;
- **Continuity:** Statistics authorities shall ensure continuity and comparability of statistical information over time;
- **Coherence and comparability:** African statistics shall be internally coherent over time and allow for comparison between regions and countries. To this end, these statistics shall make combined use of related data derived from different sources. It shall employ internationally recognized and accepted concepts, classifications, terminologies and methods;
- **Timeliness:** African statistics shall be disseminated in good time and, as far as possible, according to pre-determined calendar;
- **Topicality:** African statistics shall reflect current and topical events and trends;
- **Specificities:** Statistical data production and analytical methods shall take into account African peculiarities;
- **Awareness-building:** State Parties shall sensitize the public, particularly statistical data providers, on the importance of statistics.

Principle 3: Mandate for data collection and resources

- **Mandate:** Statistics authorities shall be endowed with a clear legal mandate empowering them to collect data for production of African statistics. At the request of statistics authorities, public administrations, business establishments, households and the general public may be compelled by domestic law to allow access to their data or provide data for the compilation of African statistics;
- **Resource Adequacy:** As far as possible, the resources available to Statistics authorities shall be adequate and stable to enable them to meet statistics needs at national, regional and continental levels. Governments of States Parties shall have the primary responsibility to provide such resources;
- **Cost-effectiveness:** Statistics authorities shall use the resources so provided effectively and efficiently. This presupposes, in particular, that operations shall as far as possible, be programmed in an optimal manner. Every effort shall be made to achieve improved production and use of the statistics derived from administrative records, to reduce the costs incurred by respondents and, as far as possible, avoid expensive direct statistical surveys.

Principle 4: Dissemination

- **Accessibility:** African statistics shall not be made inaccessible in any way whatsoever. This concomitant right of access for all users without restriction shall be guaranteed by domestic law. Micro-data may be made available to users on condition that the pertinent laws and procedures are respected and confidentiality is maintained.
- **Dialogue with users:** Mechanisms for consultation with all African statistics users without discrimination shall be put in place with a view to ensuring that the statistical information offered are commensurate with their needs.
- **Clarity and understanding:** Statistics shall be presented in a clear and comprehensible form. They shall be disseminated in a practical and appropriate manner, be available and accessible to all and accompanied by the requisite metadata and analytical commentaries.
- **Simultaneity:** African Statistics shall be disseminated in a manner that ensures that all users are able to use them simultaneously. Where certain authorities receive advance information under embargo, to allow them time to respond to possible questions, public announcement shall be made indicating the nature of such information, the identity of the recipients and the set timeframe before its public dissemination.
- **Correction:** Statistics authorities shall correct publications containing significant errors using standard statistical practices or, for very serious cases, suspend dissemination of such statistics. In that event, users shall be informed in clear terms of the reasons for such corrections or suspension.

Principle 5: Protection of individual data, information sources and respondents

- **Confidentiality:** National Statistics authorities, African statisticians and all those operating in the field of statistics in Africa shall absolutely guarantee the protection of the private life and business secrets of data providers, the confidentiality of the information so provided and the use of such information for strictly statistical purposes.
- **Giving assurances to Data providers:** Persons or entities interviewed during statistical surveys shall be informed of the objective of such interviews and of the measures put in place to protect the data provided.
- **Objective:** Data concerning individuals or entities collected for statistical purposes shall in no circumstance be used for judicial proceedings or punitive measures or for the purpose of taking administrative decisions against such individuals or entities.
- **Rationality:** Statistics authorities shall not embark upon statistical surveys except where pertinent information is unavailable from administrative records or the quality of such information is inadequate in relation to the quality requirements of statistical information.

Principle 6: Coordination and Cooperation

- **Coordination:** Coordination and collaboration amongst Statistics authorities in a given country are essential in ensuring quality and harmonious statistical information. Similarly, coordination and dialogue amongst all Members of the African Statistical System are vital for harmonization, production and use of African statistics.
- **Co-operation:** Bilateral and multilateral statistics cooperation shall be encouraged.

In November 2011, the Statistical Conference of the Americas (SCA –ECLAC) adopted the '[Code of Good Practice in Statistics for Latin America and the Caribbean](#)'. It aims at being a technical and regulatory instrument contributing to the improvement of national statistical activities and systems across the region. This Code of Practice is structured by 17 principles and associated best practices. It has been inspired by the European Statistics Code of Practice as an example of good statistical practices. The Code of Good Practice in Statistics for Latin America and the Caribbean also addresses issues of specific relevance to the national statistical systems in the region. Specifically, this concerns the principle on coordination of national statistical systems, as well as the principle co-operation and international participation. For each of the 17 principles of the Code of Practice, compliance criteria have been defined; the number of compliance criteria varies between principles.

Following up the implementation of the Code of Good Practice in Statistics for Latin America and the Caribbean, a self-assessment questionnaire was developed for 10 principles of the Code of Practice, in order to assess the current status, strengths, weaknesses and improvement actions concerning the institutional environment and coordination, statistical processes and statistical outputs in the NSIs of the region. The results of this study have been presented in the '[Report on strengths, weaknesses and improvement actions found in the self assessment questionnaire measured against the principles of the Regional Code of Practice in Statistics for Latin America and the Caribbean](#)'.

International organisations involved in the production and dissemination of statistics, principally UN agencies, similarly adopted [Principles Governing International Statistical Activities](#) in 2005. Once again, these are based on the 'fundamental principles'.

The International Statistical Institute (ISI), an independent professional association of statisticians, has drawn up a [Declaration on professional ethics for statisticians](#). The aim of this declaration is to let the statistician's individual ethical judgments and decisions to be lead by shared values and experience, rather than by rigid rules imposed by the profession. The declaration documents widely held principles of statistical inquiry and identifies factors that hamper their use.

Box 2.4: The Code of Good Practice in Statistics for Latin America and the Caribbean

Principle 1 - Professional independence: In order to guarantee the credibility of official statistics, the national statistical institute and other members of the national statistical system must be professionally independent of political and administrative agencies and other external sources of interference.

Principle 2 - Coordination of the national statistical system: This will enable the statistics producing entities to plan and implement national statistical activity in a participatory manner, maintain close contact and work jointly to improve the quality, comparability and consistency of official statistics.

Principle 3 - Statistical mandate for data collection: The collection of information for the preparation of official statistics must be supported by a clear legal mandate. At the request of the national statistical institutes and members of the national statistical system, the administrations, corporations, households and the public in general may be required by law to provide access to data for the preparation of official statistics or to submit such data, which will be treated as confidential.

Principle 4 - Statistical confidentiality: The national statistical institute and the other members of the national statistical system shall guarantee the protection and confidentiality of the information used to produce official statistics and shall refrain from identifying the sources.

Principle 5 - Adequacy of resources: The resources available for national statistical activity must be sufficient and appropriate for the generation of official statistics.

Principle 6 - Quality commitment: The entities that produce statistics within the national statistical system must work and cooperate in accordance with rules, principles and standards.

Principle 7 - Impartiality and objectivity: The national statistical institute and the other members of the national statistical system must produce and disseminate official statistics respecting scientific independence and in an objective, professional and transparent manner, so that all users are treated equally.

Principle 8 - Cooperation and international participation: The entities belonging to the national statistical system must cooperate in the exchange of experiences and information and work jointly on the preparation of international statistical standards and activities.

Principle 9 - Sound methodology: The production of official statistics by the national statistical institute and the other members of the national statistical system must be based on sound instruments, procedures and expertise.

Principle 10 - Appropriate statistical procedures: The quality of official statistics used by national statistical institute and the other members of the national statistical system must be underpinned by appropriate procedures and tools at every stage of the statistical process.

Principle 11 - Non-excessive burden on respondents: The national statistical institute and the other members of the national statistical system must set their targets so as to gradually reduce the burden on respondents. The request for information must be in keeping with the needs of users and must not be excessive for the respondents.

Principle 12 - Cost-effectiveness: The national statistical institute and the other members of the national statistical system must use resources efficiently and effectively.

Principle 13 - Relevance: The national statistical institute and other members of the national statistical system must satisfy users' information needs on the basis of their requirements.

Principle 14 - Accuracy and reliability: The official statistics produced by the national statistical institute and the other members of the national statistical system must be an accurate and reliable reflection of the actual situation.

Principle 15 - Timeliness and punctuality: The national statistical institute and the other members of the national statistical system must produce and disseminate official statistics in a timely, punctual and transparent manner.

Principle 16 - Coherence and comparability: The official statistics produced by the national statistical institute and the other members of the national statistical system must be coherent internally and over time and must be comparable across regions and countries.

Principle 17 - Accessibility and clarity: The official statistics generated by the national statistical institute and the other members of the national statistical system must be presented clearly and comprehensibly and disseminated appropriately, thereby enabling equitable access by all users.

International organisations involved in the production and dissemination of statistics, principally UN agencies, similarly adopted [Principles Governing International Statistical Activities](#) in 2005. Once again, these are based on the 'fundamental principles'.

The International Statistical Institute (ISI), an independent professional association of statisticians, has drawn up a [Declaration on professional ethics for statisticians](#). The aim of this declaration is to let the statistician's individual ethical judgments and decisions to be led by shared values and experience, rather than by rigid rules imposed by the profession. The declaration documents widely held principles of statistical inquiry and identifies factors that hamper their use.

To find out more...

- [UN Fundamental Principles of Official Statistics](#)
- [European Statistics Code of Practice and Eurostat quality website](#)
- [African Charter on Statistics](#)
- [Code of Good Practice in Statistics for Latin America and the Caribbean](#)
- [United Nations Statistics Division: Principles Governing International Statistical Activities](#)
- [International Statistical Institute: Declaration on professional ethics for statisticians](#)

B.2.1.3. LEGAL FRAMEWORK FOR STATISTICS

The legal framework for the powers and responsibilities of government, individuals and private organisations concerning the collection and publication of statistical information is known as 'Statistics law'. Most countries have adopted laws and other regulatory instruments which define the conditions in which activities relating to official statistics will be carried out. In principle, statistical law should conform to and implement the UN fundamental principles of official statistics.

Statistics law therefore generally covers the following areas:

- Authorisation and responsibility for collection and publication of statistical data: hence the organisation and functioning of the National Statistical System (NSS) and National Statistical Institute (NSI);
- Independence of statistical activity from political authorities;
- Obligation on individuals and organisations to reply truthfully to official surveys and censuses;
- Dissemination rules and confidentiality of statistical data, including exchange of statistical information within the public administration;
- Programming procedures, including a requirement for broad stakeholder consultation and transparency.

The existence of adequate statistics legislation and its implementation are key conditions for the development

of official statistics. Effective implementation requires stakeholders to accept that the statistical law is a prerequisite for disseminating quality statistics that respond to users' needs. Missing or poorly implemented statistical legislation may create a number of problems, which can seriously influence the quality of the statistics:

- Undefined responsibility for authorising statistical activities can result in parallel activities being undertaken by different authorities. This in turn can mean additional administrative burden on respondents, inefficient use of public funds and multiple statistical publications.
- Dependence of statistics institutes on political authorities can result in statistical data being released late or not at all or being subject to manipulation.
- Without a guarantee of confidential treatment of responses, individuals and organisations may refuse to answer surveys for fear of the possible consequences, for example on their taxation. This can occur even if there are effective penalties for survey non-response.

Statistics legislation exists within a national legal and administrative framework. Since these structures can differ greatly between countries for historical reasons, there can be no single approach to the development of statistical legislation and to the organisation of administrative structures producing statistics. Whatever approach is adopted, it should conform to the UN fundamental principles of official statistics and to any regional frameworks based on them.

The UN Handbook of Statistical Organisation gives guidance on the legal structure.

A good example of modern statistical legislation is [Regulation of the European Parliament and of the Council on European Statistics No 223/2009](#), also known as the 'Statistical Law' in Europe. In particular, the Statistical Law states that European statistics shall be produced according to the principle of subsidiarity, independence, integrity and accountability of the statistical authorities. It also gives reference to the European Statistics Code of Practice and defines quality principles.

The Statistical Law defines the European Statistical System (ESS): It gives Eurostat a coordinating role on EU level and the NSIs on a national level. Eurostat is also responsible for the coordination of statistical activities of all EU institutions. The Statistical Law gives Eurostat flexibility to respond to future challenges, such as rapidly emerging policy needs, also outside the five-year statistical programmes. At the same time, it provides a stable and transparent legal basis.

In the context of the African Charter for Statistics, a [model statistics law](#) for African countries has been developed. Although most African countries have a statistics law, many of these were adopted before the African Charter for Statistics was conceived. This model statistics law enables the countries to align their legislation with the principles of the Charter when reviewing the existing statistics law or developing a new statistics law.

To find out more...

- [UN Handbook of Statistical Organisation](#)
- [ESS website](#)

B.2.2. The statistical process

B.2.2.1. MAIN TYPES OF STATISTICAL OPERATIONS

Official statistics are derived from various sources. The basic distinction is between **administrative** and **survey** data collection. In the former, data is collected without direct contact with respondents; the latter method is based on direct questioning of respondents. Sometimes a mix of data sources, known as **mixed mode**, is used to produce statistics.

Administrative data is produced from information about the population held in **administrative** registers ⁽⁶⁾, e.g. registers on trade operators (see [section D.10.2](#)), businesses (see [section D.13.2](#)), vehicles (see [section D.15.3](#)), population (see [section D.22.2](#)), school enrolment (see [section D.23.4](#)), deaths and births (see [section D.24.2](#)) and job-seekers (see [section D.27.3](#)). Such data have been collected for an administrative purpose. It might often be possible to produce official statistics on the basis of administrative data. The costs of collecting administrative data are covered through the budget of the responsible body. Thus, the costs of further use ('secondary use') for official statistics of these data are normally limited to the additional costs of preparing them for statistical use. In this case, the definition of variables is often different from what is ideally needed for producing statistics, the population covered might be different from the one the statistics aim to measure, and the quality controls are aimed at assuring quality for the original administrative purpose and not for statistical use. However, such issues can be relieved by cooperation between the statistical office and the institutions holding the administrative data. Coordination of the data collection for both administrative and statistical use carry a vast potential for cost reduction and reduction of response burden, while at the same time offering better coverage of the population. In developed countries, where the use of administrative data is more widespread than in developing countries, statistical legislation often grants the statistical office influence on administrative data collections and data.

Examples of administrative records that are used as sources of administrative statistics are reports of schools, monthly compilation of customs statistics, weekly reports by hospitals, daily civil registration of births and deaths (vital statistics) and annual and quarterly surveys of enterprises, based on establishment or business registers. All of these examples are achievable by many developing countries.

⁽⁶⁾ Examples of registers are not exhaustive

Surveys collect data direct from respondents. They can be divided into two groups:

- **Censuses** ⁽⁷⁾, e.g. on population and housing (see [section D.16.3](#) and [section D.22.2](#)) and agriculture (see [section D.17.2](#)), collect data from all population units, for example all persons, all households or all businesses. This method is used when there is a need for exhaustive information about the population, or when there is only a small number of units in the population (e.g. hydro power plants or steel producers). When the population is large, the costs of carrying out a census are very high; the number and complexity of questions that can be asked must therefore be carefully selected to balance the costs and information value. Censuses are also valuable to give a complete overview over a population, which can be used to draw samples for later surveys ('sampling frame')
- **Sample surveys** ⁽⁸⁾, e.g. on household expenditure (see [section D.12.2](#)), enterprises (see [section D.13.3](#)), road freight transport (see [section D.15.3](#)), farm structure (see [section D.17.2.3](#)), income and living conditions (see [section D.21.3](#)), health (see [section D.24.2](#)) and labour force (see [section D.27.2.1](#)), collect data from a sample that has been selected from the target population to be representative of its characteristics. Various statistical methods are used to derive a representative sample, of which the simplest is random sampling. Other techniques are often based on a sampling frame.

Statistical data is also produced through **estimating**, modelling, short-term forecasting and other methods based on existing data pools. These methods are used to provide, for example, current period statistics when data has been only partially received.

How statistics are collected in any particular country depends on legal and administrative structures. Even within the EU, statistics collection methods vary considerably, especially for social statistics. Statistics collection methods can also depend on development levels. For example vital statistics (i.e. births and deaths) that in developed countries usually come from the official register are often collected by survey in low income countries.

The inherent advantage of survey-based data over administrative data is that the **survey** questions can be tailored specifically to give information about the statistical concept of interest. In contrast, administrative data is defined or categorised by the purpose of the data collection, which is generally unrelated to statistics. Survey questions are also more **readily revised** to capture changing population characteristics, although revisions come at the expense of lack of comparability with historic data.

⁽⁷⁾ Examples for censuses are not exhaustive

⁽⁸⁾ Examples for sample surveys are not exhaustive

If there exists administrative information which is sufficiently close to the information collected by survey, one may consider replacing this survey (or part of the survey) by the **administrative** information. Clear advantages are **lower costs** (as the costs are already covered by the administrative body collecting and holding the data) and potentially a much larger number of observations, meaning **greater accuracy**.

Several conditions must be considered when considering whether a survey can be replaced by administrative data, most importantly:

- Whether the administrative concepts are sufficiently close to the desired statistical concept, **or** whether there is a satisfactory method of converting the administrative concept into the statistical concept;
- Whether the register of units covered by the administrative data is accurate and up to date;
- To which extent the administrative data cover the population covered by the survey;
- Whether appropriate quality controls are in place;
- Whether the long-term availability of the administrative data is assured, or whether the content or the existence of the data is liable to be changed on short notice through administrative or political decisions.

Often, problems in the administrative data concerning incomplete coverage of the statistical population or missing information on certain issues can be addressed through **mixed mode** data collection. This means that the administrative data replaces a greater or smaller part of a survey, but that the information which cannot be extracted from the administrative data is still collected by survey. Another important use of administrative data is to benchmark, quality assess and calibrate survey results.

When a survey can be replaced by administrative data, this may be considered as a sign of development of the statistical system and maturity of the administration. However, basing statistics on administrative data require a good and close cooperation between the statistical office and the administrative body concerned. In this context, a useful tool is to grant the statistical office influence on the set-up and contents of administrative systems and databases through the national Statistical Law. A key issue to consider regarding the quality of information is that respondents trust that data confidentiality is respected by the administrative body; in extension, any statistical use of these data must also assure this confidentiality.

Even though the costs to the statistical office may be substantially reduced, it must still be prepared to pay for the preparation of the data for statistical use and for quality controls and statistical processing. In the end, even the replacement of one single question in a survey may turn out to be a major undertaking.

A good example of the **different sources** that can be used to produce statistics occurs in vital statistics: data on births and deaths. In developed countries, this information comes from registers of birth and deaths and is usually highly accurate. Some developing countries are also able to maintain these registers to a high standard. Elsewhere, registers might be accurate only in urban areas, may be unreliable or may not exist at all. In these cases, demographic surveys are required to collect the information. If the surveys are intermittent, for example if they are based on the population census and hence occur only every ten years, then problems with respondent recall or survival bias will bring inaccuracies into the data, although methods exist to reduce these problems. In the absence of a register, the best way to collect vital data is therefore relatively frequent surveys of a representative sample of the population, drawn using a sampling frame that is derived from a population census.

In some situations, for example health statistics, statistics from administrative and survey sources exist side by side. They can convey very different information because they are measuring different phenomena: the administrative data will cover events related to government run health facilities, while the sample surveys may cover population health events in part or all of the country. It is possible that neither source provides full coverage of health related issues. In this situation, **further analysis** of both data sources may provide information that is contained in neither data series alone.

The **national accounts** (see [chapter D.11](#)) are compiled from many statistical sources, including the above sources, to measure exhaustively the flows of national income and expenditure within an economy and with the rest of the world.

Core **censuses and sample surveys** include:

- **Population and Housing Census** (see [chapter D.16](#) and [chapter D.22](#))
- **Price surveys** (see [chapter D.12](#))
- **Household Budget Surveys (HBS)** (see [chapter D.21](#)).

Many developing country household surveys are carried out according to an internationally standardised international format, permitting comparison between developing countries. Some cover more than one policy area, like the:

- Living Standards Measurement Studies (LSMS),
- Demographic and Health Surveys (DHS)
- Multiple Indicator Cluster Surveys (MICS)
- Education Management Information Systems (EMIS)

To find out more...

- World Programme on Population and Housing Censuses: <https://unstats.un.org/unsd/demographic/sources/census/wphc/default.htm>
- United Nations Population Fund (UNFPA): <http://www.unfpa.org/pds/censuses.html>
- UN Statistics Division Census Knowledge Base: <https://unstats.un.org/unsd/censuskb20/Knowledgebase.aspx>
- Living Standards Measurement Studies (LSMS): <http://www.worldbank.org/LSMS/>
- Demographic and Health Surveys (DHS): <http://dhsprogram.com/>
- Multiple Indicator Cluster Surveys (MICS): <http://www.childinfo.org/>
- Education Management Information System (EMIS): <http://www.unesco.org/new/en/education/themes/planning-and-managing-education/policy-and-planning/emis/>

B.2.2.2. THE STATISTICAL PRODUCTION PROCESS STEP BY STEP

Box 2.5 shows a generic picture of the process of producing statistics. This applies to all statistical series, whether based on administrative sources, surveys or both.

The statistical system is set in motion by a request for statistical information to support the preparation, implementation or public oversight of an issue of public concern. A mechanism is required to identify and rank the various demands for data so that official statistics stay relevant to public policy priorities. The output of the system is the dissemination of the resulting statistics.

B.2.3. National Statistics Systems: who does what

B.2.3.1. USERS OF OFFICIAL STATISTICS

Statistical data exists to answer the questions of decision-makers, whether public or private, national or international. Users of statistics are therefore important members of National Statistics Systems.

Box 2.5: Users of official statistics

Five groups of users of official statistics can generally be identified:

- **government:** political decision-makers and officials of central government, local authorities and supranational bodies;
- **general public:** press and citizens;
- **business:** enterprises, business and employers' representatives and trade unions;
- **other countries and international organisations:** including trade partners and development partners
- **other users:** research centres and non-governmental organisations, whether national and international.

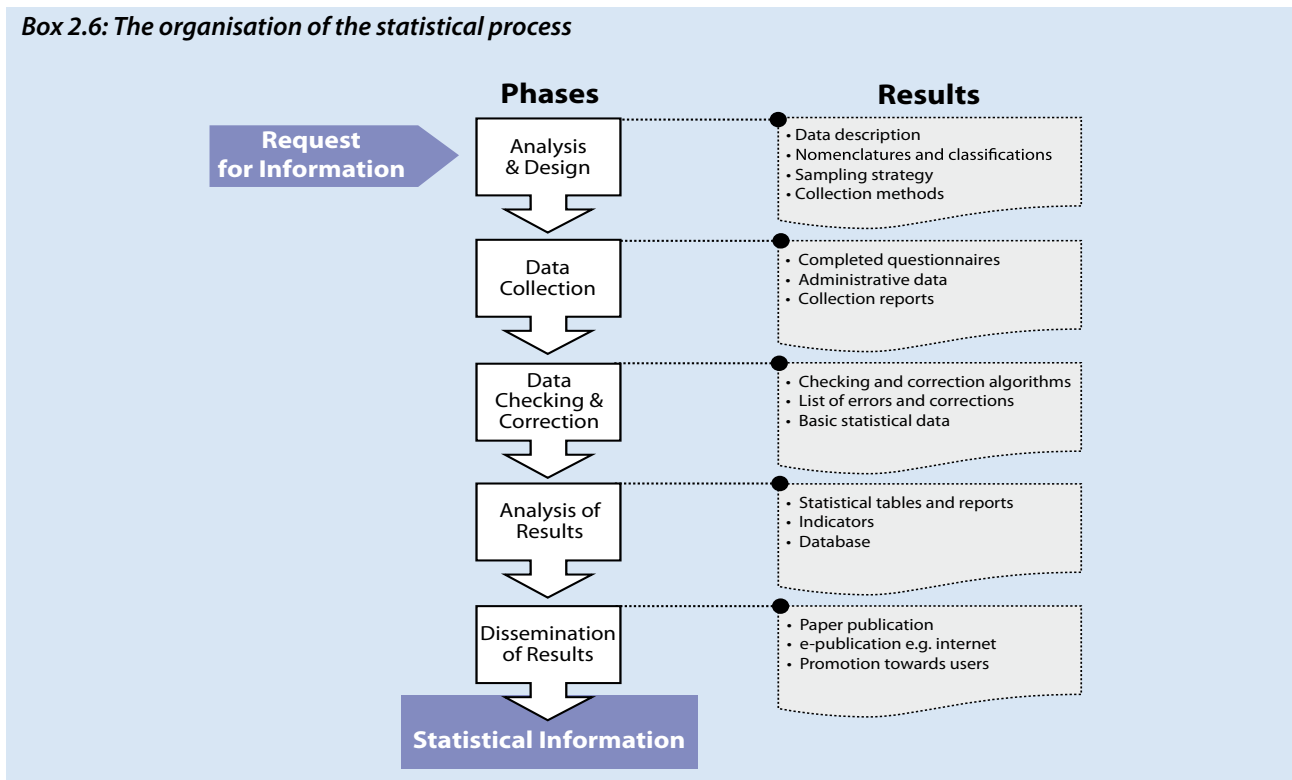
Statistical data are often further analysed following publication, by journalists, researchers, professional analysts and others. The use of official statistics for studying effects of government policies and other issues in society adds value to statistics. Widespread use and analysis of official statistics also serves to verify the quality of the statistics and to raise the authority of the official statistics if the quality is perceived as good.

The core use of official statistics is in preparation, public discussion, implementation and evaluation of government policies. Therefore, the largest users of official statistics are, as a rule, government agencies and policy-makers.

As well as being intensive users of general economic, demographic and other data, business users can demand detailed sector information. As data providers, businesses may have apprehensions about the confidentiality of the data they furnish, in particular whether competitors can deduce facts about their business from published data. In addition, businesses might be concerned about the workload of providing data.

Statistics can be used to analyse the outcomes of different policies that are pursued in comparable countries and regions, provided that the statistics have the same definitions and similar coverage. Consequently, the closer countries work together, for example in an economic union, the greater is the demand for **comparable harmonised data**. As a result, the EU has often taken the lead in international efforts to harmonise statistical concepts and methodologies and as a rule EU Member States' statistics are more directly comparable than are data from other developed countries. The role of regional and international organisations in statistics is further explored in [section B.2.4](#).

Cooperation partners are key users of statistics, both in allocating funds and in evaluating progress of recipients of funds towards development goals. In low income developing countries, the statistics user community can be small and there may be few skilled analysts. In this situation, the cooperation partners may become the primary users of statistics, even if they are aware of and guard against this possibility. Because cooperation partners and international agencies need to make cross-country comparisons in order

Box 2.6: The organisation of the statistical process

to evaluate the effectiveness of their policies, they are often supporters of regional harmonisation of data, so that it becomes regionally comparable.

B.2.3.2. The organisation of a National Statistics Systems

The term 'National Statistics System' (NSS) refers collectively to a country's statistics producers, i.e. the National Statistical Offices (NSI) and other producers of official statistics. Mostly, the NSI is at the heart of the statistical system (but, for instance, USA is an exception). The structure of a NSS is generally built on national administrative or legal traditions. In developed countries, the statistical system is normally defined by a Statistical Law, which in particular states the main principle of the professional independence of the NSI. The Statistical Law also defines the obligations (e.g. relating to confidentiality) and rights (e.g. to influence and access administrative data registers) of the NSI. There is no 'right way' to organise an NSS; it is always dependent on traditions and organisation of the national administration.

Three structural elements describe how an NSS is organised:

- **Functional centralisation:** The extent to which the whole process of production and dissemination of official statistics is managed directly by the NSI. In a more functionally centralised system, the NSI and the Central Bank are together responsible for most or all statistical publications and a large proportion of surveys and administrative data collection. In a less functionally centralised system, line ministries such as health and education ministries publish

their own statistics and the NSI may have a restricted role in carrying out surveys.

- **Geographical centralisation:** The extent to which statistical functions carried out throughout a country's territory are controlled by the central NSI. In large or federal countries, the NSI may have a federal structure. In particular, data collection may be carried out by state statistical institutions, so that the NSI must maintain consistent standards and methodologies for data collection across all states. With extreme geographic decentralisation, data collection units may be part of state / provincial administrations with no direct links to the NSI.
- **System coordination:** The NSS may be coordinated through a National Council for Statistics which has the responsibility for coordinating statistical activities and methodologies and in which the main producers and users are represented. Such a council may have effective coordinating responsibilities, notably responsibility for authorising surveys, or else may be purely advisory. Alternatively, the NSI may itself be legally responsible for prioritising and coordinating activities and methodologies, in which case it would normally be answerable directly to national authorities. The organisation of the NSS varies between countries. However, the main principle of professional independence of the NSI should always be maintained.

Coordination of statistics activities is very important: without it, different government bodies can organise multiple data collections and produce competing statistics sources, none of which would be credible. Common methodologies are

required to achieve coherence of results between different statistical series through the use of common classifications, concepts and methods. Agreed methodologies are also required to meet standards agreed with international organisations. The more an NSS is functionally decentralised, the more system co-ordination becomes important.

As well as providing a framework for formalising co-ordination between data producers, a National Council for Statistics can also be an essential place for dialogue between statistics producers and users. The Council sometimes has an additional role of promotion of statistics and may be requested to give its opinion on issues such as statistical programmes and the legal framework for statistical activity. Alternatively, where there is no Council, a consultative committee can be used for dialogue with statistics users.

To find out more...

About how an NSI is organised, see: [The Handbook of Statistical Organisation, The Third Edition: The operation and organisation of a statistical agency](#). United Nations Statistical Division, 2003.

B.2.3.3. STATISTICAL DATA PRODUCERS

B.2.3.3.1. The National Statistical Institute

The National Statistical Institute (NSI) is the main body of the NSS, the core producer of official statistics. Its responsibilities may vary, as explored in [section B.2.3.2](#).

The NSI can have the status of a ministerial department or be an autonomous government body with its own budget. The regulatory authority of an NSI also varies from one country to another: Presidency, Prime Minister, a Minister in charge of the economy, finance or planning or a Parliamentary Committee. In some countries, the NSI is part of a ministerial department and is not directly responsible to a Minister. The statute of the NSI and its administrative attachment influence its autonomy vis-à-vis the political power and its authority within the NSS. NSIs can be organised by function, by statistical subject or a mixture of the two. Whatever the legal and administrative structure for an NSI, the important elements for the effective functioning of a NSI are:

- guarantees of professional independence
- assured financial support
- a clear public mandate from government
- operational flexibility as to how it meets that mandate

A wide range of developing country NSI structures exists. Francophone developing countries generally reflect the structure of the French NSI, INSEE. Anglophone developing countries have varying organisational structures that mostly do not replicate current or historical British practice.

To find out more...

About NSIs in developed and developing countries, visit the websites of statistics producing organisations in the UK, France, the USA, Botswana, Cameroon and Mozambique:

- **France:** <https://www.insee.fr/fr/information/1892139>
- **United Kingdom:** <https://www.ons.gov.uk/file?uri=/aboutus/transparencyandgovernance/leadershipteam/ukstatisticsorganisationchartjanuary2017.pdf>
- **USA:** <https://www.bls.gov/bls/infohome.htm> and <https://www.census.gov/content/dam/Census/about/about-the-bureau/orgchart.pdf>
- **Botswana:** <http://www.statsbots.org/bw/introduction>
- **Cameroon:** <http://www.statistics-cameroon.org/manager.php?id=2>
- **Mozambique:** <http://www.ine.gov.mz/o-ine/estrutura-organica>

National Statistical Institutes may and arguably should also play a coordinating role for the NSS (see [section B.2.3](#)) and usually act as representatives of the NSS in international meetings. However, representation in international meetings depends on the structure of the NSS. When other official bodies are responsible for certain statistics they may be the national representative in such meetings, e.g. the Ministry for Internal Affairs for migration and asylum statistics or the Customs Service for classification of external trade products.

A primary group of challenges facing NSIs in many transition and developing countries concern their **financing**. Financial problems may consist of:

- **Insufficient** budgets,
- **Late** authorisation or release of funds; or
- Lack of **multi-year funding** coupled with **unpredictable** annual budgets.

Good practice in **statistical governance** is of strategic importance. If an NSI forms part of a government ministry and does not have direct responsibility at ministerial level, it is unlikely that it will be sufficiently independent to publish data without political review or that an appropriate policy-level dialogue can develop.

Operational flexibility covers the ability of the NSI to hire appropriately qualified staff at reasonable salaries, set its own internal structure (hence have the ability to restructure) and not be overly constrained to use government common resources, such as printing facilities, where their use would prevent the NSI from meeting its statistical objectives.

These issues are explored in greater detail in [chapter C.5](#).

To find out more...

About how an NSI is organised, see: [The Handbook of Statistical Organisation, The Third Edition: The operation and organisation of a statistical agency](#). United Nations Statistical Division, 2003.

B.2.3.3.2. Other producers of official statistics

The organisation of the National Statistical System governs which statistics are produced by other bodies than the NSI. All producers of official statistics should be covered by the fundamental principles and statistical codes of practice in the same way as NSIs. Their production of official statistics is normally included in the national work programme for Official statistics (see [section B.2.1](#)).

Central banks are responsible for overseeing the financial and banking system. Thus, they are generally responsible for compiling monetary and financial statistics. In some countries, the central bank is also responsible for the balance of payments statistics, as the primary source for this is the Central banks' report on financial transactions with abroad. In addition, in some countries, the national accounts are published by the central bank. The central bank, together with the finance ministry, is the contact point and dialogue partner for the International Monetary Fund.

Line ministries such as agriculture, health, education, customs or social security may have statistical services. The justification for producing statistics in these ministries is that they have in-depth knowledge of the field and of any specific issues or problems which need to be considered. They also have a close contact with the actors in the area. Thus, they are in prime position to validate and assure the quality of data. In particular, data from administrative sources, such as hospital data, are usually collected by the line ministry, but may be processed and published either by them or by the NSI. Whatever way the tasks are assigned to institutions, the line ministry and the NSI need to coordinate methodologies and classifications so that the resulting data is coherent with statistics from other sources such as health surveys.

Surveys that are funded by external assistance and are **organised independently of national statistics** operations constitute a further group of statistics production. This type of action is particularly prevalent in developing country health statistics where there is urgent need of data but little national capacity to collect it. Such surveys may be executed by e.g. central banks, line ministries or other public or private organisations.

B.2.4. The role of international and regional organisations with statistical activities**B.2.4.1. INTERNATIONAL ORGANISATIONS****B.2.4.1.1. Overview**

Generally, international organisations that undertake statistical activities carry out the following tasks:

- Development and agreement on international standards for statistical activities;
- Compilation and dissemination of globally comparable statistical information;
- Support for countries' efforts to strengthen their national statistical systems through technical and financial means;
- Coordination of international statistics-related activities.

The United Nations (UN) acts through the United Nations Statistics Division (UNSD), i.e. a part of the Department of Social and Economic Affairs, as a coordinator of the global statistical system and a repository of certain international statistical data. Furthermore, certain UN specialised agencies perform statistical activities, notably compiling globally comparable data and working in their respective fields of competence on methodological improvement.

The Partnership in Statistics for Development in the 21st Century (PARIS21) aims at developing a culture of evidence-based policy making which seeks to improve governance and government effectiveness in reducing poverty and achieving the Millennium Development Goals (MDG). PARIS21 focuses on promoting high-quality statistics and making the data meaningful by informing development policy decisions and managing their implementation. The consortium's role is to foster more effective dialogue among those who produce development statistics and those who use them. A key working area is to support developing countries in designing and successfully implementing a National Strategy for the Development of Statistics (NSDS).

Based upon a decade of experience, and building upon this success, the NSDS guidelines have been revisited in order to enhance and adapt the tool based on assessments made and the views of users and producers within the changing development context. On 2 April 2014, the new NSDS guidelines were officially launched at the PARIS21 Annual Meetings, marking the beginning of the next chapter in the NSDS story.

These [new guidelines](#) reflect several innovations that should broaden their scope and usefulness, including:

- A [dedicated website](#) that allows for the collection of suggestions and examples of good practices on an on-going basis and includes links to documents produced by national statistical offices and international organisations
- Translation into French, with plans in place for translation into Spanish
- Restructuring into steps that are required when designing an NSDS (sequenced steps) and those that are also part of the regular statistical activities of a country (permanent steps); this supports the Guidelines dual nature as both a process and a product
- Specific sections on key areas, such as implementation, fragile and small states, sectoral statistics, infra-national strategies, regional strategies, gender statistics and open data

Other global organisations that have significant statistical methodology or coordinating roles are the International Monetary Fund (IMF), the World Bank and the Organisation for Economic Co-operation and Development (OECD). In particular, the World Bank Trust Fund for Statistical Capacity Building (TFSCB) can provide the resources to support the drafting of NSDSs.

[Box 2.7](#) illustrates the development cooperation roles of certain UN agencies, other international and regional organizations, involved in support for statistical capacity building, also showing selected publications and databases. In addition to that, PARIS21 publishes the '[Partner Report on Support to Statistics](#)', in order to strengthen the partnership of statistical actors.

The coordination role of international organisations means that they are able to introduce statistical initiatives on a regional or a global scale. Also at national level, international organisations sometimes take the lead among the donors in coordinating statistics interventions.

To find out more...

About the coordinating role of the UNSD see:
<http://unstats.un.org/unsd/default.htm>

<http://www.paris21.org/>

Introductions to other global institutions with statistics roles include:

<http://go.worldbank.org/SI5SSGAVZ0>
<http://www.imf.org/external/data.htm>
<http://www.oecd.org/statistics>
<http://www.uis.unesco.org/>
<http://childinfo.org>

B.2.4.1.2. Data compilation and dissemination

The United Nations specialised agencies and other regional and international organisations compile and publish data in their fields of competence based on information they receive from national authorities. As a rule, the international agencies process the data by making adjustments to ensure comparability across the countries, producing estimations for missing data and disseminating the results through public databases and publications. In certain cases, the UN specialised agencies may also make forecasts of economic data.

Some of this data is used for high profile development aid allocation and investment decisions. Data in this category includes the Millennium Development Goals indicators database and the IMF's International Financial Statistics. Major international data sources are shown in [Box 2.8](#).

Since the data has been processed to achieve comparability, international data publications typically do not match the national statistics publications of developing countries. There is a continuing debate between developing countries and international organisations, especially those responsible for sections of the MDG indicators database. The issues concern data transmission from developing countries to the international organisations and the transparency of the data processing and estimation methodologies used by the international organisations to harmonise statistics across countries for this database.

Regional integration, especially trade agreements, creates demand for comparable data. Regional organisations such as the EU disseminate regionally harmonised and therefore comparable data from their Member States. The European Statistical System's approach to harmonisation is often seen as a model in other regions.

Box 2.7: Activities of international organisations in statistical co-operation	
Organisation	Main statistics related activities
United Nations Economic Commission for Africa (UNECA), African Centre for Statistics (ACS) Statistical Commission for Africa (Stat-Com – Africa)	<ul style="list-style-type: none"> • Co-ordination of statistical activities in the related region • Technical assistance for member states
United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), Statistics Division	
United Nations Economic Commission for Europe (UNECE), Statistics Division	
United Nations. Economic Commission for Latin America and the Caribbean (UNECLAC), Division for Statistics and Economic Projections (DEYPE)	
United Nations. Economic and Social Commission for Western Asia (UN-ESCWA), Statistics Division	
United Nations Conference on Trade and Development (UNCTAD)	<ul style="list-style-type: none"> • Reference manuals on statistical standards, concepts and guidelines on international trade, infrastructure for development, trade efficiency, globalization and related areas; • Development, training in the TRAINS/WITS (Trade Analysis and Information System/World Integrated Trade Solution) software, bringing together statistics and other trade information; • Development, maintenance, training in the ASYCUDA (Automated System for Customs Data) software, covering foreign trade procedures and generates trade statistics; • Debt Management Programme (DMFAS), helping governments of developing and transitional economies building their debt management capacity.
United Nations Development Programme (UNDP)	<ul style="list-style-type: none"> • Statistics for Human Development Reports; • Support for general statistical capacity building, poverty monitoring capacity (especially linked to design and assessment of PRSPs); capacity to monitor progress in the MDGs; • Censuses and socio-economic surveys; • Use of indicators in policy formulation; • Raise statistical literacy.
United Nations Population Fund (UNFPA)	<ul style="list-style-type: none"> • Support to the Population and Housing Censuses; • Support to Data for Development: monitoring and evaluating progress towards the MDGs, in particular for population, health and gender aspects.
United Nations International Children's Fund (UNICEF)	<ul style="list-style-type: none"> • Technical assistance for the Multiple Indicators Cluster Surveys (MICS) household survey programme to monitor the situation of children and women. MICS provides statistically sound, internationally comparable estimates of 101 indicators, including 21 MDG indicators. • Support on DevInfo, a software to store and present data in an effective way and assist countries in monitoring global and national commitments to sustained human development, in particular the 60 MDG indicators. • Support on monitoring & evaluation related issues and data analysis, as well as organisation of training.
World Tourism Organisation (UNWTO-Tourism)	<ul style="list-style-type: none"> • Running of regional capacity building programmes on tourism statistics; • Provision of technical assistance missions on tourism statistics and the TSA to UNWTO member states.
International Labour Organisation (ILO), Bureau of Labour Statistics	<ul style="list-style-type: none"> • Support policy development and implementation within the "Decent Work" agenda; • Promotion of national production of labour statistics as essential tools for preparation, implementation and assessment of economic and social policies and programmes; • Technical manuals that supplement and elaborate various statistical standards for labour statistics; • Technical advice on the application of the standards and related matters to member states at all levels of statistical development.

Box 2.7: Activities of international organisations in statistical co-operation

Organisation	Main statistics related activities
United Nations' Food and Agriculture Organisation (FAO)	<p>Technical assistance in agricultural statistics projects in developing countries:</p> <ul style="list-style-type: none"> • Agricultural censuses; • Systems of agricultural statistics and institutional strengthening; • Agricultural statistics for food safety and early warning information systems; • Statistical data processing and statistical databases; • Training and capacity building.
Organisation for Economic Co-operation and Development (OECD)	<ul style="list-style-type: none"> • Co-ordination of statistical activities both within the Organisation and with other international agencies; • Provision of essential methodological guidelines.
United Nations Educational, Scientific and Cultural Organisation (UNESCO), Institute for Statistics (UIS)	<p>Assistance in statistical capacity building on education, science and technology, culture and communication, including:</p> <ul style="list-style-type: none"> • The Education For All (EFA) programme; • The Literacy Assessment and Monitoring Programme (LAMP); • The World Education Indicators (WEI) programme, improving the collection, quality and use of education data for policy-making purposes; • Regional workshops on data collection, concerning statistical and policy-making issues in education and in science and technology.
World Health Organisation (WHO)	<ul style="list-style-type: none"> • Support the strengthening of national health information systems; • Technical assistance for data collection and analysis of health statistics; • Develops concepts, guidelines, classifications and carries out training programmes, including workshops and seminars; • Hosts the Health Metrics Network (HMN), a global partnership to strengthen and align health information systems around the world.
World Bank	<p>Support for statistical capacity improvement in developing countries, guided by MAPS, including financial assistance, technical assistance and advisory services:</p> <ul style="list-style-type: none"> • The Trust Fund for Statistical Capacity Building (TFSCB), a multi-donor fund that provides grants to developing countries to help improve statistical systems, in particular development of a NSDS; • STATCAP is a horizontal adaptable programme loan designed to simplify procedures for developing and implementing statistical capacity building projects; • Assist countries in implementing specific household survey programs, such as the Living Standards Measurement Study (LSMS) and the Core Welfare Indicator Questionnaire (CWIQ), which provide data on poverty in developing countries, as well as Household and Population Censuses. • Supports the Health Metrics Network, PARIS21, the International Household Survey Network, the Accelerated Data Program, the 2010 World Program of Population Censuses and the UNESCO Institute of Statistics, and works with the IMF to implement the General Data Dissemination System (GDDS).
World Trade Organisation (WTO)	<ul style="list-style-type: none"> • Cooperation activities in statistics primarily directed to government officials, for trade negotiation; • Support activities for primary data production and compilation.
International Monetary Fund (IMF), Statistics Department (STA)	<ul style="list-style-type: none"> • Technical assistance for statistical capacity building in macroeconomics, monetary and financial statistics, balance of payments, foreign debt, government finance statistics; national accounts and price statistics; financial soundness indicators; • Support to countries to develop their statistical systems using frameworks, such as the Special Data Dissemination Standard (SDDS) the Data Quality Assessment Framework (DQAF) and the General Data Dissemination System (GDDS); • Offers courses, workshops, and seminars in Washington DC and through a network of Regional Training Centers (RTCs) and Regional Technical Assistance Centers (RTACs).

Box 2.8: What metadata can do for you

Metadata is Information that is needed to correctly use and interpret statistics; they are *data that describe other data* ('ordinary' data become metadata when they are used in this way). Generally, metadata can be split in structural and reference metadata.

Structural metadata is used to identify, formally describe or retrieve statistical data: Examples are: dimension names, variable names, dictionaries, dataset technical descriptions, dataset locations, keywords for finding data etc. Structural metadata includes e.g. the titles of the variables and dimensions of statistical datasets, as well as the units employed, code lists, data formats, potential value ranges, time dimensions, value ranges of flags, classifications used, etc.

Reference metadata (sometimes called explanatory metadata) describes the contents and the quality of the statistical data from a semantic point of view. It includes explanatory texts on the context of the statistical data, methodologies for data collection and aggregation, as well as quality and dissemination characteristics.

There are several international frameworks for structuring and disseminating reference metadata, including the IMF's General Data Dissemination System (GDDS), Special Data Dissemination Standard (SDDS) and Statistical Data and Metadata eXchange (SDMX – metadata standard of the ESS) (see [Box 5.9](#)).

Metadata give crucial insight into the data, which is vital for understanding how data can be used, whether they are comparable with other statistics and how reliable analysis based on them is likely to be. For example, metadata should give answers to questions such as:

- What is the source of the data; sample survey, census, administrative records or a combination of several sources? Who is producing the statistics?
- For whom and for what purpose are the data compiled? Which persons or entities are covered by the statistics, and how are the characteristics defined?
- What is the quality of the data? Do they follow international standards and classifications and statistical good practice?
- What is the frequency of the data collection? Is it certain that the data collection will be repeated with regular frequency? Is there a legal basis for the data collection?
- Are the statistics comparable with corresponding statistics in other countries? Are they comparable with other national statistics?

More information on metadata can be found on Eurostat's [RAMON metadata server](#).

B.2.4.1.3. International statistical concepts and methods

To produce statistics that are comparable across countries, common concepts, classifications and methods need to be defined and implemented (concepts and methods were discussed in [section B.2.1](#) above). For example, concepts of unemployment, grey economy and foreign population have been defined at international level. Established international nomenclatures and classifications include those covering [the classification of economic activities \(ISIC\)](#), the [classification of occupations \(ISCO\)](#) or the [classification of diseases \(ICD\)](#). Similarly, standard methods for carrying out statistical actions are described in international manuals.

Box 2.9: Selected publications and databases of international organisations**United Nations**

- The [United Nations Statistics Division \(UNSD\) Millennium Development Goals indicators database](#) covers a wide range of social, economic and environmental indicators for agreed policy goals
- The [UNSD Statistical Yearbook](#) includes a 'World and region summary' of key aggregates. Other sections cover population and social questions, national economic activity and international economic relations.
- The [UNSD Demographic yearbook](#) contains official statistics on population from national authorities.
- The UNSD external trade database [COMTRADE](#) contains annual data on each country's external trade, per partner country, type of flow and product.
- The [United Nations Population Division \(UNPD\)](#) and [World population prospects database](#) provide worldwide population series, per continent, region and country.
- United Nations Educational, Scientific and Cultural Organisation (UNESCO) [Institute for Statistics \(UIS\) database](#) covers education, science & technology, culture, communication and literacy.
- The [Food and Agriculture Organisation \(FAO\) Statistical yearbook](#)
- The [International Labour Organisation \(ILO\)](#) statistical database [ILOSTAT](#) contains statistical information on active population, employment, working conditions, work disputes and household living conditions.
- The [World Health Organisation \(WHO\) statistical information system](#) covers population, health, medical infrastructure, demographic and socioeconomic indicators.

World Bank

- The [World Bank](#) recently launched the [Open Data Initiative](#). This website provides free and easy access to statistics and key development indicators. One of the first examples of the new Open Data policy is the [World Development Indicators](#).

International Monetary Fund

- International financial statistics and balance of payments statistics yearbooks, as drawn up by the [International Monetary Fund \(IMF\)](#).

African Development Bank

- The AfDB's [Open Data for Africa](#) platform facilitates access to quality data for managing and monitoring development results in African countries. To strengthen the statistical systems and promote open access to statistics across Africa, Open Data for Africa will be extended to all African countries.

OECD

- The information published by the [OECD](#) covers the whole statistical field with regards to developed countries.

Eurostat

- [Eurostat's website](#) contains a wide range of regionally harmonised data and metadata for European Union and EFTA countries. The Eurostat indicators database, which covers candidate, potential candidate, countries encompassed by European Neighbourhood policy and the EU's development partners is presented in [section B.3.4](#).

Revisions of methodologies and classifications are carried out periodically through dialogue among statisticians from national and international institutions, often coordinated through the United Nations Statistics Division. The periodic revisions of the [System of National Accounts](#) are among the most complex of these activities: revisions are dated 1968, 1993 and 2008. The purpose of methodological updates in general is to ensure that the methods and concepts used in the statistics remain relevant to the economic, social or environmental issues being measured. In addition, greater attention is now being drawn during methodological revisions to the needs of developing countries. One such need is to ensure that developing countries with limited statistical resources are able to produce statistics that meet the international standards while avoiding unnecessary complexity. Furthermore, statistical concepts need to be appropriate to the economic and social conditions found in developing countries.

A valuable source for information on the quality and availability of data in individual countries is the IMF's [General Data Dissemination System \(GDDS\)](#) (see [Box 5.9](#)) and [Special Data Dissemination Standard \(SDDS\)](#). The GDDS is mainly used by developing countries, whereas SDDS is used mainly by developed countries and transition countries. The objective of the GDDS is to encourage the production and dissemination of complete sets of data with widest coverage, based on international methodologies. The GDDS contains reference metadata such as explanatory texts on the context of the statistical data, methodologies for data collection and aggregation, as well as quality and dissemination characteristics (see [Box 2.8](#) for further details on metadata). This information covers both general system information and information on some selected statistical areas. GDDS provide key information on the overall state of countries' statistical systems and their adoption of international methodologies and classifications. This is valuable input for planning and evaluation of technical assistance in statistics. GDDS metadata are also useful to co-ordinate, assess, implement and evaluate statistical programs across agencies and donors. Further details on statistical quality can be found in [section C.5.3](#) and on [IMF's Standards Bulletin Board](#).

In developing countries, **international classifications and methodologies are not always fully adhered to**. This is often because major statistics actions such as **surveys have not been carried out** for some time. Good practice in developing countries is to implement methodological or classification updates when there is a major statistical action, such as periodic survey or census or a change in an index base year. **Surveys therefore need to be sufficiently well planned** to permit the adoption of current international classifications. Achievement of all objectives of a survey requires close collaboration of specialized statisticians. Attainment of this level of cooperation is a senior management task.

Support in these tasks is provided through the [International Household Survey Network \(IHSN\)](#), which is a partnership of international organizations seeking to improve the availability,

quality and use of survey data in developing countries and by the [Accelerated Data Program \(ADP\)](#) which provides technical and financial support to documentation and dissemination of survey data, and helps developing countries to set up national survey databanks. IHSN is described in more detail in [Box 1.9](#) and ADP in [Box 5.2](#).

In the past, classification changes often required significant updates to computer systems, although current systems are more easily changed. In developing countries, adoption of a new index base or classification still usually requires computer systems to be updated.

Internationally agreed concepts and methods express a minimum consensus: where appropriate, some flexibility for countries in meeting the standards is permitted. In particular, classifications such as trade classifications are mandatory at more aggregate levels, with some flexibility permitted at detailed level. However, for direct comparability between country statistics at detailed level, greater harmonisation not only of classifications but of concepts and methods generally is required. Regional partnerships require increased statistical harmonisation in order to prepare, monitor and evaluate the partnerships' common policies.

Due to the EU's high level of economic integration, Europe has become a leading force in international harmonisation of statistics. National accounts represent a good example of successful harmonisation. The global standard for national accounts is the 2008 System of National Accounts (2008 SNA), replacing the previous SNA93 and responding to changes in the economic environment. Based on the 2008 SNA, the European System of Accounts 2010 (ESA 2010) has been developed and provides the legal basis for the EU National Accounts statistics since 2014. ESA 2010 is compatible with the 2008 SNA and provides for more closely defined sources, methods and data transmission.

In May 2008, Eurostat together with the UN Statistical Division organised a high-level conference on national accounts in the context of development cooperation. The conference concluded by endorsing a series of Recommendations which were then passed on to the Inter-secretariat Working Group on National Accounts (ISWGNA) for further consideration before submission to the UN Statistical Commission in February 2009. In the 2nd quarter of 2009, ISWGNA finalised the adoption of the 2008 SNA and used the following selected principles laid down by the [Luxembourg Recommendations](#) to underline the proposed implementation strategy of the 2008 SNA:

- strategic planning;
- coordination, monitoring and reporting;
- improving statistical systems.

The ISWGNA principle of improving national statistical systems is undertaken providing support, focusing on the collection and processing of basic source data and in so doing, improving national accounts at the institutional and international level through undertaking the following tasks:

- Use of common tools for the production of national accounts
- preparing manuals and handbooks

UNSD agreed on the new 2008 SNA, in February 2008. 2008 SNA has been implemented in 2014. More information about national accounts, the SNA and its implementation in developing countries can be found in chapter D.11. To support developing countries in developing their national accounts in compliance with the 2008 SNA rules and recommendations, Eurostat has developed a practical handbook called “[Essential SNA: building the basics](#)”. This is a practical handbook mainly aimed at a relatively early stage of implementation of 2008 SNA (Level 0 as defined by the ISWGNA), but countries at higher levels can also find it useful, for the training and re-training of their staff, in particular newly employed ones. Synthetic information pages on a number of key topics are available on Eurostat “Statistics explained” pages, under the title “[Building the System of National Accounts](#)”.

Regional trade agreements and increased integration in the global economy is increasingly leading to a need for statistical harmonisation in developing countries. In many countries, adherence to international statistical classifications, concepts and methods still needs improvement. However, such harmonisation, which can be integrated with measures to adopt general international statistics standards, places further demands on the often limited statistical capacity.

To find out more...

about countries’ use of statistics methodologies and classifications:

The IMF’s General Data Dissemination System (GDDS - mostly developing countries) and Special Data Dissemination Standard (SDDS – mostly developed countries) [web pages](#) show each country’s presentation on their statistical meta-data – the methodologies, classifications and nomenclatures used covering some selected statistical areas.

A comprehensive directory and explanation of international statistics classifications and nomenclatures is provided by Eurostat’s [RAMON metadata server](#).

[International Household Survey Network](#)

Example: [Tanzania Household Budget Survey](#)

More info on national accounts implementation:

- [Luxembourg Recommendations](#)
- Eurostat: “[Essential SNA: building the basics](#)”
- Eurostat: [Building the System of National Accounts](#)

B.2.4.2. REGIONAL ORGANISATIONS

Generally, regional organisations comprising, *inter alia*, developing countries undertake statistical activities in order to:

1. Advise policy makers on interpreting statistics relevant to regional policies;
2. Develop and produce harmonised statistics in fields where comparable statistical data is needed to shape regional policies;
3. Exploit economies of scale by virtue of undertaking joint actions where the respective member states have similar statistical needs.

As a rule, a statistics unit of a regional organisation typically needs to have access to data that originates from both the National Statistics Systems of their member states and from international organisations. These data sources are needed to present, compare and explain policy-relevant statistics that cover both the member states of the region and other countries. Regional statistics units, therefore, require effective communication of current data with their Member States’ NSIs, as well as access to international statistical databases.

It is very confusing to data users when there are differences between national and international sources for the same statistics. Also when data from various Member States are presented in the same table, users expect data to be comparable and need to be properly informed about the reasons if this is not so.

Increased data comparability between countries is achieved by adopting consistent concepts, methods and classifications. This process is known as ‘statistical harmonisation’.

Harmonisation requires agreement on common statistical classifications, methods and systems. This is a long, expensive process that usually requires extensive consultation. Therefore, harmonisation in developing countries is usually focusing on statistics in key policy areas of regional integration. Statistics on external trade in goods and on prices are common priorities, as these, especially trade data, are central to regional trade agreements.

The European process of economic and monetary integration favoured the creation of a [European Statistical System \(ESS\)](#). The process of economic and legal harmonisation of statistics in many developing regions is broadly comparable. The challenges of coordination are at least as great as they were in Europe. However, the financial resources and the availability of skilled personnel are much more restricted.

The majority of regional development organisations have some statistics personnel. The functions of the statistics unit can range from being limited in practice to providing advice to decision makers within the organisation to leading the production of regionally harmonised statistics. The UN regional organisations (e.g. ECLAC, UNECA) also have statistics functions and in some cases organise regional statistics activities.

Box 2.10: Selected regional organisations with statistical activities

Africa	AfDB	African Development Bank
	AFRISTAT	Economic and Statistical Observatory of Sub-Saharan Africa
	AU	African Union
	BCEAO	Central Bank of West African States
	BEAC	Banque des États de l'Afrique Centrale
	CEMAC	Communauté économique et monétaire de l'Afrique centrale
	COMESA	Common Market for Eastern and Southern Africa
	ECOWAS	Economic Community of West African States
	SADC	Southern African Development Community
	UEMOA	Union économique et monétaire Ouest Africaine
Americas	IADB	Inter-American Development Bank
	CAN	Comunidad Andina de Naciones
	MERCOSUR	Mercado Común del Sur
	SIECA	Secretaría de Integración Económica Centroamericana
	CARICOM	Caribbean Community and Common Market
Asia	ADB	Asian Development Bank
	ASEAN	Association of South East Asian Nations
Europe	EUROSTAT	Statistical Office of the European Union
	ESS	European Statistical System
	CIS STAT	Interstate Statistical Committee of the Commonwealth of Independent States
Pacific	SPC	Secretariat of the Pacific Community

UN regional organisations not included

When the number of professionals in each member state needing a specific training is small, it might be more efficient to organise such training sessions at regional level. Examples of this are training in tailored software for specific statistical domains, e.g. external trade or national accounts. Regional organisations can coordinate training programmes to meet the needs of its member states' NSIs. Adoption of common statistical processing software also utilises economies of scale, both in software development, introduction, maintenance and training. Various institutional arrangements have been adopted in different regions for statistics-related training. This issue is considered further in [section C.8.6](#).

1

Box 2.11: Example of a regional organisations with a statistics component: The West African Economic and Monetary Union (UEMOA)

The West African Economic and Monetary Union (UEMOA) provides an example of the statistical functions of a regional organisation. Eight States of West Africa, which already shared a common currency, decided in 1994 to increase their economic integration by signing a Treaty creating the UEMOA. The resulting Treaty provides for a multilateral monitoring of eight statistical indicators in support of policy convergence. The following four statistical indicators rank first:

- budget surplus / deficit as % of nominal GDP;
- annual inflation rate;
- public debt as % of the nominal GDP;
- arrears of annual payments.

The statistical data must be comparable across all eight Member States. The UEMOA Commission supports its Member States in harmonising the statistical data used for producing these indicators. It has benefited from EU regional integration support programmes.

UEMOA is financing an enhancement of the regional statistical system. This programme aims to (i) improve, harmonise and modernise regional statistical production; (ii) to implement and operationalize the institutional arrangements for follow-up in each domain; (iii) to reinforce the institutional and technical capacities of the UEMOA Commission in the field of statistics. The actions are to be implemented in the framework of this horizontal statistical programme, organised on 4 axes:

1. Reinforcement of policy convergences;
2. Poverty and social cohesion (follow-up of regional PRSP and MDG's)
3. Common market establishment;
4. Institutional support;

Concrete activities include: the adoption of a Harmonised Consumption Price Index (HCPI) (see Box 12.2); publication of a regional consumption price index in the form of monthly and biannual notes; production and publication of biannual reports on the implementation of the multilateral monitoring system; adoption of methodologies for calculating the Gross Domestic Product (GDP); creation of a data base on competitiveness; harmonisation of sectoral, social and environmental statistics; creation of a regional business register; and promotion of gender statistics and governance.

In October 2010, UEMOA established a Regional Statistical Centre, centralizing the statistical activities of the UEMOA Commission and contributing to improving the quality of the regional statistics.

B.3

Statistics and indicators in the EC development aid process



B.3. Statistics and indicators in the European Commission development aid process

The chapter in brief

- This chapter starts with a presentation of the typology of indicators used by the European Commission. This is useful to understand what types of indicators are used to measure different phenomena.
- Section B.3.2 presents how indicators and statistics are needed at all stages of the Commission cooperation action. The calculation of funds to be allocated to the European Commission cooperation with a particular country is based on a set of indicators. The decision of which sectors and areas to support also requires the observation of indicators in order to identify particular needs, weaknesses and strengths. The choice of the particular activities to undertake in a particular sector is also assisted by the information provided by sector indicators. Finally, indicators are needed to report to citizens of donors and beneficiaries on the results achieved by development aid.

B.3.1. The role and importance of statistics and indicators in the aid context

The development aid allocated to a country is calculated on the basis of a number of indicators. The [Cotonou Agreement](#) refers to the calculation of the multi-annual indicative allocations based on standard, objective and transparent need and performance criteria. The [European Consensus for Development](#) also makes a commitment to decide on the resources allocated to each country based on objective and transparent criteria. Thus, the need for quality statistics arises even before the cycle of operations has started.

Over the last years, there has been an increased focus on the effectiveness of development aid. In this context, the need for reliable statistics has increased strongly, both for monitoring during activities and for evaluation of results after their completion. The use and strengthening of country systems in developing countries should be placed within the overall context of national capacity development for sustainable outcomes.

The [Paris Declaration on Aid Effectiveness](#) puts weight on results based management, [Managing for Development Results \(MfDR\)](#), i.e. managing and implementing aid in a way that focuses on the desired results and uses information to improve decision-making. The [Accra Agenda for Action \(AAA\)](#) strengthens donor's commitment to working through national systems in the recipient countries, based on the developing country's own development objectives, as one means to increase aid's 'value for money'. The existence of result-oriented reporting and assessment frameworks in partner countries and strengthened linkages between development strategies and budget processes are central in this process. Conditions should be based on the developing country's own development objectives. The [Busan High Level Forum on Aid Effectiveness](#) declared that transparent, country-led results frameworks will be adopted as a common

tool to assess performance, based on a manageable number of output and outcome indicators drawn from the development priorities and goals of the developing country.

This process has been backed by donors as well as partner countries, seeing the need to deliver more and better aid and increasing the effectiveness of aid in terms of impact in priority areas. In the [Busan HLF outcome document](#), development aid recipients and donors committed to jointly assess country systems. If full use of the country systems is not possible, the donor(s) will discuss with government what would be required to move towards full use, including any necessary assistance or changes to strengthen these systems. This has meant that the 'traditional' measurements of direct aid input (such as person-days or budget allocated for a specific aid project) and direct, measurable results (such as number of hospital places, number of educated nurses) have been partly supplemented and partly replaced by new indicators; the key indicators shall address the results from the beneficiary point of view (e.g. access to basic medical services) and the overall impact of an aid activity (e.g. decreasing death rates from treatable diseases), as far as possible using the country's own results measurement systems and in line with the country's own development strategy. At Busan, donors committed to minimise their use of additional frameworks, refraining from requesting the introduction of performance indicators that are not consistent with countries' own national development strategies.

A close monitoring and evaluation (M&E) of activities and projects needs data of good quality. The data must be appropriate for the task: it must be relevant, reliable and available when needed and expected. For evaluating development over time, the data must be comparable over time. For wider benchmarking uses, the data should be comparable between countries and regions. The importance of good data and good indicators goes well beyond efficient monitoring and evaluation. Quality statistics are

- vital for the development of evidence-based development policies,
- crucial for the priorities contained in National Development Strategies,
- essential for efficient public administration,
- if trusted by the public, increase transparency and promote accountability of the government, vital to good governance.

Thus, availability and reliability of relevant statistics and the capacity of countries to produce these should be central in EU support for good governance, transparency and accountability (for more information on quality of statistics, see section C.5.3). Assurance of reliability is based on the [UN Fundamental Principles of Official Statistics](#), as well as regional adaptations of these ([African Charter on Statistics](#); [Code of Good Practice in Statistics for Latin America and the Caribbean](#)) (see section B.2.1 for more details).

B.3.2. Typology of development indicators

Working through recipient countries' own performance assessment frameworks require that these country systems are in place and working, providing relevant indicators to define baselines, monitor progress, measure output and assess impact of the national development strategy.

In addition to the joint assessment with recipient countries through the country systems, the EU sets up a results-oriented reporting and assessment framework to monitor and evaluate the performance and impact of EU external policies and development instruments.

The use of carefully selected outcome indicators (performance measurement indicators) is crucial for development partners and partner countries to implement a performance-based approach.

In order to classify an indicator according to what state or event it measures, the European Commission uses the **OECD-DAC's typology of indicators**. This classifies each indicator as measuring an "input", an "output", an "outcome" or an "impact". Each indicator falls into one and only one of the types.

These types of indicators are all relevant for policy makers and development practitioners. A full diagnosis of progress and weaknesses of a sector (or programme or project, or country) will require a set of indicators that includes all the four different types identified, which are:

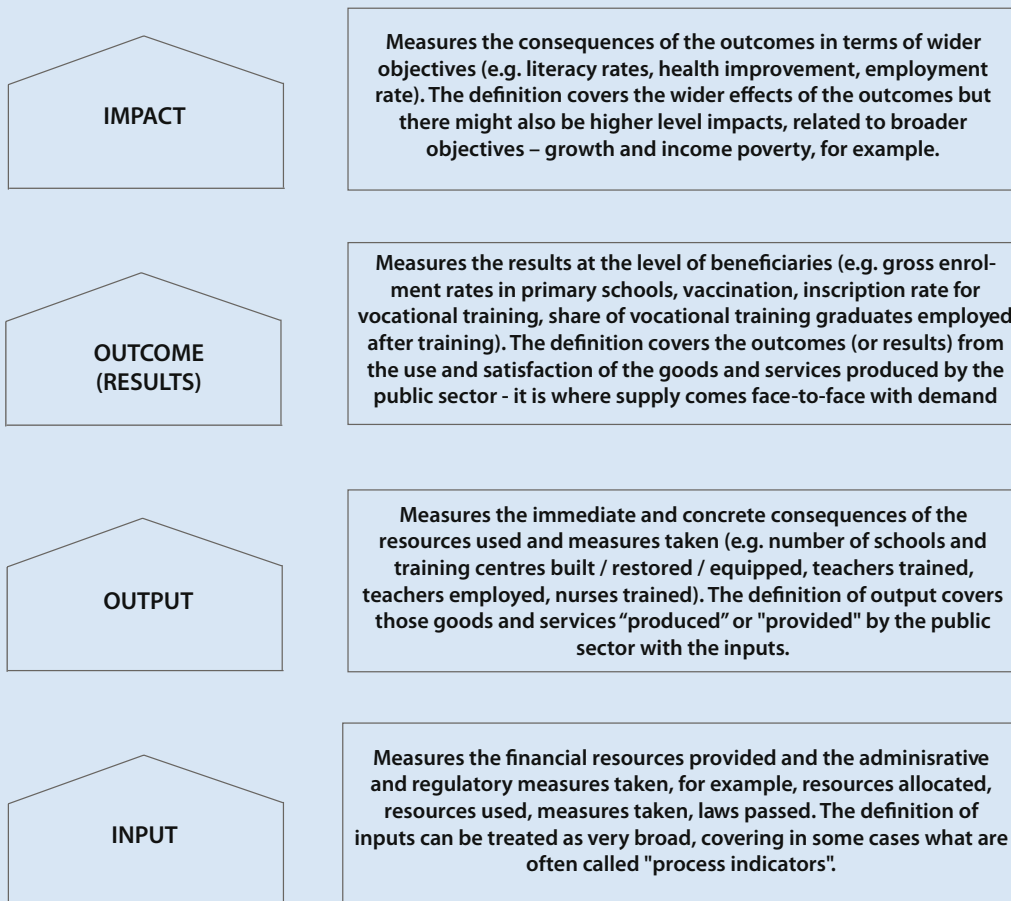
- Input Indicators
- Output Indicators
- Outcome Indicators
- Impact Indicators

Box 3.1 presents a visualisation of the main characteristics of the OECD-DAC typology.

Other donors might use diverging definitions of the different types of indicators. For example, some donors use the term "outcome" or "result" to refer to what the above typology calls "impact". When entering into dialogue with governments or donors concerning the types of indicators to be used to take disbursement decisions, it is crucial to clarify beforehand the concepts underlying the terminology.

EuropeAid's guide '**Policy Steering: The Role and Use of Performance - Measurement Indicators**' (2011) focuses on outcome indicators to measure the impact of policies, improving decision-making processes and informing the public of policy impacts.

Box 3.1: Typology of indicators



The EuropeAid guide on performance measurements indicators underlines that there are no standard tools or pre-defined indicators that match the specific circumstances and priorities of each individual partner country. It presents a three-stage method to select appropriate sectoral indicators:

- What information would shed light on or reflect the specific policy aspects and challenges on which attention is to be focussed?
- Determine whether the indicators relevant to the identification of needs have the necessary characteristics to be used to set targets, to monitor progress and to be available as required.
- Formally recording the chosen indicators on a fact-sheet designed to provide comprehensive information about the calculation of the indicator, document the sources used, communicate any reservations as to the quality of those sources and give a brief idea of how the indicator can be used and interpreted.

It also provides a practical framework for performance measurement in the context of co-operation policies, including the definition of indicator matrices (or 'Performance Measurement Frameworks'; PAFs) and the selection of indicators based on the main targets of policies and the indicators' relevance to users. This guide may be used to support developing countries to set up or improve their performance measurement frameworks. It also provides guidance to EU services in developing and defining their own performance measurement frameworks relating to development policies, instruments and interventions,

The EuropeAid guide on performance measurements indicators underlines that the data on which the performance measurement approach is based must be discussed together with the outcomes of the policy. It also provides a number of practical examples and comments related to challenges faced when defining and implementing performance measurement frameworks in a development co-operation context, illustrating the main dimensions and concepts of statistical data quality.

This framework has been constantly improved, concluding in the document SWD(2012) 80 final "**Launching the EU International Cooperation and Development Results Framework**" (also called EU RF), which aims at strengthening the capacity of the Directorate-General (DG) for International Cooperation and Development to monitor and report results, enhancing accountability, transparency and visibility of EU aid. It is based on the documents COM (2011) 637 final "**Increasing the Impact of EU Development Policy: an Agenda for Change**" and the Commission Staff Working Document (2013) 530 final "**Paving the way for an EU Development and Cooperation Results Framework**". The EU RF is in line with the aid effectiveness commitments taken in 2011 by the international community in Busan.

In this context, the results framework is a tool that is used to measure results achieved against strategic development objectives, covering the results chain from outputs to outcomes and impacts. Based on this, the list of development sectors covered by the EU RF has been defined to reflect the policy priorities of the EU international cooperation and development assistance. It covers twelve areas and sectors and is associated to 16 of the 17 SDGs, corresponding to EU policy priorities. The framework aims at providing information on aggregated key results achieved with EU assistance in order to ensure effectiveness of EU financed development aid.

Compared to the OECD-DAC typology of indicators, the EU RF also considers process indicators; the EU-RF includes the following categories of indicators:

- Input
- Process
- Output
- Outcome
- Impact

The indicators are classified in three different sets. The level 1 indicators monitor development progress in EU partner countries, the level 2 indicators focus on EU contributions to development progress in the partner countries, while the level 3 indicators provide a set of key data necessary for the evaluation by DG International Cooperation and Development of operational processes and the development results achieved. Within this, process results identified at level 1 are closely associated to those of level 2. On the other hand, level 3 indicators are independent and derived from existing EU internal information sources.

Box 3.2: Typology of indicators by the use made of them

- Indicators used to describe events at country or regional level and that are useful for policy. They are able to depict the context of a sector and to measure its changes over time. This category includes: the EU Results Framework indicators (see section B.3.2), the SDGs, the World Bank International Development Association (IDA) 16 Results Managements System, etc.
- Indicators used to monitor what is happening at programme/project level and to evaluate them. These indicators can usually be found in a logical framework for a programme or project and in budget support programmes. For programmes / projects, these will often be sector specific and may be tailored to the individual action.
- Indicators used for reporting and accountability of countries and donors with respect to their commitments. These include aid effectiveness indicators. In principle, the SDG indicators could be seen as part of this group, but in practice they cannot be used to hold countries or donors accountable.

To find out more...

- European Commission: [Launching the EU International Cooperation and Development Results Framework](#) (2015)
- European Commission: [Paving the way for an EU Development and Cooperation Results Framework](#) (2013)
- European Commission: [Increasing the impact of EU Development Policy: an Agenda for Change](#) (2011)
- [European Consensus on Development](#) (2006)
- [Busan High Level Forum on Aid Effectiveness](#) (2011)
- [Accra Agenda for Action](#) (2008)
- [Paris Declaration on Aid Effectiveness](#) (2005)
- [Managing for Development Results](#)
- [Cotonou Agreement](#) (Second Revision; 2010)
- EuropeAid: [Policy Steering: The Role and Use of Performance Measurement Indicators](#) (2011)
- World Bank International Development Association: [IDA 16 Results Measurement System](#) (2012)
- United Nations Development Programme: [Handbook on Planning, Monitoring and Evaluating for Development Results](#) (2009)
- Managing for Development Results: [Sourcebook on Emerging Good Practice in Managing for Development Results](#) (3rd Edition) (2008)
- OECD-DAC: [Network on Development Evaluation; Typology of indicators - Glossary of key terms in evaluation and results based management](#) (2002)

This is in line with the principles of 'Managing for Development Results' and the commitments of the [Paris Declaration on Aid Effectiveness](#) (2005), the [Accra Agenda for Action](#) (2008) and the [Fourth High Level Forum on Aid Effectiveness, held in Busan](#) (2011) (see chapter B.1).

The 'Agenda for Change' states that the EU must seek to target its resources where they are needed most to address poverty reduction and where they could have greatest impact. A differentiated EU approach to aid allocation and partnerships is therefore vital to achieve maximum impact and value for money. The EU should allocate more funds to countries, while recognising the importance of supporting development in its neighbourhood and in Sub-Saharan Africa. The EU will work with partner countries and other donors on accountability and transparency, including building statistical capacity. The EU is committed to work through developing countries' own monitoring and evaluation and performance measurement systems. The 'Agenda for Change' is presented in more detail in section B.1.5.1.

Several of the Agenda for Change's criteria require information on a range of indicators for decisions on country resource allocation and as baseline for performance assessment. Thus, the need for statistics for a partner country arises even before the cycle of operations has started. This principle is set up in the legal instruments that constitute the basis for the cooperation between the European Commission and its partner countries. Both the [Cotonou Agreement](#) and the [Development Cooperation Instrument](#) make explicit reference to the calculation of the multi-annual indicative allocations based on need and performance criteria. The [European Consensus on Development](#) also states a European Commission commitment to decide on the resources allocated to each country based on objective and transparent criteria.

B.3.3. Indicators and statistics in the European Commission development cycle

B.3.3.1 STATISTICS IN PROGRAMMING AND DEVELOPMENT COUNTRY ATTRIBUTION

European Commission development policies have undergone substantial update and refocusing in recent years. The European Commission's 2011 communications '[Agenda for Change](#)' and '[The future approach to EU budget support to third countries](#)' focus on countries most in need of aid and on key issues such as aid efficiency, results orientation, sustainability of results, country ownership, donor coordination and aid transparency.

Box 3.3: The Cotonou Agreement and Country Resource Allocation

(1) The indicative resource allocation among ACP countries shall be based on standard, objective and transparent needs and performance criteria. In this context:

(a) needs shall be assessed on the basis of criteria pertaining to per capita income, population size, social indicators and level of indebtedness and vulnerability to exogenous shocks. Special treatment shall be accorded to the least developed ACP States, and the vulnerability of island and landlocked states shall duly be taken into account. In addition, account shall be taken of the particular difficulties of countries dealing with the aftermath of conflict or natural disaster; and

(b) performance shall be assessed on the basis of criteria pertaining to governance, progress in implementing institutional reforms, country performance in the use of resources, effective implementation of current operations, poverty alleviation or reduction, progress towards achieving the Millennium Development Goals, sustainable development measures and macroeconomic and sectoral policy performance.

(2) The allocated resources shall comprise:

a) a programmable allocation to cover macroeconomic support, sectoral policies, programmes and projects in support of the focal or non focal areas of Community assistance. The programmable allocation shall facilitate the long-term programming of Community aid for the country concerned. Together with other possible Community resources, these allocations shall be the basis for the preparation of the indicative programme for the country concerned; and

b) an allocation to cover unforeseen needs such as those defined in Articles 66 and 68 and Articles 72, 72a and 73 of this Agreement, accessible under the conditions set out in those Articles, where such support cannot be financed from the Union's budget.

Cotonou Partnership Agreement, second Revision (2010), Annex IV, article 3 (1) and (2)

The European External Action Service has in cooperation with EuropeAid issued instructions for the programming of the 11th European Development Fund (EDF) and the Development Cooperation Instrument (DCI) for the period 2014-2020. The EDF finances European Commission development programmes for African, Caribbean and Pacific (ACP) partner countries, whereas the DCI supports co-operation with partner countries in Latin America, Asia and Central Asia, as well as the Gulf region and South Africa. In addition, the DCI supports a number of thematic programmes benefiting all developing countries.

The Programming Instructions for EDF and DCI introduce a simplified process for programming the EU's bilateral development cooperation with partner countries and regions. Whenever possible, the programming process makes use of existing national or regional policy documents as the main reference documents. Consequently, the Multiannual Indicative Programme (MIP) should become the central document of the programming process for each partner country and partner region.

In the first phase of the programming process (2012), EU Delegations make an assessment of whether the national/regional development plan provides a sufficient basis for the programming of EU assistance. The assessment should preferably be made jointly with EU Member States and other key development partners present on the ground.

Joint Programming takes place when the EU and its Member States agree to adopt a common multiannual programming document for their support to a partner country/region. To maximise aid effectiveness, Joint Programming processes should include the European Investment Bank, other European development financing institutions and non-EU donors that are committed to the objectives. Joint Programming calls for joint analysis and response to the partner country's/region's development plan. The analysis should be concise and refer to available analysis. The Joint Programming document should include the identification of the sectors of intervention, in-country/regional division of labour and the indicative financial allocations per sector and donor. Both grants and concessional loans should be covered by the Joint Programming document. While the Joint Programming process may cover several sectors, the principle of sector concentration in defining the EU support should be fully respected.

In the **Second phase of a programming process**, a Multi-annual Indicative Programme (MIP) is prepared for countries (e.g. Afghanistan, Bhutan, Ghana, Moldova and Yemen) and regions (e.g. Latin America, Central Asia) that are eligible to bilateral EU assistance. The MIP is the central document of the programming process for all countries and regions receiving an allocation for bilateral assistance. The MIP sets out the proposal for the overall lines of the EU response or the Joint Programming document. It includes the strategic objectives of the EU's relationship with the partner country/region and the sectors identified for EU assistance, as well as the context/justification and sector/thematic analysis behind the choice of the sectors.

The Multi-annual Indicative Programme sets out:

- the indicative amount allocated to each sector;
- for each sector, the overall and specific objectives;
- for each specific objective, the main expected results;
- for each result, the main indicators and, where possible, targets;
- the possible amount to be kept un-programmed in order to answer to specific needs of post-crisis/fragile situations.

The MIP must specify the overall measures and specific measures for each sector, to be taken by the partner country government / regional organisation to achieve the specified objectives and results. It also provides a concise summary of the partner country's / regional organisation's sector policies and financial commitments to ensure the feasibility and sustainability of the EU response. The sector policy commitments must also take into account cross-cutting issues: the promotion of human rights, gender equality, democracy, good governance, children's rights, persons with disabilities, indigenous peoples, environmental sustainability, and combating HIV/AIDS).

Where possible, donors should agree to use the country's / region's result measurement frameworks. Such frameworks would normally include a limited number of agreed indicators to ensure mutual accountability and on the basis of which both, donor performance towards agreed goals and the government's / regional partner's performance in implementing the national / regional development plan can be assessed. If the result measurement system laid down in the national / regional development plan is insufficient, support to strengthen the system should be provided within the sector and/or budget support programmes selected in the MIP.

The relevance and the reliability of the agreed indicators are vital, both for programming and country resource allocation, for establishing baselines and for results measurements. Thus, the methodology used for compiling these indicators is of key importance, as are the quality of the underlying statistics and the capacity of the partner country/region to produce these.

Box 3.4: The Development Cooperation Instrument (DCI) Regulation and country resource allocation

Article 18 General framework for programming and allocating funds

(1) In the case of geographic programmes, the Commission shall draw up a strategy paper and a multiannual indicative programme for each partner country or region, as provided for in Article 19, and adopt an annual action programme for each partner country or region, as provided for in Article 22.

In the case of thematic programmes, the Commission shall draw up thematic strategy papers as provided for in Article 20, and adopt action programmes as provided for in Article 22.

In exceptional circumstances, Community support may also take the form of special measures not covered in strategy papers or multiannual indicative programmes, as provided for in Article 23.

(2) The Commission shall determine the multiannual indicative allocations within each geographic programme using standard, objective and transparent resource allocation criteria, based on the needs and performance of the partner country or region concerned and bearing in mind the particular difficulties faced by countries or regions in crisis, conflict or disaster prone, alongside the specificity of the different programmes.

The needs criteria include population, income per capita and the extent of poverty, income distribution and the level of social development. The performance criteria include political, economic and social progress, progress in good governance and the effective use of aid, and in particular the way a country uses scarce resources for development, beginning with its own resources.

[Regulation \(EC\) No 1905/2006 establishing a financing instrument for development cooperation](#)

Box 3.5: The European Consensus on Development and country resource allocation

2.2 Objective and transparent criteria for resource allocation

64. Within global geographic and thematic allocations, the use of standard, objective and transparent resource allocation criteria based on needs and performance will guide the allocation of resources and a review of their subsequent use. The particular difficulties faced by countries in crisis, in conflict or disaster-prone will be borne in mind, alongside the specificity of the different programmes.

65. The needs criteria include population, income per capita and the extent of poverty, income distribution and the level of social development, while the performance criteria include political, economic and social progress, progress in good governance and the effective use of aid, and in particular the way a country uses scarce resources for development, beginning with its own resources.

[The European Consensus on Development](#) [Official Journal C 46 of 24.2.2006]

B.3.3.2. STATISTICS AND BUDGET SUPPORT

Budget support is an important instrument in EU's comprehensive development policy towards partner countries. EU budget support is not a blank cheque, nor is it provided to every country. "Underlying principles" matter and policy dialogue is a key part of the package.

Moreover, eligibility criteria have to be met before and during the programme and conditions need to be fulfilled before payments are made. This ensures that resources are used for their intended purposes, mitigates risks, and creates incentives for improved performance and results. It also creates incentives for our partner countries to improve their governments systems.

The European Commission only provides budget support to countries that meet the following eligibility conditions:

- A well-defined national or sectoral development or reform policy and strategy is in place;
- A stability-oriented macroeconomic framework is in place;
- A credible and relevant programme to improve public financial management is in place;
- A transparency and oversight of the budget information must be made publicly available (see chapter D.19 for more information on Government Finance Statistics and public sector statistics)

Budget support is only disbursed when the eligibility criteria and additional agreed conditions on results are met. Compliance with the eligibility criteria and fulfilment of the agreed conditions is crucial to assure the appropriate use of resources, reduce risks and create incentives for improved performance. Where the European Commission notes that progress is insufficient, budget support tranches are withheld until credible reassurances or measures have been established.

The Communication '[The future approach to EU budget support to third countries](#)' (2011) confirms that EU budget support should continue to be predictable, to emphasise nationally owned development strategies and to use performance related tranches. The Commission remains committed to results-based budget support operations. It will further strengthen progress assessment and monitoring of outcomes, including by using process and output indicators.

The EU should continue to apply a dynamic approach to eligibility criteria, focusing on progress in the implementation of credible and relevant reform strategies. The European Commission intends to improve its eligibility criteria and assessment of these as well as the allocation of funds.

Budget support should continue to involve a combination of base tranches linked to eligibility, and performance tranches linked to progress against indicators in addition to eligibility criteria. The indicators should be drawn from the partner country's national or sector development policy and should

contain a mix of process, output and outcome indicators. Indicators and targets should be reviewed as part of each annual review, and may be adapted in the light of lessons learned.

Budget support relies on conditionality and policy dialogue, thus baseline information is needed to start the process. As budget support is focused on development results, information to measure the performance of budget support at general and at sector policy level is needed. Relevant and reliable performance and output indicators, based on statistics, are necessary to verify the extent to which variable budget support tranches can be disbursed.

The partner country should have a credible and functioning system for monitoring and evaluation of results. If weaknesses are identified in this system, actions should be agreed to strengthen it. The European Commission pays particular attention to:

- The institutional setup of the monitoring and results evaluation system;
- The existing monitoring and evaluation plan linked to development objectives and key processes;
- Quality, regularity and reliability of data. In particular, this covers official statistics, information systems, indicators and reporting documents;
- Capacity development to support monitoring and evaluation functions.

The European Commission systematically assesses the need for capacity development, in order to enhance the capacity of partner country governments to implement policies and deliver services to final beneficiaries and to promote active engagement of domestic stakeholders. In particular, the European Commission should assess the needs to strengthen the national statistical system and its capacity to provide reliable statistics for required policy formulation, monitoring and performance assessment. The support to capacity development is based on demand, linked to clear outputs, and through harmonised and aligned initiatives.

B.3.3.3. STATISTICS AND IDENTIFICATION

The use of indicators is also crucial for the success of a project or programme identification. Compared to the set of indicators used during programming, the indicators chosen at this stage will tend to present a closer definition of the particularities of a sector.

The choice of the set of indicators will provide measurements of the situation in the sector where the cooperation intervention is to be designed. The main aim of these measurements will be to identify what are the needs, the strengths and weaknesses existing in the sector and will facilitate the choice of activities and targets constituting the project.

In the case of budget support programmes, it is important not to confuse the indicators that will furnish this crucial information on needs, strengths and weaknesses and those that will be used for the disbursement of the variable tranches. Usually the disbursement indicators will be a limited subset of the sector indicators that will focus on a few main issues which are considered crucial to assess the progress of the government towards the achievement of the programme's objectives.

The process for reaching this decision on whether to provide budget support involves:

- assessment of a country's commitment to the fundamental values of human rights, democracy and rule of law. The assessment will be done within the risk management framework (political risk category) during the identification phase and subsequently monitored during the formulation and implementation phases, using the risk framework;
- assessment of eligibility against the four eligibility criteria (well-defined national/sectoral development strategy; stability-oriented macroeconomic framework; credible and relevant programme to improve public financial management; transparency and oversight of the budget). This will be done for all budget support contracts during the identification and formulation phases. It will also be done during implementation, in addition to variable tranche performance.
- assessment of the risks and whether these are likely to be outweighed by the mitigating measures and expected benefits during the identification, formulation and implementation phases.

Decisions on how much budget support will be based on a broad qualitative assessment of the following needs and performance criteria:

- Financing needs of the partner country, assessed on the basis of its medium term fiscal framework and the national/sector development strategies;
- Commitment of the partner country to allocate national budget resources in line with development strategy and objectives;
- Effectiveness, value for money and impact of the specific added value that budget support will bring in achieving the partner country's policy objectives;
- Track record and absorption capacity of past disbursements, and how effectively agreed objectives were achieved with budget support operations;
- Result orientation in the partner country's development strategy, including a monitoring system.

B.3.3.4. STATISTICS AND FORMULATION / IMPLEMENTATION

The same set of indicators used to support the identification of a project or programme will usually be useful for the formulation phase. However, given the greater knowledge of the field of intervention at this stage, new indicators are often added to the set as new needs for information on specific issues are defined. This final set of indicators constitutes a project's logical framework and will be used later on for monitoring of project implementation. For budget support programmes, some issues need to be taken into account:

Formulation: All budget support contract Action Fiches should follow the same format, covering the following main sections:

- Rationale, objectives and expected benefits of the budget support programme constitute the key lines of the strategic framework;
- Assessment of country context and budget support eligibility, summarizing the main issues and results of the assessment of the four eligibility criteria;
- Risk Management covers the main issues identified in the risk management framework, focusing on a description of the major risks and mitigating measures;
- Design of the programme covers the implementation issues, including the expected benefits and results, total budget and indicative calendar for disbursements, stakeholders and donor coordination, performance monitoring, criteria for disbursement, complementary measures (in particular for capacity development, evaluation and audit, communication and visibility).

Implementation: Regular monitoring and dialogue are key elements of all budget support operations. Promoting domestic ownership and accountability, strengthening team work within EU Delegations and across all budget support providers, and paying attention to appropriate communication and visibility activities will all be important.

At the end of a budget support programme, a final report needs to be formulated. These final programme reviews will highlight the initial objectives of the programme, progress and results achieved during implementation, as well as lessons learnt. These reviews are not formal evaluations, but aim at providing input for future budget support operations and at improving the communication and visibility of results.

B.3.3.5. STATISTICS AND EVALUATION

Four sets of indicators correspond to four specific stages of the evaluation process:

1. Context indicators provide information about the changes in the country under evaluation, the location and the assistance provided.

2. Programme indicators detail the resources, implementation, results and if possible the impacts of an ongoing activity.
3. Evaluation indicators, when examined together with the evaluation criteria, enable the evaluator to formulate a judgement on the programme's relevance, coherence, efficiency and effectiveness and to support answers to evaluation questions.
4. Monitoring indicators are included in the monitoring system of programmes and sometimes used by evaluators to assess the implementation of programmes.

An indicator can belong to several of these indicator sets and be used in a variety of situations. For example, a socio-economic indicator may also be appropriate as a programme impact indicator.

The European Commission country evaluations make use of context indicators. These indicators are often designed to highlight the specificities of a local context, however without enabling the evaluator to make a comparison between countries or get a global and normative view of the country's situation. In certain cases and countries, the emphasis may be put on particular sectors or issues (e.g. poverty analysis, conflict analysis). Context indicators include:

- Economic indicators: GDP, growth, debt, balance of payments;
- Social indicators: population, unemployment, educational level, health;
- Indicators of services provided to the population: education, health, drinking water, electrification;
- Others: indicators for the analysis of poverty in ACP countries.

The main evaluation indicators are those that specify the data needed to make a judgement based on specific judgement criteria. An indicator can be constructed specifically for an evaluation or measured through a survey. It may also be drawn from monitoring databases, a performance assessment framework or statistical sources.

A qualitative indicator measures the target group's opinion on a specific subject, e.g. how parents perceive their children's possibility of attending a primary school class with a qualified teacher (very good/good/average/poor/very poor). A quantitative indicator gives information on an issue that can be measured or counted, e.g. the number of qualified and experienced teachers. More advanced indicator (ratios, rates) may be calculated on the basis of a basic quantitative indicator directly resulting from the counting process, e.g. the educational cost per pupil or the number of qualified experienced teachers per 1,000 children of primary-school age. If there are no indicators available that directly measure what is needed for the evaluation, proxy indicators may be used; these are indicators that measure related issues rather than directly the issue evaluated, but can still give general information on trends and tendencies.

Indicators, as mentioned before, may belong to different categories: inputs, outputs, results or impacts. When an evaluation question centres on an intended result or impact, it is worth checking whether this result or impact has been subject to performance monitoring. In such cases, the evaluation uses the corresponding indicators and data, which generally should also provide baseline data. However, performance monitoring data do not cover cross-cutting issues, sustainability factors, unintended effects, evolving needs or problems, coherence, etc.

Performance indicators and targets are often expected to be SMART: Specific; Measurable; Attainable; Realistic; Timely.

Indicators used to evaluate an effect are not in themselves a measurement or evidence of that effect. The indicator only informs on changes, which may either result from the intervention (effect) or from other causes. This is in particular a challenge for budget support programmes.

Budget support evaluations should be carried out every 5 to 7 years, together with the other donors that provide budget support to the partner country to be evaluated. The budget support evaluation should use the methodological approach developed by the OECD/DAC Steering Group for budget support evaluations. Donors need to work closely with evaluation departments of governments throughout the process leading to and during evaluations. The Technical and Administrative Provisions of Financing Agreements and Memoranda of Understanding should include provisions on when and how budget support evaluations should take place. In particular, they should ensure that proper monitoring and data collection systems (including household and other required surveys) are in place.

To find out more...

International initiatives

- [Fourth High Level Forum on Aid Effectiveness](#) (Busan) (2011)
- [Accra Agenda for Action](#) (2008)
- [Paris Declaration on Aid Effectiveness](#) (2005)
- [Managing for Development Results](#)

European legislation:

- European Commission Communication COM(2011) 637: [Increasing the impact of EU Development Policy: an Agenda for Change](#)
- European Commission Communication COM(2011) 638: [The future approach to EU budget support to third countries](#)
- [Regulation \(EC\) No 1905/2006 establishing a financing instrument for development cooperation](#)

European External Action Service and EuropeAid:

- [Instructions for the Programming of the 11th European Development Fund \(EDF\) and the Development Co-operation Instrument \(DCI\) – 2014-2020](#) (2012)
- [Instructions for the Programming of the European Neighbourhood Instrument \(ENI\) – 2014-2020](#) (2012)

EuropeAid:

- [Guidelines on the Programming, Design & Management of General Budget Support](#) (2012): [Executive Guide](#); [Programming, Design and Management](#)
- [Policy Steering: The Role and Use of Performance Measurement Indicators](#) (2011)
- [Aid Delivery Methods, Volume 1 – Project Cycle Management Guidelines](#) (2004)
- Section on [Evaluation](#) on EuropeAid's website, including information on evaluation methodology and tools
- [Summary on context indicators](#)
- [Evaluation of the Commission Support for Statistics in Third Countries](#) (2007)
- [Country at a Glance model tables](#)

United Nations Economic Commission for Europe:

- [Making Data Meaningful guides: Part 1: A guide to writing stories about numbers](#) (2009); [Part 2: A guide to presenting statistics](#), [Part 3: A guide to communicating with the media](#) (2011); [Part 4: A guide to improving statistical literacy](#) (2012)

B.3.4. Eurostat Indicators Database

The Eurostat [website](#) and [database](#) provide public access to extensive harmonised data about the EU, the Eurozone, EU Member States and regions; some data are also provided on EFTA countries, the USA and Japan for comparison purposes.

Eurostat data is also available on [enlargement countries](#); and [Eastern European Neighbourhood \(ENP-East\) countries](#). Data for both the Candidate and potential candidate countries (CPC) and the ENP-East countries can be accessed through the Data Navigation Tree on the Eurostat website, under '[Data](#)' – 'Database by themes' – 'General and regional statistics' – 'Non EU countries'. The data organisation and coverage reflects that of Eurostat:

- Key indicators on EU policy: Structural indicators
- Economy and finance
- Population and social conditions
- Industry, trade and services
- Agriculture, forestry and fisheries
- International trade
- Transport
- Environment (candidate / potential candidate countries only) and energy
- Science and technology

Data come from the countries and from COMEXT, the EU's external trade database.

Data from the Mediterranean countries can be accessed through the [ENP-South](#) page, through the '[Database](#)' menu point, or through the Data Navigation Tree under '[Data](#)' – 'Database by themes' – 'General and regional statistics' – 'Non EU countries' – 'Southern European Neighbourhood (ENP-South) countries'. The data covered are:

- Economy and finance
- Population and social conditions
- Tourism
- Agriculture
- Transport
- Environment
- Energy

On Eurostat's [International Cooperation](#) webpage, information on Eurostat's cooperation with and development support to [Africa, Caribbean and Pacific \(ACP\)](#) and [Asia and Latin America \(ALA\)](#) can be found.

A tool named "Third Countries Database" provides data and indicators for Africa, Caribbean, Pacific, selected Asia and Latin America Countries, selected High Income Countries and other Third Countries. The access to this data is restricted to European Commission agents and the use of the data should stay within the institution.

B.4

Statistics across policy sectors



B.4. Statistics across policy sectors

The chapter in brief

- Section B.4.1 and section B.4.2 presents some international indicators that have cross-sectional coverage and are relevant to the European Commission development aid process: the SDG indicators (section B.4.1)) and indicators to assess the implementation of a Poverty Reduction Strategy (section B.4.2). Examples of project or programme indicators are presented in Part D of this Guide.
- Section B.4.3 describes the links between the European Commission's defined policy sectors and statistical activities.

B.4.1. Sustainable Development Goals indicators

B.4.1.1. BEYOND 2015 – STRATEGY FOR POST-MILLENNIUM DEVELOPMENT GOALS

The eight Millennium Development Goals set specific targets on poverty alleviation, education, gender equality, child and maternal health, environmental stability, HIV/AIDS reduction, and a 'Global Partnership for Development.' Substantial progress was made towards achieving the MDGs; global poverty continues to decline, more children than ever are attending primary school, child deaths have dropped dramatically, access to safe drinking water has been greatly expanded, and targeted investments in fighting malaria, AIDS and tuberculosis have saved millions of lives.

The commitment of the Millennium Development Goals was that they should be fulfilled by 2015. However, the world community was committed to continue the efforts to achieve a world of prosperity, equity, freedom, dignity and peace for all.

This process of agreeing on a new sustainable development agenda beyond MDGs was initiated at the [UN summit on the Millennium Development Goals](#) in September 2010. The MDG Summit mandated the UN Secretary General to take initiative for the development process beyond 2015.

The UN High-level Panel on Global Sustainability (GSP) was launched by the Secretary-General in August 2010, bringing together renowned world figures to formulate a new blueprint for a sustainable future on a planet under increasing stress resulting from human activities. Climate change, water scarcity, loss of biodiversity, the destruction of ecosystems and shifting demographic and consumption patterns required bold new approaches to ensure that the world could meet the Millennium Development Goals and other development objectives.

The GSP explored approaches for building a low-carbon, green and resilient economy that can eradicate poverty and ensure a dignified life for all. The GSP's recommendations fed into key inter-governmental processes, including the preparations for the [UN Conference on Sustainable Development "Rio+20"](#) and the [annual meetings on the United Nations Framework Convention on Climate Change \(UNFCCC\)](#). The GSP advised that global sustainable development goals were needed to replace the MDGs; it was clearly important that the Rio+20 and Post-2015 processes were closely interlinked. The GSP presented its final report '[Resilient People, Resilient Planet: A Future Worth Choosing](#)' in January 2012. The report called on governments and the scientific community to take practical steps to strengthen the interface between policy and science, including improving data and knowledge concerning socio-economic factors such as inequality.

In addition, a UN Task Team was established to coordinate preparations within the UN system and to support the work of the GSP. In its report [Realizing the Future We Want for All](#), the Task Team pointed out that the MDG framework defined a set of concrete and time-bound goals and targets that could be monitored by statistically robust indicators. This also motivated the strengthening of statistical systems and use of quality data to improve policy design and monitoring by national governments and international organisations.

The cooperation of the Task Team and the GSP led to recommendations for the Post-2015 Development Agenda. For the monitoring of the development process and policy effectiveness, strengthening statistical capacities in most countries, more qualitative indicators and better availability of data were identified as crucial. These recommendations were incorporated in the final design of Sustainable Development Goals (SDGs).

In August 2012, the UN Secretary-General launched the [Sustainable Development Solutions Network \(SDSN\)](#), a new independent global network of research centres, universities and technical institutions to help find solutions for some of the world's most pressing environmental, social and economic problems.

B.4.1.2. THE SUSTAINABLE DEVELOPMENT GOALS, THEIR TARGETS AND INDICATORS

Section B.1.2 and section B.4.1.1. briefly presented the process leading to the definition of the 17 aspirational **Sustainable Development Goals**. These global goals are again broken down into 169 specific targets to be achieved by 2030. To measure the progress towards the attainment of these targets, the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) developed a list of **230 SDG indicators**, which was adopted by the UN Statistical Commission in its meeting in March 2016. The follow-up and review of the progress towards the SDGs is informed by an annual progress report prepared by the Secretary-General in cooperation with the United Nations system, based on the global indicator framework and data produced by national statistical systems and information collected at the regional level.

In July 2016, the first **annual Sustainable Development Report** was published by the United Nations, based on the SDG indicators. At the same time, the UN Statistics Division launched the **SDG global indicators database**, which provides the data compiled for the annual SDG progress report.

Providing an example of this monitoring framework, Box 4.1 shows the relationship between Sustainable Development Goal 1 ‘No poverty’, its associated targets and the indicators used to measure progress toward these targets. This structure is the same for each of the SDGs. The entire framework is presented on the UN Statistics Division website dedicated to the SDG indicators – see the ‘**To Find out More**’ box below.

Box 4.1: Sustainable Development Goals, targets and indicators (example)

Sustainable Development Goal 1: End poverty in all its forms everywhere	
Targets	Indicators
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day	1.1.1 Proportion of the population below the international poverty line, disaggregated by sex, age group, employment status and geographical location (urban/rural)
1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	1.2.1 Proportion of the population living below the national poverty line, disaggregated by sex and age group 1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	1.3.1 Percentage of the population covered by social protection floors/systems, disaggregated by sex, and distinguishing children, the unemployed, old-age persons, persons with disabilities, pregnant women/newborns, work injury victims, the poor and the vulnerable
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.1 Proportion of the population living in households with access to basic services
1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	1.5.1 Number of deaths, missing people, injured, relocated or evacuated due to disasters per 100,000 people
1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions	1.a.1 Percentage of resources allocated by the government directly to poverty reduction programmes 1.a.2 Spending on essential services (education, health and social protection) as a percentage of total government spending
1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	1.b.1 Number of national action plans related to multilateral environmental agreements that support accelerated investment in actions that eradicate poverty and sustainably use natural resources

* The wording and methodology for some of these indicators are still under review by the Inter-Agency and Expert Group on Sustainable Development Goal Indicators.

The 2030 Agenda for Sustainable Development requires each country to produce a large number of statistics-based indicators, the frequency of data depending on the indicator and the country's level of development. The data is intended for use as a development map to illustrate how countries, regions and the world as a whole are progressing towards attaining the Sustainable Development Goals.

Although the previous Millennium Development Goals indicators stimulated demand and co-ordinated international support for sustainable national statistical capacity-building, they also led to debates about the quantity and quality of the data and associated metadata (the description of the basis of the data). These questions fundamentally centred on data availability, comparability and national ownership of the indicators. The IAEG-SDGs addressed a number of these issues in its work leading to the global monitoring framework and its indicators. However, the further process involves further development and critical review of these indicators, as well as the definition and implementation of work plans for this. Thus, in 2016, the IAEG-SDGs launched an open consultation on possible refinements to the global indicator framework. Furthermore, in January 2017 the UN and Statistics South Africa jointly arranged the first World Data Forum, bringing together public and private measurements experts, statistical producers, information system specialists, users and other key stakeholders to discuss data for sustainable development.

Box 4.2 shows how an SDG indicator is developed based on existing statistics.

Box 4.2: Building a statistical indicator of poverty

'No poverty' is the first of the Sustainable Development Goals (SDGs); more specifically, it is defined as "By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day". To measure progress towards this first target, SDG indicator 1.1 is the 'poverty headcount ratio', which is defined as:

'The proportion of the national population living in households with per-capita consumption or income that is below the international poverty line of USD 1.25. It is calculated by dividing the number of persons living in households below the poverty line by the total number of persons.'

Data on household income, consumption and expenditure are generally collected through household budget surveys or other household surveys (LFS, HIES, LSMS, Integrated household surveys, etc.). National statistical offices, sometimes in conjunction with other national or international agencies, usually undertake such surveys, typically every three to five years in developing countries.

Household income may be converted into income per adult equivalent. This can be calculated for different types of households (e.g. rural or urban, by gender of the head of the household, etc.) Income-per-adult equivalent can also be used to define national 'poverty lines', the level of income under which the household is considered as poor.

When using statistical data that originates from different surveys, attention must be paid to the definitions of income, for instance, whether income in kind is included or not. At country level, comparisons over time may be affected e.g. by changes in survey types or data collection methods.

The use of purchasing power parity (PPP) ensures that differences in price levels across countries are taken into account. The PPP is computed on the basis of price data from across the world; for the 2011 PPPs, prices were collected across 199 countries. As differences in the cost of living across the world evolve, the global poverty line has to be periodically updated. The responsibility for determining a particular year's PPP rests with the International Comparison Program (ICP), an independent statistical program.

A continuously debated issue remains the consistency between data and indicators published by the countries themselves and indicators published by international organisations. Such international indicators may convert or transform national data in order to comply with international definition and increase comparability across countries, or they may be estimated for other reasons. The UN Statistics Division's [countryData database](#) provides concise comparisons between national and international estimates of development indicators.

Part C discusses whether and how to provide European Commission support in order to improve the national data required for the SDG indicators and other indicators.

B.4.1.3. GDP AND BEYOND – MEASURING PROGRESS, WELL-BEING AND SUSTAINABLE DEVELOPMENT

Gross Domestic Product (GDP) is the best known measure of macro-economic activity. GDP aggregates the value added of all money-based economic activities. It is based on a clear methodology that allows comparisons to be made over time and between countries and regions. GDP has also come to be regarded as an indicator for overall social development and general progress. However, there are growing demands to measure progress, well-being and sustainable development in a more meaningful way. The definition of GDP implies clear limitations on its use as a measure of well-being and of economic, environmental and social sustainability. The need to develop better data and indicators has been the focus of several international initiatives.

In 2008, the French government set up the '**Commission on the measurement of economic performance and social progress**', also known as the 'Stiglitz-Sen-Fitoussi Commission'. Its aims were to identify the limits of GDP as an indicator of economic performance and social progress, to consider what additional information might be required for producing more relevant indicators of social progress, and to assess the feasibility of alternative measurement tools.

In 2009, the 'Stiglitz-Sen-Fitoussi Commission' Report was published, presenting 12 recommendations on how to better measure economic performance, societal well-being and sustainability. The report was explicit on the need to look beyond factors of production to better measure economic performance and social progress in the context of sustainability. It suggested new avenues for better measurement in three main areas:

- Economic performance where improvements in GDP accounting are needed;
- Societal well-being (quality of life, including subjective measures of well-being);
- Sustainability and the environment.

The European Commission's Communication '**GDP and beyond — Measuring progress in a changing world**' in 2009 aimed at developing more inclusive indicators that provide a more reliable knowledge base for better public debate and policy-making. It pointed to the need to improve, adjust and complement GDP with indicators that concisely incorporate social and environmental achievements (e.g. improved social cohesion, accessibility and affordability of basic goods and services, education, public health and air quality) and setbacks (e.g. increasing poverty, more crime, depleting natural resources). It proposed five priority actions to further develop environmental and social indicators and to report more accurately on distribution and inequalities:

Action 1: Complement GDP with environmental and social indicators (a comprehensive environmental index, quality of life and well-being).

Action 2: Provide near real-time information for decision-making (more timely environmental and social indicators).

Action 3: Report more accurately on distribution and inequalities

Action 4: Develop a European sustainable development scoreboard

Action 5: Extend national accounts to environmental and social issues

To answer the challenges to official statistics presented by these two initiatives, the European Statistical System launched a '**Sponsorship Group**'. This Sponsorship Group addressed statistical gaps, making concrete proposals on how to implement the recommendations of the 'Stiglitz-Sen-Fitoussi Commission' report and the 'GDP and Beyond' Communication. Its mandate was mainly to prioritise actions with the aim of producing adequate indicators rather than proposing an additional conceptual framework; the work focused on making better use of and improving existing statistics with a view to providing the most appropriate indicators. Its report '**Measuring Progress, Well-being and Sustainable Development**' was adopted the European Statistical System Committee in November 2011. This report identifies more than 50 concrete actions for improving and developing European statistics over the coming years. The priority areas were:

- Household perspective and distributional aspects of income, consumption and wealth;
- Multidimensional measurement of the quality of life;
- Environmental sustainability.

For comparison purposes, core instruments are one important way of building harmonisation and these should be developed; these should be defined in close cooperation with international partners.

To find out more...
About the Sustainable Development Goals and indicators

- United Nations: [Official Sustainable Development Goals website](#); [Annual SDG Progress Report](#)
- United Nations Statistics Division: [SDG indicators website](#); [official list of SDG indicators](#); [SDG global indicators database](#); [countryData database](#)
- United Nations Secretary-General's High-Level Panel on Global Sustainability (GSP): ['Resilient People, Resilient Planet: A Future Worth Choosing'](#) (2012)
- UN system Task Team: [Realizing the future we want for all](#) (2012)
- United Nations' [Sustainable Development Solutions Network](#)
- ['Rio+20' UN Conference on Sustainable Development](#)
- [United Nations Framework Convention on Climate Change \(UNFCCC\)](#)

About the MDG indicators and regional initiatives on development indicators

- [Indicators for Monitoring the Millennium Development Goals](#). Wiki: definitions, rationale, concepts and sources.
- Asian Development Bank: [Administrative data sources for compiling Millennium Development Goals and related indicators](#) (2010)
- UN Economic Commission for Africa – African Centre for Statistics: [Handbook on data sources and estimation of development indicators in African countries – Millennium Development Goals](#) (2011)

About measuring growth, well-being and sustainable development, beyond the Gross Domestic Product

- [International Commission on Measurement of Economic Performance and Social Progress](#) (Prof. J. Stiglitz, Prof. A. Sen, Prof. J.P. Fitoussi; 2009)
- European Commission Communication COM(2009) 433: [GDP and beyond – Measuring progress in a changing world](#)
- [Eurostat's 'GDP and beyond' website](#)
- European Statistical System: ['Measuring Progress, Well-being and Sustainable Development' website](#); ['Measuring Progress, Well-being and Sustainable Development' leaflet](#) and the [Final Report on the Sponsorship Group on Measuring Progress, Well-being and Sustainable Development](#) (2011)
- [OECD Better Life initiative: Measuring Well-being and Progress](#)
- [The 'Beyond GDP' initiative](#)

B.4.2. Indicators for poverty reduction strategies

The World Bank / IMF Poverty Reduction Strategy (PRS) approach was examined from a policy perspective in section B.1.2.1. The PRS analysis is structured to promote country policies and activities that can meet the overall country economic and social goals. Indicators are required at each level of the PRS analysis. The indicators of Human Development and Poverty Reduction should be, at the levels of Objectives and Development Outcomes, similar or identical to MDG indicators as they serve the same purposes. At the action / policy level, indicators are often specified in less detail in the PRSP itself because individual activities will often be designed subsequent to the adoption of the PRSP.

While PRSPs can require diverse data, commonly used indicators are:

- economic statistics (macroeconomic monitoring): two key national accounts aggregates, i.e. Gross National Income (GNI), Gross Domestic Product (GDP); consumer price index (inflation monitoring); public finance statistics (budget balance, public debt); balance of payments;
- demographic statistics: enumeration of population, its geographical distribution, its distribution by age and sex, mortality (especially infant mortality) by age and sex and birth rates;
- statistics on household living conditions: income and expenditure, consumption, household equipment, employment;
- statistics on education: population of school age, school attendance, adult literacy, diplomas delivered, teachers, schools and their equipment;
- statistics on health: population morbidity, access to healthcare, staff and health infrastructures.

Although PRSPs base their indicators on existing data sources where possible, there is an explicit recognition that Poverty Reduction Strategy implementation may require improvement to statistical quality and / or the range of available statistics. From the European Commission perspective, this issue is considered further in part C.

A Performance Assessment Framework (PAF) is the core tool for the joint assessment by government and development partners of implementation of the national strategy and reform programme. The PAF is a government-owned document that prioritises reform measures and agreed targets in priority sectors within the national strategy. It provides a concise and verifiable set of indicators that is regularly revised in line with progress. Most PRSPs have an associated PAF.

The PAF should contribute to national capacities in planning, implementing, monitoring and evaluating its programmes. The long term vision is for ministries and agencies to produce

their own quantified and verifiable input, output and outcome indicators as a part of their annual planning processes.

PAF-type instruments are influenced by the European Commission Budget Support framework. The PAF design should ensure that indicators are simple and that systems are in place to produce the data necessary to monitor progress on a timely basis. The PAF as a whole is not necessarily used as the basis for Poverty Reduction Budget Support (PRBS) disbursement, although all disbursement indicators should be included in the PAF.

Government will each year identify from among its goals and targets a concise list of the highest priority indicators and targets for the subsequent year. The selection of appropriate targets and indicators is the responsibility of the national planning ministry, in consultation with sector ministries and spending agencies, donor partners and other stakeholders. The PAF should include, as far as possible, indicative targets and indicators for the succeeding two years based on medium-term commitments in the national strategy and medium term expenditure framework.

To find out more...

The IMF's website gives an introduction to Poverty Reduction Strategy Papers and stores country documents at: <http://www.imf.org/external/np/exr/facts/prsp.htm>

The PRSP Sourcebook gives detailed descriptions on how PRSPs are to be constructed. In particular, chapters on poverty measurement and analysis, monitoring and evaluation and strengthening statistical systems are relevant to readers of this Guide: <http://go.worldbank.org/318LYLXO80>

An example of a **Performance Assessment Framework (PAF)** for Zambia discusses the principles and practices of this tool.

B.4.3. European Commission policy intervention areas and related statistical activities

General development strategies target development of overarching aspects of society such as economic growth or poverty reduction. To assess the progress in these fields, quantifiable information is needed on a wide range of aspects associated with the strategy. For example, Poverty Reduction Strategy Papers use a variety of indicators to quantify targets and measure progress.

These indicators are drawn from a wide range of statistics, including e.g. national accounts, price statistics, public finance statistics, balance of payments, population statistics, education statistics, health statistics, and obviously statistics on living conditions and poverty.

Although there are common characteristics across statistics areas (see e.g. section C.5.3 on statistical quality), each statistics area has its own characteristics, challenges, sources and data providers. The evidence base on specific statistics areas, which is required for policy formulation, implementation, monitoring and assessment, may not be available, may be of inadequate quality, may need to be transformed to be comparable with other sources or may need to be interpreted with special care.

The chapters of Part D: *Statistics for Policy Issues* provide detailed information on statistics needed to inform specific policy areas where the European Commission has a 'comparative advantage'. The chapters are organised according to the policy area they mainly inform. The statistics covered by the chapters are defined according to the UNECE **Classification of Statistical Activities (CSA)**, which is used to classify the statistical activities of international organisations in UNECE's **Database of International Statistical Activities (DISA)**. CSA is also used by PARIS21 to classify statistical activities in the **Partner Report on Support to Statistics (PRESS)**, it forms the basis for categorising standards in the proposed **Global Inventory of Statistical Standards**, and a slightly revised version of the first three domains are adopted as part of the **Statistical Data and Metadata eXchange (SDMX) Content-oriented Guidelines**.

Part D offers advice on how statistics and indicators from different sectors can be used to inform policies, to monitor progress and evaluate outcomes and impacts. Its chapters present data needs and use for specific statistics areas and provide the main definitions and concepts used. They describe how data quality and data availability in the area can be improved and give practical advice and examples of how the statistical system can be developed.



Support for statistics



C.5

How to decide on a statistical action



Part C: Support for statistics

C.5. How to decide on a statistical action

The chapter in brief

This chapter explains the aims and methods used to improve the capacity to produce and publish statistics and to strengthen the ability of users to understand and analyse statistics. The situation normally arises either when a country or region requests support or when the European Commission's agreed development cooperation agenda with the country or region is clearly impeded by the poor quality or absence of the data needed for policy / activity preparation and evaluation.

The chapter includes a presentation of the concept of 'quality' in statistics: what should a developing country's statistical system be able to provide for its users? With the objective quality measures as a benchmark, the chapter also considers methods of evaluating a country's statistics and the system that produces them. The methods proposed start with the simplest and become progressively more systematic.

C.5.1. THE IMPORTANCE OF NATIONAL STATISTICAL SYSTEMS

C.5.1.1. National statistical systems are generators of official statistics

National statistical systems are the key producers of official statistics. Without good statistics, governments face great problems in delivering efficient administration, good management, and evidence-based policy making. An effective and efficient national statistical system, providing regular and reliable data, is an important indicator of good policies and a crucial component of good governance. Quality statistics increase transparency and promote the accountability of policy-makers by enabling media, non-governmental organisations and citizens to monitor the activities of government.

Good and reliable statistics are also essential to international organisations and other donors. These need to assess where aid is most needed, whether resources are used efficiently, to measure progress and to evaluate results. Statistics are vital to 'Managing for Development Results', with mutual accountability between beneficiaries and donors and focus on results.

Regional cooperation is an engine of economic growth, development and security. The European Commission supports a strengthened role for regional and sub-regional

organisations in the process of enhancing international peace and security, including their capacity to coordinate donor support. International cooperation partners also need to make cross-country comparisons in order to evaluate the effectiveness of global and regional policies. Therefore, they are supporters of regional harmonisation of data, so that these become regionally comparable. With its extensive experience in harmonising classifications, definitions, concepts and statistics in a large group of countries, the European Commission has often taken the lead in such international efforts. The role and activities in statistics of different regional and international organisations is explored in [section B.2.4](#).

In low income developing countries, the national use of and interest in statistics may be low. However, promotion of evidence-based policy-making along with advocacy on the importance of statistics raises national user interest. This, together with strategic planning in the NSS, should substantially increase the interest and trust in statistics and thus the level of analysis. The Paris Declaration on Aid Effectiveness (see [section B.1.4](#)), the Accra Agenda for Action (AAA) (see [section B.1.3.1](#)) and the Busan Action Plan for Statistics (see [section B.1.3.3](#)) encourage developing countries to set their own strategies for poverty reduction, improve their institutions and tackle corruption. National ownership of statistics implies that surveys first and foremost respond to the national need for data to inform policies and therefore to meet user needs.

C.5.1.2. Data available through the national statistical systems

The purpose of evaluating a country's statistics system is to understand what the country is currently capable of producing, in terms of quantity and quality of statistics, and what it actually does produce. A detailed evaluation will identify the major constraints to the system.

The best starting point in identifying statistics as a potential sector for support should be the **national development strategy** or **poverty reduction strategy**. The ideal situation is that an NSDS exists (see [section C.6.1](#)) that is compatible with the national development strategy. Failing this, a performance monitoring system that includes MDG/SDG indicators and has been agreed by the country and all donors can be the target for improvement.

If there is no means to obtain expert analysis of data coverage and quality and no recent analysis has been made, the non-specialist should examine a core indicator set for performance monitoring so as to look at what data exists and what its status is. When there is no agreed performance monitoring system, the World Bank's "**World Development Indicators (WDI)**" can provide a core indicator set for the non-specialist to analyse. However, these indicators should not be used as the target for support.

Availability and reliability of data is a basic indicator of the condition of the statistical system. Indicators should be drawn directly from national sources to ensure that the country analysis is based on the most up-to-date data available and that there is agreement among the development partners on the data sources to be used.

The core economic data should be fairly complete and up to date. What 'up to date' means depends on how frequently, easily and rapidly data can be collected, processed and published. Discussions of the international recommendations for when data should be available are located in the relevant chapters of [Part D](#). The national sources of key indicators are mostly the NSI and the Central Bank. However, data published by the World Bank is usually used in practice. Key NSI documents are country yearbooks and periodic, usually quarterly or annual, statistical digests. Press releases give the most recent information, although they can be subject to revision. As a matter of principle, national data sources should be preferred where there is no need for cross-country comparison.

Data availability for the SDG indicators is less straightforward than for economic and demographic data. Data may originate from outside the NSI, such as from Ministries of Health and Education. Coordination among statistics producers and publishers can be difficult and there are more likely to be 'competing' duplicate statistical publications than with the economic data. Identification of the best source usually requires sector knowledge. Social data is less frequently updated - some of the 10 European Commission key indicators (see [Box 3.7](#)) are legitimately updated with less than annual frequency. In some cases, appropriate methods are used to project estimates for years in which no new data can be collected. Such estimates should be clearly indicated in the published data.

It is essential to use the most recent version of the data. It is therefore necessary to keep a record (metadata) of the source (publication, edition and publication date) of each data series and, if necessary, each data point.

Many developing countries' NSIs and Central Banks have websites, although some are not always accessible. These websites vary enormously in quality, especially in how frequently they are updated, although many are able to provide the recent basic data that the 'Country at a Glance' economic table requires. Data for the 10 key indicators can also sometimes be found in the website of the NSI.

A checklist for the key points to look for in examining data is given in [Box 5.1](#). The first points to be checked are general; the later points are more specific but most can still be checked by someone with no specialist knowledge.

Measuring and monitoring development outcomes require timely, reliable, comparable, relevant and accessible survey data. But in many developing countries, survey programs rarely provide the necessary flow of reliable, timely,

comparable and accessible data. The timing of national surveys is rarely optimal, data collection programs lack methodological consistency, and existing data often remain largely unexploited. In many cases, it is difficult to get a comprehensive picture of which data are actually collected throughout the national statistical system.

The [Accelerated Data Program \(ADP\)](#) was launched in 2006 as a recommendation of the Marrakech Action Plan for Statistics, to help countries improve their survey programs and increase the use and value of survey data. The ADP is supporting NSIs in more than 50 ACP and ALA countries in producing statistical data relevant for policy design, monitoring and evaluation.

The ADP is implemented as a partnership between the PARIS21 Secretariat, the World Bank, and other partners. The PARIS21 Secretariat is in charge of implementation in countries and management of the funds, while the World Bank's Development Data Group provides global coordination. Other World Bank departments contribute to the implementation. The ADP is mostly financed by the World Bank Development Grant Facility through a grant to the PARIS21 Secretariat at the OECD. Further details on the ADP are given in [Box 5.2](#).

Box 5.1: Key questions for examining national data

- Are data that cover the performance indicators available from national sources?
- Is the statistical information about the sector sufficiently up to date so that it can be used to evaluate progress against a baseline?
- Will the frequency of data publication allow the National Indicative Programme's implementation to be monitored? Are the data sufficiently disaggregated for activity monitoring and evaluation?
- When is the base year for quantity or index calculations? Is the base year more than 10 years old?
- Do the statistics appear to be reliable at first glance:
- Are rates of change over time believable?
- Do national data broadly concur with data from international sources?
- Can detailed data be aggregated to published totals (where technically possible)?
- Are the shares (e.g. in percentages) of disaggregated data reasonably stable over time?
- Is the current data easy to obtain? Can it be found on the internet?
- Are there 'competing' data sources on the same subject published by more than one organisation?
- Is methodological documentation available?
- Are there references to international methods and classifications and do they appear to be adhered to?
- Does the data broadly meet the international quality standards as applied to the sector?
- For economic statistics, is the national data broadly comparable with international sources?

Box 5.2: The Accelerated Data Program (ADP)

The **Accelerated Data Program (ADP)** supports developing countries in producing statistical data relevant for policy design, monitoring and evaluation, by making better use of existing data and aligning survey programs and statistical outputs to priority data needs.

This goal is achieved by:

- Assisting countries that do not have a coherent long-term survey program in developing a strategy for their data collection activities;
- Building national capacity in micro-data preservation, analysis, anonymisation, and dissemination;
- Working with national data producers and secondary users on the production of updated estimates of key indicators, by further exploiting existing datasets and collecting new data.

ADP provides technical and financial support to survey data documentation and dissemination, and to the improvement of survey methods. Key outputs include the establishment of national survey databanks and the establishment of national data collection standards to foster comparability of data across sources. The ADP is focused on sample household surveys because they provide estimates of many key outcome indicators, as well as data needed for research and impact evaluation.

ADP is restricted to the documentation, preservation, dissemination, harmonization, collection and analysis of microdata (from censuses, surveys or administrative data collection systems). It works in close collaboration with the **International Household Survey Network (IHSN)**, which develops and disseminates many of the tools and guidelines used by the ADP.

ADP provides specialized training, technical assistance (national and international consultants), and acquisition of software and hardware. It can also support the participation of counterparts in relevant international conferences, and regional cooperation activities in the area of microdata management and dissemination.

The data producers keep full ownership of their data and decide on the dissemination policy, within the framework of the national legislation. The ADP and IHSN provide recommendations based on three levels of accessibility: public use datasets, licensed datasets, and datasets available in restricted data centres only

The country work programs are typically designed so that the agreed activities are implemented in 12 to 24 months or an even shorter period if the support is limited to a very specific activity. The procedure to obtain ADP support is simplified to allow fast decision and implementation. The country work program can be finalized within eight weeks of the approval of the request, after which implementation starts immediately. The amount allocated depends on the work program agreed; funding from ADP is limited but can be very quickly mobilized at country level. The ADP funds can also trigger additional funding by other sponsors

C.5.1.3. International sources as data sources and quality references

International data sources are useful for a first examination of a country's statistical system, even though their primary purpose is to act as a basis for comparison between countries. The differences between data from national and international sources can provide a pointer either to the ease of communications between the country and the compiler of the international data or to the confidence that the international organisation has in the national data, although it can be difficult to distinguish between these two situations.

Eurostat has made available for European Commission staff a number of important indicators – see [section B.3.4](#). The data are mostly sourced from international organisations, in particular the World Bank and IMF.

The main international data sources were first presented in [section B.2.4](#). The IMF Statistical Annexes are particularly useful for looking at the quality of economic statistics such as GDP. These annexes are not adjusted to follow a set format or to be comparable between countries. For this reason, this data gives an indication of the IMF's view of the data quality: if the data in this document is similar to the data in national publications, this may imply a positive view by the IMF of the country data.

Data in the United Nations Statistics Division's [Sustainable Development Goals indicators global database](#) can be compared with national data sources on social issues. There can be a variety of possible causes for national data to be missing, estimated or very different from nationally published data in the international database. Considerable sector knowledge is often required.

Looking at the available international data and trying to find its national counterpart can give an idea of how accessible the statistics are and to what extent they contain or give directions for finding the metadata. The United Nations Statistics Division's [countryData database](#) provides data both from national sources and corresponding data from international sources. The database also provides concise comparisons between the national and international estimates of development indicators and explains the reasons for any differences. This helps users to make informed decisions as to which data are most appropriate for their needs.

In certain cases, data not available at national level may be replaced by data available through international sources. This can be the case e.g. when international organisations have used nowcasting and/or forecasting techniques to produce estimates, when data too uncertain to be published at national level have been further processed and improved by use of secondary sources or data structures from similar countries, etc. However, using international sources should only be a temporary solution. If key data are missing at national level, the medium and long term objective must be to develop the statistical system's capacity to provide such data, according to sound methodology, international standards and classifications and with good quality. Above

all, the statistical system must be enabled to produce the data long term, in other words the sustainability of the data provision process must be assured. Strengthening of the capacity of the national statistical system and strategic development of statistics is described in [chapter C.6](#).

C.5.2. ASSESSING THE CAPACITY OF

To find out more...

- The United Nations Statistics Division lists internet addresses of developing country [NSI websites](#)
- [Eurostat database](#) on non-EU-countries from international sources (see [section B.3.4](#))
- [IMF Statistical Annexes](#)
- The UN Statistics Division's [Sustainable Development Goals indicators global database](#), covering a wide range of social, economic and environmental indicators for agreed policy goals
- The UN Statistics Division's [countryData database](#) provides data from national sources and corresponding data from international sources, provides concise comparisons between them and explains any differences.
- PARIS21 and the World Bank: [The Accelerated Data Program \(ADP\)](#)

THE NATIONAL STATISTICAL SYSTEM

C.5.2.1. Objective of the assessment

Statistical quality is most often defined as 'fitness for use' by end users. Quality therefore depends on data uses and users. Various users – local, national and international – can have different demands. Analysis of statistical quality permits the identification of target areas for capacity building.

The analysis so far has covered the data and other basic facts of the national statistical system. It may have arrived at some tentative conclusions concerning the quality of the data available for use for policy making and management and for European Commission development cooperation in particular. The demand for statistics for policy formulation and management is the point of departure for both an assessment of a National Statistical System (NSS) and for medium term statistical strategy more generally. Approaches to statistics strategy are discussed in more depth in [section C.6.1](#).

Correcting widespread deficiencies in published statistics requires an understanding of their causes, direct and indirect. **Any fruitful analysis of the NSS must be undertaken and owned by the country itself. Thus, prior support at the political level is essential for an in-depth assessment, including recognition of the resources required for an effective statistics system. Support for an assessment should be a precursor to medium term support for statistics capacity building.**

Providing support for assessing an NSS is a strategic choice. It should be discussed with the development partners in a country. As in any other field, a strategic diagnosis and recommendations should be owned by the partner country and agreed and shared by development partners. This forms a basic starting point towards coordination.

C.5.2.2. The issues to be addressed

The typical difficulties that face an NSS can be classified into:

- Legislation and strategic relationships with government and within the NSS. These were outlined in [section B.2.3](#);
- Financing and consequent human resources issues;
- Systems and infrastructure.

A detailed assessment of the NSS must obtain sufficient information on these issues to allow appropriate conclusions to be drawn.

As with other government departments, the NSI and other statistics producers may not receive sufficient financing from the national government. Lack of funding could be motivated by:

- Overall lack of government funds and / or budgeting problems at government level;
- Lack of understanding of the need for and use of statistics and / or;
- Lack of confidence in the NSI to deliver quality statistics for policy purposes.

Largely as a consequence of the financial problems, human resources difficulties, such as salary levels or even late payment of salaries, are typical problems with NSIs and other statistics producers. These problems may arise also in other government departments but personnel issues that might be more evident with statistics producers include:

- Staffing structures that do not reflect current working methods, showing relatively high numbers of low level technical personnel, even if the total number of staff is appropriate;
- Lack of current knowledge and / or skills (at any grade and staff age);
- Absence of human resources strategy or staff training strategy;
- Brain drain towards the private sector.

Some NSIs have been established as public bodies outside national civil services, which may give them greater control and flexibility over staff grading, pay scales and budget certainty. However, institutional independence does not necessarily eliminate any of these problems.

NSI senior management may respond to the impact of financial problems on human resources in a sub-optimal way.

Statistics managers may not have adequate training or incentive to allow them to focus sufficiently on building, maintaining and updating their department's operational manuals. Managers can therefore lose touch with how data is actually collected on the ground. This lack of institutionalised knowledge means that data quality can suffer from changes in management or even local supervisory staff.

Systems and infrastructure problems that may be faced by NSIs and other major statistics producers include statistics software systems and, more generally, computing, communications and offices that are out of date. Regional statistical harmonisation requires similar classifications to be used, often necessitating recently updated software.

A key reference on the organisation of national statistical systems is the [UNSD Handbook of Statistical Organisation](#).

C.5.2.3. Assessment methodologies

Since some but not all of the difficulties facing statistics producers are common to other public sector institutions, an assessment methodology must both integrate the NSS study with other public sector institutional assessments and also pay attention to the specific problems facing statistics. One solution is for the development and implementation of a statistics strategy to be part of a general public sector reform programme.

General public sector assessment methodologies are outside the scope of this Guide. The overall methodologies for developing statistics strategies are presented in [section C.6.2](#). As part of these methodologies, international organisations have developed assessment methods that are specific to statistics. An important contribution to this work was the 'Statistical Capacity Building Indicators' analysis developed by the [PARIS21 Task Team on Statistical Capacity Building Indicators](#). In practice, the set of indicators developed by the PARIS21 Task Team appeared to be too heavy for the countries as well as for the international bodies. However, a number of the proposed tools and principles are used in the different data quality assessment frameworks, in the IMF's [Reports on Observance of Standards and Codes \(ROSC\)](#) and in the World Bank's [Statistical Capacity Indicator data](#) and [Statistical Capacity Indicator Dashboard](#).

Statistics is a vital element of the whole cycle of political priority setting, project definition, planning, financing, implementation, and evaluation. Based on its experience as a technical reference throughout this cycle, Eurostat has considered some of the most pressing problems that may limit the success of statistical cooperation activities.

A key problem is ensuring the sustainability and resilience of the results achieved. The support provided by Eurostat and other Directorates-General should be refined to enable objective measurement and increase the sustainability of the results of statistical cooperation activities, thus making more effective use of available resources.

Eurostat has developed a tool for assessing the organisation and effectiveness of NSS and their capacity to produce quality data. The '[Snapshot](#)' tool provides a quick and easy-to-interpret picture of the main strengths and weaknesses of the NSS, based on internationally agreed principles ([UN Fundamental Principles of Official Statistics](#) and similar work) and criteria. This tool for creating a 'Snapshot' of the NSS and its capabilities is presented in [Box 5.3](#).

Box 5.3: A new tool for EU delegations to create a 'Snapshot' of National Statistical Systems and their capabilities

EU cooperation is led by the key principles of partnership and ownership. As a consequence, the assessment of the performance of national development policies and of EU interventions in support of these policies is based on statistical data that are provided by the national authorities. These statistical data are used to elaborate indicators that are the foundation for assessment of the results achieved; often, they are triggers for the release of funding. It is thus vital that these indicators are reliable and that the national statistical system as a whole is credible, i.e. of good quality.

In order to assess the strengths and weaknesses of a National Statistical System (NSS), based on agreed international principles (see [section B.2.1](#)). Eurostat has developed a tool called 'Snapshot'. This tool translates the complex statistical quality framework into a clear and easy-to-understand assessment of the status and the development of key aspects of statistical systems. The results can be used to analyse the whole NSS or key sectors.

The tool comprises 2 modules:

- a **first module** providing a diagnostic of the **national statistical system as a whole** by focusing on the institutional, legal and organisational aspects
- a **second module** providing a method to assess **data quality in specific sectors and indicators in these sectors**. The concept is designed in a way that it fits a wide range of sectors. It is divided into two sub-modules; one dedicated to sector assessment (45 questions) and the other assessing the key indicators of the sector (9 questions).

The tool consists of around 60 questions on key quality dimensions for the outputs of the statistical system, at national and sector levels. The questions cover:

- The legal, institutional and strategic framework at national or sector level (i.e. legal and institutional framework supporting the production of statistics, integration and coherence with the strategic framework supporting statistics development)
- The adequacy of resources (i.e. personnel in adequate quantity, quality of the personnel involved in statistics, equipment and infrastructure, financing)
- The determinants of data quality (i.e. quality commitment, professional independence, impartiality, objectivity, methodology and appropriate statistical procedures)
- The relations with users (i.e. relevance, accessibility)
- Specifically for Module 2: information on the statistical production in the sector (i.e. list of the statistics regularly produced in the sector).

The pre-defined answers give an intuitive colour code for good, average and poor achievement for the issue concerned. This is complemented by an arrow indicating a positive, unchanged or negative trend. This approach provides an easy-to-understand assessment.

Source: [Snapshot – A user-friendly tool to assess the strengths and weaknesses of National Statistical Systems](#)

[Eurostat's 'National Statistical Offices' questionnaire](#) was developed by Eurostat's International Co-operation Unit during 2011 to collect information about National Statistical Offices in African, Caribbean and Pacific (ACP) countries. The questionnaire is based on the information available in the [United Nations Handbook of Statistical Organizations](#) and on a previous pilot questionnaire developed for Asian and Latin American (ALA) countries.

The 'NSO questionnaire' was first tested with PALOP countries. [Box 5.4](#) presents Eurostat's 'NSO questionnaire' and the main issues addressed by it.

Box 5.4: Eurostat National Statistical Offices questionnaire for African, Caribbean and Pacific countries**1. General information on the National Statistical Office**

- Country, official name of the NSO, website and contact information
- Whether the NSO is an independent entity or part of a ministry?
- To whom (if anyone) the NSO report?
- Who appoints the chief statistician/president/director of the NSO?
- How is the term of office of the chief statistician limited/defined?
- Whether the chief statistician is in charge of coordinating the national statistical system?
- Description of the organisational structure of the NSO
- Whether the NSO's physical, statistical and ICT infrastructure sufficient for the development of the NSO activities? Who finance or has financed the improvement in this infrastructure?

2. National Statistical Office budget and financing

- Whether the NSO has the power to allocate its own budget?
- What is the periodicity of the budget?
- What are the main sources of the NSO financing? (specified as % of total NSO budget)
- Who are the NSO's main financial donors? (please specify)
- Whether the country has a national (country donor) partnership or has a cooperation partnership with a particular country (and in case, which)?
- Whether the information about donors' support is publicly available?

3. Activities of the National Statistical Office

- Whether the NSO has an annual plan of activities?
- Whether the NSO has a report on the developed activities?
- Whether and to what extent the NSO has internal handbooks/guidelines/recommendations for the statistical production process?
- Whether the NSO has been engaged in any international cooperation projects in the last five years? If so, please identify the project(s) (identifier, project title, statistical area, start and end date, type of support)

4. The National Statistical System

- Whether the mandate to collect information for the production and dissemination of official statistics is specified by law?
- Whether a Statistical Code of Practice exists or is used as reference in the country?
- How many producers of official statistics (statistical units in line ministries) are there in the country, besides the NSO?
- Whether the NSO use administrative sources for statistical purposes? If so, is the use of administrative sources implemented by Statistical Law, Memorandum of Understanding or other? With how many producers of official statistics (statistical units in line ministries) does the NSO work?
- Is there a National Statistical Council?
- Is the National Statistical Council ruled by law or statutes?
- How many members does the National Statistical Council have and which institutions do they represent?
- Who chairs the National Statistical Council (name, institution, function)?
- How frequent does the National Statistical Council meet?

5. Dissemination of official statistics

- How many statistical releases are published by the NSO per month?
- How are the statistics disseminated (by %: traditional means; multimedia; internet; press releases)?
- Whether and to what extent the statistical outputs have information about the methods and procedures used to collect the data?

6. National Strategies for the Development of Statistics (NSDS) or other Statistical Plan

- Whether the country has a National Strategy for the Development of Statistics (NSDS) or other Statistical Plan, and if so what period does it cover?
- What is the stage of the NSDS/Statistical Plan process?
- If the country has a NSDS, how was it financed?
- If the country does not have a NSDS or it is not implemented, what are the reasons for this?
- If the country does not have a NSDS, does it aspire to have one? What support would be needed (financial; political; technical; internal human resources for design or implementation; involvement of stakeholders; other)?

7. Future projects and expertise of the NSO

- Does the NSO have ideas about projects or statistical areas it would like develop or improve??
- Does the NSO have expertise, experiences or practices that could be shared with NSOs from other countries?
- If so, in what statistical area could the NSO provide support: demographic and social statistics; economic statistics; environment and multi-domain statistics; general statistical items and methodology; strategic and managerial issues of official statistics (please specify)?

8. Comments and suggestions from the NSO

- The NSO is also invited to provide any relevant comments or suggestions it might have

Source: Eurostat's 'National Statistical Offices' questionnaire

The **African Statistical Development Index (ASDI)** is a composite index (similar to Eurostat's NSO questionnaire) that aims at supporting the monitoring and evaluation of the implementation of the **Reference Regional Strategic Framework for Statistical Capacity Building in Africa**. It also helps to identify, for each African country, weaknesses and strengths of the NSS so that support actions can be developed. The information is collected by a questionnaire composed by 5 parts: organisation and coordination of the NSS; statistical infrastructure; data dissemination, human capital development; funding.

The **World Bank's Statistical Capacity Indicator** is a composite indicator, aiming to improve the understanding of the statistical capacity of developing countries. The statistical capacity indicator facilitates measuring and monitoring of statistical capacity, with close collaboration with countries and users. It is based on a diagnostic framework developed to assess the capacity of national statistical systems. This framework uses metadata information generally available for most countries and monitors progress in statistical capacity building over time.

This composite Statistical Capacity Indicator is calculated annually, based on information from the World Bank, IMF, UN, UNESCO, and WHO. It provides a statistical capacity score for over 140 developing countries. The results are presented in the World Bank's **data portal on Statistical Capacity**.

Statistical capacity is closely related with data quality. Two data quality tools developed by the IMF contain elements directly relevant to assessing statistical capacity of developing countries. The **General Data Dissemination System (GDDS)**, presented in **Box 5.7**, is built around four dimensions: data characteristics, quality, access, and integrity. The GDDS is intended to provide guidance for the overall development of macroeconomic, financial, and socio-demographic data. The framework takes into account the diversity of individual countries' economies and the developmental requirements of many of their statistical systems. The **Data Quality Assessment Framework (DQAF)**, presented in **Box 5.8**, builds on five dimensions of data quality: assurances of integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility. The DQAF, which is used for comprehensive assessments of countries' data quality, covers institutional environments, statistical processes, and characteristics of the statistical products.

Within the frame of the MEDSTAT programme, the assessment of the capacity of the Mediterranean partner NSIs followed a different approach, leading to a Country Statistical Situation Report for each. This assessment approach is detailed in **Box 5.5**.

Box 5.5: Country Statistical Situation Reports in MEDSTAT

Within the European Commission's MEDSTAT cooperation programme in statistics with the southern and Eastern Mediterranean partner countries, the Country Statistical Situation Reports (CSSRs) is a key tool for taking stock of national statistics. The CSSRs contain detailed descriptions of:

- the general legal and institutional framework;
- statistical capacity and infrastructure, including classifications and registers;
- IT infrastructure, data processing and data dissemination;
- Quality management, training and human resources;
- Overviews of the thematic sectors covered by the MEDSTAT programme, as well as national accounts. In the 2015 version, these thematic sectors were: business registers and business statistics, balance of payments, national accounts, energy, labour market, migration, transport and external trade in goods and services statistics.

The CSSRs are drawn up by the countries themselves and further developed by MEDSTAT contractors on the basis of orientation missions in the countries.

In addition to the CSSRs, the Mediterranean neighbourhood countries are offered the possibility to have a global assessment or peer review of their statistical system. The offer has been taken up by a few countries. In addition to these reviews of the whole statistical system, countries may also request reviews of particular sectors. This has been more popular in the region than the whole system reviews. The most popular sectors requested are Business statistics and Labour Force statistics.

The reports from these assessments are available on the Eurostat website at: <http://ec.europa.eu/eurostat/web/european-neighbourhood-policy/publications/reports>

A peer review is an external assessment focused on a national statistical institute with the aim to develop recommendations to improve it. Typically, global assessments cover horizontal and infrastructure issues (institutional environment including legal setting, design and coordination of the statistical system, organisation of the statistical institute, human and IT resources, dissemination and relations with users; classifications and registers used) and statistical domains (national accounts, agriculture statistics, business statistics etc.).

Eurostat has carried out peer reviews and global assessment for many European countries and ENP-East countries. In Africa, PARIS21 has facilitated peer reviews for the NSS in some countries, since 2005. The peer reviews are not intended to make a technical assessment of the quality of official statistics produced by a country; however, an assessment can be made of the capacity to produce, disseminate and use official statistics.

Topics for consideration in the peer reviews are decided right at the start. Generally, these include:

- Progress of design and implementation of the country's NSDS;
- Statistical governance, legal mandates, and coordination;
- Financial resource availability and predictability, both from governments and cooperating partners; and the extent to which donor funding is focused on national priorities;
- Human resources management; and
- User consultation, prioritization, and satisfaction.

To find out more...

- EuropeAid: [Institutional Assessments and Capacity Development: Why, what and how?](#) (2005)
- United Nations Statistics Division: [Handbook of Statistical Organizations](#) (2003)
- PARIS21 Task Team Statistical Capacity Building Indicators: ["Statistical Capacity Building Indicators - Final report"](#) (2002)
- Eurostat: ['National Statistical Offices' questionnaire](#)
- UN ECA – African Centre for Statistics : ['Tracking Progress towards Statistical Capacity Building Efforts: The African Statistical Development Index'](#)
- World Bank: [Statistical Capacity Indicator](#) and [Data on Statistical Capacity](#)
- IMF: [General Data Dissemination System \(GDDS\)](#) and [Data Quality Assessment Framework \(DQAF\)](#)
- Eurostat: [European Neighbourhood Policy \(ENP\) countries – Global assessments, light peer reviews and sector reviews](#)
- Eurostat Quality Assurance Framework: [Code of Practice peer review methodology](#)

C.5.3. THE CONCEPT OF QUALITY IN STATISTICS

C.5.3.1. The key quality concepts in statistics

Internationally adopted quality frameworks for statistics are used for assessing the quality of the data and the procedures that are used in their production. They are practical applications of the principles of statistics, notably the Fundamental Principles of Official Statistics of the United Nations, which were explored at [section B.2.1](#). As such, all quality frameworks cover the various dimensions of quality. Quality frameworks consider all steps of the statistical process by which data are collected, transformed and disseminated. They therefore refer to the quality of the:

- overall organisation of the process,
- input data,
- data collection, transformation and dissemination operations,
- products (output data)

The approach of the European Statistical System comprises the institutional environment, statistical process and statistical outputs in line with European Statistics Code of Practice referred to in [chapter B.2](#).

Institutional environment

Institutional and organisational factors have a significant influence on the effectiveness and credibility of a statistical authority producing and disseminating European Statistics. The relevant issues are professional independence, mandate for data collection, adequacy of resources, quality commitment, statistical confidentiality, impartiality and objectivity.

Statistical processes

European and other international standards, guidelines and good practices must be fully observed in the processes used by the statistical authorities to organise, collect, process and disseminate official statistics. The credibility of the statistics is enhanced by a reputation for good management and efficiency. The relevant aspects are sound methodology, appropriate statistical procedures, non-excessive burden on respondents and cost effectiveness.

Statistical outputs

Available statistics must meet users' needs. Statistics comply with the European quality standards and serve the needs of European institutions, governments, research institutions, business concerns and the public generally. The important issues concern the extent to which the statistics are relevant, accurate and reliable, timely, coherent, comparable across regions and countries, and readily accessible by users. These dimensions can be specified as follows:

1. **Relevance** refers to the degree to which statistics meet current and potential users' needs for information,
 - relevance to current policy questions,
 - disaggregation, especially geographic, to an appropriate level, and
 - representative coverage
2. **Accuracy** refers to the closeness of estimates to the unknown true values
 - survey quality: planning, execution, reporting and audit trail,
 - scientific validity: employing appropriate sampling techniques; ensuring impartiality and appropriate sample size,
 - respect for data confidentiality,
 - explicit incorporation of a quality framework or procedure
3. **Timeliness** refers to the length of time between the reference period (the event or phenomenon that the data describe) and the data release date, when data becomes available; and

Punctuality refers to the length of time between the data release date and the target delivery date (for instance with reference to dates announced in an official release calendar, laid down by Regulations or previously agreed with partners).

4. **Comparability** refers to the impact of the differences in applied concepts and measurement tools and procedures when statistics are compared between geographical areas, sectoral domains or over time; and

Coherence refers to the adequacy of the data to be reliably combined in different ways and for various uses

- metadata standards: is the background documentation complete and publicly available?
- adherence to current international standard methodologies and nomenclatures,
- consistency within national statistics (are classifications and statistical concepts consistent from one area of statistics to another?),
- consistency with data published by various international organisations, and
- international quality comparisons and peer review.

5. **Accessibility and clarity** refer to the conditions and modalities by which users can obtain, use and interpret data
 - publication and dissemination methods,
 - full availability of results and metadata, and
 - orienting publications toward the users of statistics.

The principles of the Code of Practice represent a common quality framework for the European Statistical System. Eurostat publishes on its internet [standards, handbooks and guidelines](#) developed within the European Statistical System relating to quality management and quality reporting.

The Quality Assurance Framework provides methods and tools at institutional and process level on how the Code of Practice can be implemented further.

Five dimensions – assurances of integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility – of data quality and a set of prerequisites for data quality are at the centre of the IMF [Data Quality Assessment Framework](#) (DQAF). The DQAF, which is used for comprehensive assessments of countries' data quality, covers institutional environments, statistical processes, and characteristics of the statistical products.

[Box 5.4](#) in [section C.5.2](#) provides an example of a practical checklist for documenting structural quality aspects of a NSS. [Box 5.5](#) gives information on the assessment methodology followed within the MEDSTAT programme.

[Box 5.6](#) gives a practical example of how the Terms of Reference for a major statistical capacity building action or a major operation can be specified in order to assure a high quality of the outcomes.

Box 5.6: Improving quality in a major statistical capacity building operation – points for the Terms of Reference

Terms of reference for a major statistical capacity building action or a major operation such as a large survey or census should refer to the methods to be used to ensure quality. This could be either an exposition of how quality will be addressed or a commitment to apply a specific quality methodology from the planning stage onwards. It should include a reference to the means of monitoring: self-assessment, Data Quality Assessment Framework (DQAF), peer review, etc

The usual situation is that NSIs have little or no experience in selecting, specifying or applying a quality methodology. Hence, a quality assessment is usually needed. This looks at a statistical system's capacity and outputs. It identifies key areas for improvement, e.g. statistical legislation, training and technical assistance to assist in planning and implementing quality methods could be appropriate. There should be a general commitment to applying a quality methodology.

Terms of reference to implement DQAF (or another quality methodology) could be based on the following:

1. The statistical action will ensure quality by implementing the appropriate [sector DQAF](#).
2. For each of the (approximately 50) DQAF indicators, the quality report will show:
 - The indicator
 - The current status or value of the indicator
 - The source of this measurement
 - The objective for this indicator and explanation for the choice of this objective.
 - The activities required to achieve this objective (within the action being planned or not)
 - The resources required to carry out the action (within the action being planned or not)

C.5.3.2 Examining data quality

The assessment of a country's statistics may be triggered by a realisation that at least some of the data required to carry out the European Commission's cooperation programme with its partner is non-existent, late, inaccurate, inappropriate to the needs and / or not comparable with the country's other data or relevant international classifications.

The first questions to be asked are: what is the extent of the statistics problem, who has observed them, what analyses have been made and what plans prepared?

Information sources about data quality include existing analyses of the data from a number of sources, such as:

- a medium term statistics strategy such as an NSDS (explained in [section C.5.4](#)) by national or international consultants;
- the Commission's experience in development cooperation with its partners;
- international sources.

Assessments of data quality, sectoral and global, should be summarised in the analysis of the national development policies. These are generally drafted in conjunction with the partner country and **should identify when the available statistics are unable to support analysis** of the social, economic or environmental situation in question.

There are a number of tools available for assessing data quality. Two tools provided by the IMF are the [General Data Dissemination System \(GDDS\)](#), presented in [Box 5.7](#), and the [Data Quality Assessment Framework \(DQAF\)](#), presented in [Box 5.8](#). Further quality frameworks are the [Quality Framework for OECD Statistical Activities](#) and the [ISO 9000 quality standard](#).

Box 5.7: The General Data Dissemination System (GDDS)

The purposes of the General Data Dissemination System (GDDS) are to:

- Encourage member countries to improve data quality;
- Provide a framework for evaluating needs for data improvement and setting priorities in this respect; and
- Guide member countries in the dissemination to the public of comprehensive, timely, accessible, and reliable economic, financial, and socio-demographic statistics

It is intended to provide guidance for the overall development of macroeconomic, financial, and socio-demographic data. The framework takes into account, across a broad range of countries, the diversity of their economies and the developmental requirements of many of their statistical systems. The objective of the GDDS is to encourage the production and dissemination of complete sets of data with widest coverage, based on international methodologies. The emphasis is placed on complete data sets rather than on specific indicators.

The GDDS framework is built around four dimensions:

- Data characteristics
- Quality
- Access, and
- Integrity

The data dimension includes coverage, periodicity (i.e. the frequency of compilation), and timeliness (i.e. the speed of dissemination). The data dimension in the GDDS is closely linked to the quality dimension, within which plans for improving data quality form an integral part.

Box 5.8: The Data Quality Assessment Framework (DQAF)

The IMF **Data Quality Assessment Framework (DQAF)** identifies quality-related features of governance of statistical systems, statistical processes, and statistical products. It is used for comprehensive assessments of countries' data quality. The DQAF is rooted in the **UN Fundamental Principles of Official Statistics** and grew out of the **Special Data Dissemination Standard (SDDS)** and **General Data Dissemination System (GDDS)**, the IMF's initiatives on data dissemination. The DQAF incorporates their good practices and is the result of intensive consultations.

The DQAF provides a structure for assessing existing practices against best practices, including internationally accepted methodologies.

The **DQAF's coverage** of governance, processes, and products is organized around a set of prerequisites and five dimensions of data quality assurances of integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility. For each dimension, the DQAF identifies 3-5 elements of good practice, and for each element, several relevant indicators. Further, in a cascading structure, more detail and more concreteness tailored to the dataset are provided by focal issues and key points.

The generic DQAF serves as an umbrella for seven dataset-specific DQAF frameworks: National accounts statistics; Consumer price index; Producer price index; Government finance statistics; Monetary statistics; Balance of payments statistics, and; External debt statistics. In addition, a DQAF module on household income in a poverty context has been developed in collaboration with the World Bank.

Various international resources support the wider evaluation of the quality of a country's statistics. A description of most NSSs can be found in the database '**Country profiles of statistical systems**' on the website of the United Nations Statistics Division. This database covers the history of the NSS, the legal basis for the statistical activities, the NSI and other data producers. It may contain the NSS's or NSI's activity report, the most recent data and publications. As such, it gives the basic structural information on the NSS, as discussed in [section B.2.3](#).

For countries benefiting from **Heavily Indebted Poor Countries Initiative (HIPC)**, the **Poverty Reduction Strategy Paper (PRSP)** and annual reports provide information on the timeliness of the strategy monitoring indicators that are appended to the annual reports. They can also contain information about the relevance of indicators and on the difficulties encountered in their preparation. The World Bank and IMF joint notes and reports on the PRS's evaluation (IMF and IDA Joint Staff Advisory note and Joint Staff Assessment of the PRS annual report) frequently offer elements for estimating an NSS' capacity to provide data for the follow-up of the PRS implementation.

Another source of information on the status of national data is the IMF General Data Dissemination System (**GDDS**) website. It provides detailed, systematic information about the availability and quality of national mostly economic data, as well as about plans for improvement. This is the most important international source of information on economic data quality. However, it can be very out of date.

National self-assessment reports on the MDGs contain analyses, many of high quality, on social data availability and quality.

Statistical assessments are also made and sometimes published as part of the preparation for major interventions, especially for multi-country projects. The MEDSTAT II assessments of 10 Mediterranean countries are examples – see reference in '[To find out more](#)' box below.

The NSS as a whole may already have been analysed, perhaps as part of the preparation of a statistical strategy or plan, such as a National Strategy for the Development of Statistics (NSDS). The existence of an effective strategy or plan could reflect national government understanding of the role of statistics as a policy management tool. The PARIS21 webpage provides information on country NSDSs and other strategy papers, legal texts regarding statistics and other information related to NSS organisation. PARIS21 also coordinates and disseminates information collection concerning development assistance support for statistics. The application of NSDSs and other strategic analyses is discussed further in [section C.6.1](#).

A clear picture may emerge from this investigation of the availability and quality of statistics in a sector or in the statistics system as a whole. The set of observations obtained can serve as a basis for discussion with the partner country about the need for a strategic development of institutional statistical capacities and the development of an NSDS.

To find out more...

Operational international quality frameworks

- [European Statistical System \(ESS\) implementation of quality dimensions](#)
- [Eurostat Handbook on Data Quality Assessment Methods and Tools \(2007\)](#)
- [OECD Quality Framework](#)
- [IMF Data Quality Assessment Framework \(DQAF\)](#)
- [IMF General Data Dissemination System \(GDDS\)](#)
- [ISO 9000 quality standards](#) (documentation standards, not directly statistics related)

Documentation of statistical systems, containing quality information

- UN Statistics Division: [Country profiles of statistical systems](#)
- World Bank: [Poverty Reduction; Joint Staff Advisory/ Assessment Notes](#)
- PARIS21: [Knowledge database](#) with information on statistics systems and NSDSs
- Eurostat: [European Neighbourhood Policy \(ENP\) countries – Global assessments, light peer reviews and sector reviews](#)

C.5.4. LOOKING AT THE NATIONAL STATISTICAL SYSTEM AS A WHOLE

The analysis of the national statistical system and of its data quality may have revealed a number of problems. For example it may be that no relevant data exists, or that existing data is of poor quality, out of date, or even that data exists but has not been disseminated. Any such problem justifies an intervention to strengthen the statistics in the sector concerned. Data may well be required for evidence based policy making in the sector at national level as well as to evaluate the project at European Commission level.

As underlined by the [Evaluation of European Commission support for statistics in third countries](#) (2007), the effectiveness of projects that support statistics and the sustainability of their results increase when:

- interventions are anchored in the overall development strategy of the partner country ;
- the projects are conceived within the global context, considering the NSS as a whole. They should be identified on the basis of the statistical situation and the information needs, thus focusing on the demand for information by users, particularly by decision-makers. Ideally, the priorities should be defined in the National Strategy for the Development of Statistics;
- activities promoting a culture of evidence-based decision-making are systematically included, throughout the design and implementation of the intervention, such as the production of material which advocates statistics. All such material should be transferred to the statistical system managers after the project for further use..
- specific measures are drawn up to involve all users and not only the staff of the NSI. This goes beyond pure information and may include specific seminars to help users understand the data and develop confidence in their accuracy, reliability and integrity.
- the focus of assistance is more on strengthening the capacity of the NSS as a whole (and not only the NSI) to regularly produce reliable basic data rather than on supporting a particular survey or study. This should then enhance the quality of statistical data and indicators.
- a policy dialogue accompanies statistical support to prepare the phasing out of the project. This should include foreseeing whether the partner government or another donor will take over the funding after the end of the intervention.
- the status of the NSS as well as the human and financial resources available are taken into consideration: statistics are not only an instrument, but form an integral part of the architecture of public services.
- the personnel that worked on the statistical project can continue and transmit their know-how to others within the NSS. The sustainability of human resources is linked with financial sustainability. Insecurity regarding longer term funding as well as delays in funding can lead to a substantial 'brain drain' from the statistical institutes to the private sector.

The need for and benefits of an integrated approach to the development of statistics, both with respect to the overall development strategies and with respect of strengthening the capacity of the statistical system as a whole, is at the heart of [chapter C.6](#).

To find out more...

- DG EuropeAid: [Project Cycle Management Guidelines](#)
- [Evaluation of European Commission support for statistics in third countries](#)
- [PARIS21: A Guide to Using a System-wide Approach to Implement NSDS](#)
- [PARIS21 : 'Advocating for the National Strategy for the Development of Statistics'](#)
- UN Statistics Division: [Handbook of Statistical Organisation](#) (3rd edition)

C.6

How to bring assistance to statistics



C.6. How to bring assistance to statistics

The chapter in brief

This chapter provides guidance at the decision phase on whether and how to give support to statistics. It discusses the relationship of statistics strategy with national development and poverty reduction strategies and analyses the development and implementation of statistics strategies. This is followed by a presentation of capacity building in statistics, including how it is related to statistical strategy documents and practical considerations in capacity building.

Having looked at what is to be done, the chapter then moves on to examine in general how statistics actions are to be done. The issues of coordination at various levels are addressed: who can do what and what needs to be done to ensure coherence and eliminate duplication?

skills and commitment. Similarly, it needs to address how the National Statistics System will publish quality statistics.

The core element of the statistics strategy is its vision of the medium-term objectives of the statistics system: what statistics will be produced, how and with what resources and their links with the demand for data to monitor policy progress. An action plan, often for five years, that demonstrates how the strategy will be fulfilled, forms a part of the strategy. The role of the statistics strategy in informing national policies as well as the need for commitment of resources means that the statistics strategy is an explicitly political document and thus requires authorisation and active participation from decision makers.

In order to be effective, statistics strategies should be based on and consistent with national strategies; the national budget, poverty reduction strategy and sector policy monitoring frameworks should be seen as the starting points for defining both the minimum indicator set and the estimated budget for statistics. This will enable statisticians to be exposed to concrete examples of how data are needed and used by policy makers and will ensure that strategies are owned by both statisticians and users of statistics.

Since staff numbers, skills and motivation are the key elements in producing statistics and salaries are the largest

C.6.1. Statistical strategy

C.6.1.1. WHY A STATISTICAL STRATEGY

The aim of any statistics intervention is to support the collection and dissemination of statistics that inform development policy. National development policies are usually integrated in a strategic framework, such as a National Development Plan or a [Poverty Reduction Strategy](#). Informing national and sector development strategies through assessment frameworks to monitor progress is a commitment of the [Paris Declaration on Aid Effectiveness](#) ⁽¹⁴⁾. The assessment frameworks include performance indicators that need to be coherent between policy sectors and consistent over time. These performance indicators are largely based on published statistics which must be coherent in the same way. A policy level overview or strategy is needed to ensure that regularly disseminated quality statistics are attuned to policy requirements, are affordable, are comparable over time and are consistent between sectors.

A statistical strategy is expected to provide guidelines to strengthen the statistical capacity of the NSS. It therefore needs to show what and how statistics will be collected and published. It also needs to identify the financial, human and technical resources that will be available to the NSS. It needs to analyse the constraints the NSS faces: issues of the legal framework; budget and finance; institutional coordination; physical resources; and human resources – staff numbers,

Box 6.1: Action points for statistics strategies

- Statistics strategies must be demand driven, modest and realistic and must build on existing processes
- Statistics strategies should take a realistic approach to Managing for Development Results (see [section B.1.3](#)) that focus on key indicators and take into account limited national capacity and resources
- Strategies should focus and harmonise donor support on country statistics priorities
- Strategies' implementation should be monitored

cost of producing statistics, a good statistics strategy will include a clear, detailed exposition of the human resources requirements.

C.6.1.2. NATIONAL STRATEGIES FOR DEVELOPMENT OF STATISTICS

The most common methodology for developing a statistics strategy is the [National Strategies for the Development of Statistics](#) (NSDS), technically supported by the PARIS21 consortium. The particular strength of this methodology is its recognition that the statistics strategy is a policy document whose value decision-makers may be unaware of. Advocacy

⁽¹⁴⁾ Paris Declaration on Aid Effectiveness paragraph 44, Partner countries commit to: 'Endeavour to establish results-oriented reporting and assessment frameworks that monitor progress against key dimensions of the national and sector development strategies; and that these frameworks should track a manageable number of indicators for which data are cost-effectively available.' See also [section B.1.3](#).

at the political level therefore plays a prime role in PARIS21's approach.

A key quality action is to let **independent peers review the NSDS**. Not only are the independent peers ideally placed to critically assess presumptions and priorities, they are also in a position to bring in their experience and fresh views and ideas to the national NSDS process. Indeed, peer reviewing is a central part in the quality work of the **European Statistical System**, where Member States' compliance with the ESS Code of Practice is reviewed. PARIS21 produces methodological guidance on strategic planning and assist countries in finding solutions to obstacles. This includes helping countries setting up peer reviews of their NSDS, giving the opportunity to get an independent view and assessment of the NSDS and sharing experiences in strategic plan development and follow-up of advanced countries.

The main alternative to this methodology is the 'Plan for Change', developed by the IMF as a consequence of the **GDDS programme**. This approach is of interest to countries that are working closely with the IMF on GDDS compliance and where advocacy at the decision-making level is less of an issue. The choice of methodology is one for the partner country to take for itself. This section will concentrate on the NSDS.

The key PARIS21 document for this discussion is **A Guide to Designing a National Strategy for the Development of Statistics**. While the form and content of an NSDS will depend critically on factors such as the administrative structure of government, the level of development and affordability, a strategy usually includes ⁽¹⁵⁾ :

1. The establishment of mechanisms for consultation with all the main stakeholders in a statistical system, including producers, users and providers of statistics;
2. An assessment of the current status of the system, including from the user perspective and taking account of existing improvement programmes;
3. A vision, setting out an agreed statement of what governments and other stakeholders want from the statistical system at some point in the future. The vision provides a goal that everyone can agree on: a statement of where statistics should be;
4. An identification of options on what strategic actions are required to overcome the constraints and achieve the vision, including prioritisation of actions;
5. A detailed action plan with a timetable and a financing plan to put these strategic actions into effect in order to achieve the desired results;
6. Identification of mechanisms to monitor progress, including indicators and reporting to inform the updating and adaptation of the strategy.

⁽¹⁵⁾ A Guide to Designing a National Strategy for the Development of Statistics, p7

Box 6.2: An effective National Strategy for the Development of Statistics ...

- has high-level political support;
- is mainstreamed within national development policy processes, building on what is already available;
- is the output of a nationally led, nationally owned and inclusive participatory process that draws on international standards, recommendations and experience;
- provides the basis for the sustainable development of statistics with quality "fit for purpose";
- assesses the current status of the national statistical system and provides a vision and a strategic plan for national statistics;
- sets out an integrated statistical development programme that is flexible enough to cope with change;
- outlines the financing requirements, but is realistic about resource needs;
- serves as a coherent framework for international support for statistical development.

Source: *Managing for Development Results "Statistics: Better Data for Better Results"* (2007)

See also: *PARIS21 "NSDS essentials – Checklist"*

It is vital that the NSDS is deeply rooted in the institution(s) involved. It is important that all institutions and structures with an interest in the statistical strategy participate in its elaboration, creating a common ownership of the NSDS and thus increasing commitment to the strategy. The development should be in the hands of the members of the National Statistics System, operating under active political direction and support. When external consultants support the design of the NSDS, it is important to ensure that the strategy remains rooted in the national demands for published statistics and the perceptions and possibilities of the NSS, as well as maintaining political backing. It is important that the NSDS is written in such a way that the people who will be responsible for its implementation can relate to it.

Consultation and input from users and other stakeholders should include political decision-makers.

The PARIS21 documentation clearly states that there is no uniform template for an NSDS and therefore there cannot be a uniform set of terms of reference for its development. What is important is that the six points above are answered by the NSDS. **Box 6.3** shows the different phases of a typical NSDS and their expected outputs. **Box 6.4** shows the possible timeframe for preparing an NSDS.

For the most recent version of the guidelines for the design and implementation of NSDS, please consult the **PARIS21 website** regularly.

Box 6.3: Overview Table for Developing a National Statistics Development Strategy

PHASES	GOALS	SPECIFIC OUTPUTS
0 Launching	Political commitment to developing a NSDS	- Peer Review report from another country in the region - Letter from the Minister to colleagues and partners
1 Road Map	Organisation decided and resources allocated	- Agreement with national and international partners - Outline of NSDS development - Budget approved for the development of the NSDS; TFSCB project document
2 Diagnosis & Vision	Diagnosis made Vision defined Needs determined	- Report including the diagnosis, vision, and needs
3 Strategies	Strategies chosen	- Report including the study comparing several strategy scenarios
4 Action Plans	Calendars and implementation terms finalised	Report including: - implementation calendar - implementation and monitoring plan - evaluation arrangements
Implementation	Strategies implemented Expected results achieved	- Annual reports on the statistical system - Detailed annual programmes - Annual budgets - Mid-term evaluation report - Final evaluation report

Source: PARIS 21 Secretariat

Box 6.4: NSDS development: Sample of a 16-Month Calendar for Phases 0 to 4

Phases	Budget Year-2				Budget Year -1											Year			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	one		
0: Launching																	NSDS Adopted		
1: Road Map																			
2: Diagnosis and Vision																			
3: Strategies																			
4: Action Plans										Budgetary Discussions									
Implementation of NSDS																			

Source: PARIS 21 Secretariat

The support provided by PARIS21 is outlined in [section B.2.4](#). The status of NSDSs in International Development Association (World Bank) borrower countries is shown in [Box 6.5](#). The next challenge is clearly NSDS implementation.

Box 6.5: NSDS status in IDA countries (as of January 2016)

	Currently implementing a strategy	Currently planning / designing a strategy or awaiting adoption	Strategy expired or absent but currently planning an NSDS	Strategy expired or absent and not planning one	Total
Africa	30	6	3	1	40
Asia and Pacific	9	6	7	4	26
Eastern Europe	2	0	0	0	2
Latin America and Caribbean	1	4	4	0	9
Total	42	16	14	5	77

Source: PARIS21's NSDS Status Report

To find out more...

about National Strategies for the Development of Statistics, visit PARIS21's website: www.paris21.org

[NSDS New Guidelines](#)

[A Guide to Designing a National Strategy for the Development of Statistics](#) – key summary document

[Knowledge Database](#) – PARIS21's database of NSDS-related documents

Capacity building in statistics reduces the barriers to effective production and dissemination of quality statistics. Therefore capacity building can include:

- Reform of the legal framework;
- Improving dialogue with the political level, within the NSS and with users of statistics outside government, especially the general public;
- Adapting the organisational structure of an NSI or other statistics producer to better meet the demand for statistics;
- Training and education so that staff management and technical knowledge are sufficient for their tasks;
- Ensuring that materials, buildings and equipment are adequate.

This can be summarised as 'human', 'technical' and 'organisational' capacity building. Training is an important aspect of capacity building, given the importance of technical and managerial knowledge in organising statistics operations. Another vital aspect is the appropriate information and communication technology (ICT), both with respect to the hardware and the required software applications (see [section C.8.9](#)). Furthermore, in order for a statistical process to be efficient and sustainable, the necessary organisational framework must be in place; this involves not only the legal framework, but also the support of and cooperation with other actors, such as line ministries, holders of administrative information, business federations and key enterprises, key statistics users, and so forth. All aspects of statistical capacity may be brought forward through dedicated assistance; the key is to focus on which aspect(s) are critical in the specific national (or regional) setting. The European Commission's support to statistics and different types of activities are discussed in [chapter C.7](#)).

The ideal framework for planning capacity building is a sector-wide statistics strategy such as an NSDS described above. This will lead to capacity building actions being planned as part of the strategy implementation.

C.6.2. Capacity building in statistics

'Capacity can be defined as the ability to perform tasks and produce outputs, to define and solve problems, and make informed choices' ⁽¹⁶⁾.

'Capacity is the ability of people, organisations/institutions and society as a whole to successfully manage their affairs. Capacity development is the process of unleashing, conserving, creating, strengthening, adapting and maintaining capacity over time.' ⁽¹⁷⁾

A country's statistical capacity can be defined as the ability of statistical producers to fulfil their mission of collection and dissemination of reliable and up-to-date statistics that meet users' needs. Statistical capacity building is the process whereby these bodies create and strengthen their statistical capacity.

Most donor intervention in statistics aims at sustainability and therefore contains an element of capacity building. This should be the case even when the support provided is for a statistics operation, such as a population census or a household survey, and not directly aimed at increasing statistics capacity.

⁽¹⁶⁾ Institutional Assessment and Capacity Development: Why, what and how? EuropeAid Aid Delivery Methods Concept Paper 09/2005

⁽¹⁷⁾ Source: OECD/DAC Task Force on Capacity Development, (2004). Quoted in DAC Guidelines and Reference Series Harmonising Donor Practices for Effective Aid Delivery Volume 3: 'Strengthening Procurement Capacities In Developing Countries'

In other situations such as existing stand-alone sector programmes with a statistics component, the programme planning should ensure that the capacity will be available when it is needed. Building an effective NSS takes a long time. **Commitment to medium-term support for strengthening statistical capacity is required both from the country's decision makers and from its aid partners.**

The alternative strategy is to include statistical capacity building within each sector and in particular linked with major surveys. The advantage is that the focus can easily be placed on the role of statistical information within the sector. The disadvantage is that there is less impetus for the construction of a coordinated NSS.

To plan and implement capacity building actions, a number of checklists and programmes have been developed (references and links in the 'To find out more' box below):

- The generic chapter on Institutional Capacity Assessment of the [EuropeAid Project Cycle Guidelines](#) is highly relevant to statistics
- A [Regional Reference Strategic Framework for Statistical Capacity Building in Africa](#) has been developed within the [Marrakech Action Plan for Statistics](#) framework (see [section B.1.3](#)). This can give an idea of the likely components of a comprehensive capacity building programme.

The key issue when considering statistics capacity building is ensuring that the action under consideration is likely to make a significant practical difference to statistics operations. The logical framework (or 'logframe') for a regional statistics training project, presented in [Box 6.6](#), shows the main elements for building and managing such a project. The first column, entitled 'Project Description', first states the main purpose of the project, then the expected general result, which is again detailed into a number of practical outputs (or 'operational objectives'). For each of these aspects of the project planning, one can follow the rows to find for each:

- Indicators which can be used for assessing progress and evaluate the final results for that aspect of the project, e.g. for the overall 'Purpose' measures of how this has been met by the project;
- How to verify sources for verifying the results of these indicators, e.g. for the training courses looking at the training course reports and the resulting statistics; and
- The assumptions that have to be fulfilled for the different aspects of the project to be fulfilled, e.g. for delivery of professional training courses that the required documentation of outcome have been defined in the Terms of Reference and that the conditions for follow-up of the training are in place.

Box 6.6: Logical framework for regional statistics training programme

	Project Description	Indicators	Source of verification	Assumptions
Purpose	The overall objective of all statistics interventions is to support the region and its Member States to produce statistics to inform decision making by meeting the relevant quality criteria: the UN Fundamental Principles of Statistics and the African Statistics Charter	Statistics and metadata from the regional secretariat, Member States and from IMF GDDS; reports indicating the use made of statistics by government, private sector and civil society	Statistics publications from the regional secretariat, Member States' and IMF GDDS websites and paper publications. Indicators of use of statistics verified through internet search and collection of relevant publications	Sufficient financial support from region Member States is forthcoming; regional Member States produce and implement strategic plans for statistics such as National Statistics Development Strategy (NSDS); regional secretariat produces and implements a regional equivalent
Results	Ensure that the capacity exists within the region to provide statistics-related training that directly enables statistics producers to improve the quality of statistics produced and for users to improve the quality of their statistical analysis.	Preparation of each training course to identify the expected outcome in each Member State and in the regional secretariat, as well as other steps required to achieve expected impact	Training course reports; resulting statistics	Other inputs are often required, notably statistical tools and systems; staff assigned to training must be capable of being trained; management of NSIs must be supportive of change
Operational objectives – outputs	Trainees already working within National Statistics Systems have improved technical and management knowledge that is directly relevant to their work.			Sufficient project staff, including dedicated project management, remain assigned over its whole life.

To find out more...

- PARIS21 Task Team report on [Statistical Capacity Building Indicators](#)
- [Project Cycle Management Guidelines](#), Aid Delivery Methods Programme. European Commission EuropeAid
- [Regional Reference Strategic Framework](#) for Statistical Capacity Building in Africa

C.6.3. Co-ordinating with other programmes and other development partners

C.6.3.1. CO-ORDINATED FINANCING FOR STATISTICAL CAPACITY BUILDING

The [Marrakech Action Plan for Statistics \(MAPS\)](#) (see [section B.1.3.3](#)) and the [Busan Action Plan for Statistics](#) call for increased investment in statistical systems and strategic planning for developing statistical systems, while improving the coordination and accountability of the international statistical system. In response to this, a set of financing instruments have been established to provide required funding for the development and the implementation of National Strategies for Development of Statistics (see [section C.6.1](#)) or similar strategies and comprehensive statistical development plans, as well as associated activities.

Developing countries generally need financial assistance for investments in infrastructure, people and equipment. However, the poorest developing countries may also need assistance to cover also recurrent costs, at least in the shorter term. This challenge calls for donors to increase their financial support for statistics and, at the same time, for developing countries to provide increased domestic budget allocations, in order to build a sustainable statistical system.

To assess progress, the international financing instruments for statistical capacity building encourage developing countries to apply international standards and frameworks. These include the UN's fundamental principles of official statistics (see [Box 2.1](#)) and IMF's General Data Dissemination System (see [Box 5.7](#)) and Data Quality Assessment Framework (see [Box 5.8](#)). [The PARIS21 indicators of statistical capacity building](#) offers a further tool to measure progress. Based on the goals of the NSDS, measurable targets and indicators of success should be defined.

The preparation of an NSDS is an essential step in improving the capacity of statistical systems. This is an important mechanism for co-ordinating financial and technical assistance to statistics in accordance with national priorities. NSDS and the associated implementation and financing programmes lead towards more co-ordinated financing for statistics and bring financial support from donors together in a coherent and consistent framework.

The design of NSDSs can be supported by bilateral and multilateral donors. The World Bank's [Trust Fund for Statistical Capacity Building \(TFSCB\)](#), financed by contributions from a number of donors, provides small grants to support the preparation of NSDSs and some initial capacity building activities.

In Africa, the preparation of NSDSs is also supported by the African Development Bank. The TFSCB's objective is to strengthen national statistical systems in support of poverty reduction strategies and other national and international development goals. Projects are designed to be relatively small and quick disbursing. All World Bank member countries are eligible to apply for TFSCB funding, but priority is given to countries that are eligible for support by the International Development Association (IDA).

- TFSCB currently supports two major types of projects:
- preparation of National Strategies for the Development of Statistics (NSDS); and
- improvement in statistical capacity in key priority areas within the framework of NSDS, regional or global strategies

While the TFSCB is an effective mechanism for supporting the preparation of NSDSs, it is not intended or designed to provide substantial and sustained investment in statistical capacity. To meet this need, the Statistics for Results Facility (SRF) was set up. SRF is a global initiative concerned with the strengthening of statistical systems and building capacity in the poorest developing countries. In accordance with MAPS, SRF focuses both on scaling-up levels of resources for investing in statistical capacity on the basis of a NSDS and on the promotion of more effective delivery of assistance. The SRF consists of both a new approach and new funds. The [Statistics for Results Facility Catalytic Fund \(SRF-CF\)](#) is a multi-donor "programmatic" trust fund, managed by the World Bank on behalf of the donors. The SRF-CF provides grants to invest in statistics, using a program-based approach (both system-wide and sector-wide). It pays great attention to the aid effectiveness principles of Managing for Development Results (see [section B.1.3.2](#)) and the Paris Declaration on Aid Effectiveness (see [section B.1.3.1](#)). The SRF-CF also provide funding for project preparation and supervision, to be managed (as appropriate) by in-country "lead" donors in statistics. SRF-CF pilot projects have been launched in Afghanistan, the Democratic Republic of Congo, Ghana, Rwanda and Nigeria. This pilot phase is expected to last until around 2012.

Box 6.7: Statistics for Results Facility Catalytic Fund: Principles and Objectives

A country requesting support from the [Statistics for Results Facility Catalytic Fund \(SRF-CF\)](#) must have a National Statistical Plan and be willing to establish a National Partnership in Statistics. Eligible countries must agree to:

- Exercise leadership over their statistical development by developing a good quality (comprehensive, realistic, prioritized and costed) National Statistical Plan;
- Allocate resources and carry out necessary administrative reforms for proper implementation of the National Statistical Plan;
- Take a lead in coordinating donor and government support to statistics through the creation of national partnerships;
- Put into effect the UN Fundamental Principles of Official Statistics (see Box 2.1), in particular to ensure that users have confidence in the quality and integrity of national statistics; and
- Monitor progress in statistics and statistical capacity, based on output and outcome indicators.

To promote good practice, the SRF-CF encourages donors to agree on a number of principles in the area of statistics, based on the Paris Declaration on Aid Effectiveness. These include:

- Respect country leadership in the implementation of the National Statistical Plan;
- Support nationally-agreed statistical priorities, thereby avoiding donor driven activities;
- Deliver statistical support in a harmonized and coordinated manner, based on program-based approaches; and
- Assist countries in their efforts to set up results-oriented measurement frameworks for sector development plans (including Poverty Reduction Strategies)

Source: World Bank 'SRF-CF Charter' and 'SRF-CF Guidelines and Procedures'

Box 6.8: Statistics for Results Facility Catalytic Fund: Key issues

- **Country leadership:** Have countries led the process of improving statistical capacity? Have development partners respected country leadership and supported countries in the development and implementation of their national statistical development plan? Are changes sustainable?
- **Resource allocation:** Have governments and development partners allocated appropriate resources for implementing the national statistical development plan? Have governments allocated resources for sustaining any statistical capacity improvements? Are resource levels sustainable?
- **Co-ordination mechanisms:** What mechanisms have been put in place for better response to user demand, and how effective are they? How effectively has the National Partnership Group facilitated donor co-ordination? Has the lead donor and in-country donor statistician improved the dialogue between national authorities and the donor community? Have development partners aligned their statistical support to national priorities? Are development partners actively supporting a program-based approach for statistical capacity building programs? Has there been improvement in alignment with the Paris Declaration on Aid Effectiveness (e.g. in the use of country systems and procedures). What have been the strengths and weaknesses of a program-based approach? Have the monitoring and evaluation frameworks been followed?
- **Catalytic impact:** Has the SRF-CF had an impact in attracting additional resources for
 - **Statistical capacity building** in grant-recipient countries? Or has the SRF-CF substituted for available funding? Has there been a catalytic impact in promoting the use of program-based approaches in other countries and with other development partners? Has there been a catalytic impact in scaling-up resources for statistical capacity building in countries other than those that received grant funds?
 - **Governance and administration:** Have the governance arrangements been efficient and effective? Have funds been disbursed according to disbursement forecasts? Are countries satisfied with project administration and the quality of technical assistance provided? Is the role played by the in-country donor statistician effective?
 - **Increase in statistical capacity:** Have there been improvements in the capacity of the NSS, and, if so, in what areas? Is the NSS compliant with the United Nations Fundamental Principles of Official Statistics? Has data quality and data availability improved? Are improvements made likely to be sustainable?
- **Use of data:** Is there evidence of greater trust in national statistics by policy-makers and other users? Have development partners shown greater willingness to use good quality data in their results-oriented measurement frameworks?

Source: World Bank 'SRF-CF Monitoring and Evaluation Arrangements'

The World Bank's **STATCAP** is a multi-country Statistical Capacity Building Program. It is a horizontal 'Adaptable Program Loan' (APL), based on a sector-wide approach. Individual countries obtain separate loans or credits to finance comprehensive or sectoral statistical capacity building through investment projects. STATCAP provides flexibility in financing, including meeting recurrent costs, providing new means for financing investments and making best use of all sources of technical support and advice.

Projects normally finance the implementation of NSDS or a comparable strategy (see [section C.6.1](#)). These strategies generally include a detailed assessment of the national statistical system, a strategy for its further development with goals and targets, and an action plan to put it into effect. Where this has not yet been prepared or need updating, a grant from the Trust Fund for Statistical Capacity Building (TFSCB) can be made available.

The criteria for developing countries' use of the STATCAP program are:

- a NSDS or similar comprehensive mid-term plan;
- national commitment and leadership to strengthen the national statistical system;
- willingness to comply with good statistical practice;
- participation in global development and monitoring activities;
- use of sustainable implementation arrangements.
- Each project is based on a full assessment of a country's needs and existing capacity, but most STATCAP projects include actions to improve or strengthen:
 - Statistical policy and the regulatory and institutional framework: legislation safeguarding independence and confidentiality, mechanisms for efficient management and coordination;
 - Statistical infrastructure: the business register, sampling frames, classifications, database structures and geographic information systems;
 - Statistical operations and procedures; Human resources; and
 - Physical infrastructure and equipment.

STATCAP financed projects are implemented using the principles agreed by PARIS21 on country ownership and donor coordination. Countries must comply with good statistical practice and put in place appropriate and sustainable implementation arrangements. The STATCAP framework encourages effective coordination, participation of other international and bilateral donors, and participation of national stakeholders, both in the public and private sectors. Each separate project or phase must identify specific targets and indicators of success, based on goals set out in the NSDS and agreed through a consultative process.

To find out more...

- World Bank: [Trust Fund for Statistical Capacity Building \(TFSCB\) website](#), [TFSCB Guidelines and Procedures](#), [TFSCB brochure](#) and [TFSCB at 10 report \(2010\)](#)
- World Bank: [Statistics for Results Facility Catalytic Fund \(SRF-CF\) website](#), [SRF-CF Charter](#), [SRF-CF Guidelines and Procedures](#), [SRF-CF Monitoring and Evaluation Arrangements](#) and [SRF brochure](#)
- World Bank: [STATCAP website](#) and '[STATCAP - A New Lending Program to Support more Efficient and Effective Statistical Systems in Developing Countries](#)'

C.6.3.2. CO-ORDINATION OF PARTNERS AND ACTIVITIES

A valuable tool for coordination of activities in Eastern European Neighbourhood (ENP) countries is the [Database of Integrated Statistical Activities \(DISA\)](#), which gives a detailed overview of the activities of over 30 statistical organizations active in the UNECE region. DISA is a coherent catalogue of planned work in international statistics over the coming year.

Good practices on how to develop strategic planning frameworks for the development of statistics can be found in PARIS21's "[Guide to using a system-wide approach to implement National Strategies for the Development of Statistics \(NSDS\)](#)", which provides guidance on how to use a system-wide (or programme-based) approach to support the strengthening of National Statistical Systems. The approach emphasises the central importance of implementing well-designed and realistic National Strategies for the Development of Statistics (NSDSs), directly linked to national poverty reduction strategies or other development plans. The document provides operational guidance for managers and funders of National Statistical Systems on moving from the preparation of plans and strategies (NSDSs or similar documents) to their implementation.

In statistics-related fields, as in other areas, donors specialise in a limited number of technical fields, provide financial support across wider areas and leave some subjects altogether to other development partners.

To avoid both duplication and the involvement of development partners in statistics actions outside their areas of expertise, co-ordination with the development community at large is essential.

The Paris Declaration on Aid Effectiveness commits the development partners to coordination. The European Consensus on Development (section B.1.5.3) goes further than this and makes a specific commitment in paragraph 32:

“The EU will take a lead role in implementing the Paris Declaration commitments on improving aid delivery and has in this context made four additional commitments: to provide all capacity building assistance through coordinated programmes with an increasing use of multi-donors arrangements; to channel 50 % of government-to-government assistance through country systems, including by increasing the percentage of our assistance provided through budget support or sector-wide approaches; to avoid the establishment of any new project implementation units; to reduce the number of un-coordinated missions by 50 %.”

The European Commission Communication ‘Increasing the impact of EU Development Policy: an Agenda for Change’ (see section B.1.5) underlines the importance of coordinated EU action, including joint EU and Member States response strategies based on partners’ own development strategies and a common EU results reporting framework:

“Joint programming of EU and Member States’ aid would reduce fragmentation and increase its impact proportionally to commitment levels. The aim is for a simplified and faster programming process, to be largely carried out on the ground. Where the partner country has formulated its own strategy, the EU should support it by developing, wherever possible, joint multi-annual programming documents with the Member States. Where the partner country has not done so, the EU will endeavour to develop a joint strategy with the Member States.

This process would result in a single joint programming document which should indicate the sectoral division of labour and financial allocations per sector and donor. The EU and Member States should follow the document when devising their bilateral implementation plans. Participation should be open to non-EU donors committed to the process in a given country. To boost country ownership, joint programming should be synchronised with the strategy cycles of partner countries where possible.

Operationally, the EU and Member States should make use of aid modalities that facilitate joint action such as budget support (under a ‘single EU contract’), EU trust funds and delegated cooperation.”

The “European Code of Conduct on Division of Labour in Development Policy” addresses the essential question of who does what in development initiatives, giving a set of concrete measures to enhance complementarity and division of labour amongst EU donors

There are four main channels of coordination of activities, each of which is also a source of information on statistics-related actions planned or in progress:

1. The beneficiary country or region has a responsibility for coordinating external assistance, as stipulated by the Paris Declaration on Aid Effectiveness. A statistical strategy

such as a NSDS is the best means of coordinating internal and external resources, both financial and technical. A primary benefit from this level of coordination of statistics is the reduction or elimination of superfluous household surveys.

2. Development partners committees in the beneficiary countries, including the participation of EU Member States, provide a key element of co-ordination. Some development partners have highly decentralised decision processes, providing information about the content of activities through channels within a beneficiary country. This is particularly the case with sector projects. In these, statistics may form a relatively small part. This could lead to only the main sector of operations being recorded centrally and that information about the statistical implications is missing.
3. The international organisation charged with co-ordinating the sector statistics in question is an important information source. One example of international organisations’ co-ordination is the preparation of the **2020 World Population and Housing Census Programme** through the UN Statistics Division. Websites and other documents provide information about regionally and globally coordinated actions. International and global organisations responsible for statistics in specific sectors are identified in section B.2.4.
4. The information about EU support for the development of statistics, collected by Eurostat through the donor survey and published in the Donor Survey Report.

Standard project information does not necessarily provide full information on statistics activities. Potential overlaps can occur between national and regional projects; between sector support for statistics and statistics parts of projects in other sectors; and between support actions for overlapping regional organisations.

To find out more...

- PARIS21: [A Guide to Using a System-wide Approach to Implement National Strategies for the Development of Statistics \(NSDS\)](#)
- [European Code of Conduct on Division of Labour in Development Policy](#)
- PARIS21: [Partner Report on the Support to Statistics \(PRESS\)](#)
- UNECE: [Database of Integrated Statistical Activities \(DISA\)](#)

C.7

**The European
Commission's support
to statistics**



C.7. The European Commission's support to statistics

The chapter in brief

The chapter starts from the point at which the development partners accept that there is a need for external support to statistics. The chapter aims to inform the subsequent decision about whether and how the European Commission should be involved. It first considers the Commission's development statistics activities in the context of country / regional strategies and programmes, including any statistics strategy. It continues by looking at the purpose of statistics actions and how they are linked to the development objectives using the logical framework. The chapter finishes with a practical look at the various types of European Commission statistics interventions, showing links with policies, identifying areas of cooperation, listing examples and providing action points. The chapter makes repeated reference to the 2006 Evaluation of the Commission's support to Statistics in Third Countries.

Box 7.1: Check points to assure statistical actions are in aligned with policy goals

- The statistics action is aimed at supporting a policy that is itself compatible with partner country and/or region development strategy – (section B.1.3.1) and it is therefore mentioned in the relevant programming documents – (section C.5.2).
- Statistics actions, including their scope, should be compatible with national statistics strategies (NSDS) – (section C.6.1).
- National / regional ownership of the statistics action is clearly demonstrated.

To find out more...

- [Evaluation of the Commission Support for Statistics in Third Countries, 2007](#)

C.7.1. Objectives for statistics actions: statistics as policy support

Statistics are instrumental in achieving policy goals, as discussed in [chapter B.1](#). Statistics may be unavailable or of poor quality, thus making it impossible to construct and use the indicators needed to prepare, monitor and evaluate a specific programme. The diagnosis section in a strategy paper should identify areas where absent or poor quality statistics are a significant constraint to achieving policy goals. If statistics are a constraint across many fields, this can be considered as a governance issue. In a regional context, insufficient statistics can be a barrier to regional integration policy goals

The response strategy should identify **support for quality statistics as a means to inform policy preparation, monitoring and evaluation** in the areas of concern. Support should support statistics to inform decision making by meeting the relevant quality criteria, including the UN Fundamental Principles of Statistics (see [section B.2.1](#)).

Actions in support of statistics should be provided within the frame of the National Strategy for the Development of Statistics, which should be compatible with national development plans or poverty reduction strategies (See [section C.6.1](#)).

The availability of good quality statistics is a pre-condition for proper strategic analysis and for programming and design of concrete interventions. The analysis should address the state of the statistics system, its strengths and weaknesses and remedial and quality improving actions required.

C.7.2. Matching outputs to objectives: the logical framework of a statistics action

The purpose of any European Commission statistics intervention is to support the development partner to sustainably produce good quality statistics in order to inform decision-making.

In order to focus support on achieving policy goals, it is important to identify and classify the types of intervention being considered. This will help ensure that planned activities will achieve the objectives.

All European Commission statistics actions aim at one or more of the following **specific objectives** ⁽²⁰⁾:

1. Improve coverage and quality of statistical information (output)
2. Improve capacity to collect, process, analyse and disseminate statistical information (capacity building)
3. Improve the use of statistical information (use)

⁽²⁰⁾ Evaluation of the Commission Support for Statistics in Third Countries, 2007, page 9

For example, an action to support the adoption of statistics standards in a partner country might include specific objectives that cover both output and capacity-building.

The specific objective in the example in [Box 6.6](#) clearly falls under the capacity category:

- Ensure that the capacity exists within the region to provide statistics-related training that directly enables statistics producers to improve the quality of statistics produced and for users to improve the quality of their statistical analysis.

The biggest challenge in developing a statistics activity is ensuring that there is a clear explanation of **how the planned outputs will contribute to achieving the results** (specific objective). This is especially important in statistical capacity building.

At the **operational objectives** level, six common types of outputs can be identified, which together correspond to the range of statistics-related problems.

- 1. Strategy:** Strengthen statistics relationships with decision makers; set medium term strategy to meet policy-oriented goals. [Section C.6.1](#) considers policy-level relations and statistics strategies.
- 2. Framework:** Strengthen legal and regulatory framework, inter-institutional relationships. The framework for statistics is considered together with strategies in [section C.6.1](#).
- 3. Capacity:** Strengthen capacity to develop, maintain and disseminate quality statistical information required to formulate, implement and monitor policies. This is the largest activity in implementing an NSDS.
- 4. Capacity / Harmonisation:** Develop the international comparability of statistics. In some cases this requires harmonisation with the European Statistical System (ESS). Capacity building is considered in [section C.6.2](#). Harmonisation with ESS standards is identified separately as it is the specific purpose of some European Neighbourhood Policy statistics actions.
- 5. Users:** Strengthen capacity of stakeholders to access, analyse and interpret statistical data.
- 6. Production support:** Provide direct support to produce and disseminate specified statistics. Direct support for data production and dissemination is usually for population censuses and large-scale surveys, where external support is appropriate due to their cost.

Indicators and sources of verification:

- At the project purpose level, indicators should relate to publication of statistics and metadata both at country (or regional) level and through international data sources. There should usually be specific mention of the [IMF GDDS metadata website](#) (see [section B.2.1](#) and [section B.2.4](#)) in capacity building actions. For statistics users, published analyses of statistics should be highlighted.

- At the results level, indicators should relate to the application of the activity outputs. This is particularly important in capacity building activities. For example, in the case of training in statistics: what is the plan to apply the training received, for example in changing statistical nomenclature? Have the former statistics students been employed to produce and disseminate official statistics?
- Output level indicators are relatively straightforward: training materials, attendance lists, trainer's reports and student evaluations, etc.

To find out more...

- EuropeAid: [Project Cycle Management Guidelines](#) (2004); please consult the website of Directorate-General International Cooperation and Development for the latest information.
- [Evaluation of the Commission Support for Statistics in Third Countries, 2007](#)
- [EU International Cooperation and Development Results Framework, 2015](#)

C.7.3. Providing European Commission support for statistics

C.7.3.1. THE EUROPEAN COMMISSION'S IMPLEMENTATION INSTRUMENTS AND STATISTICS

Support to statistics can be applied through any of the various types of instrument used in European Commission development cooperation.

- Classic **projects** focussed on statistics tend to create large demands on Commission management time, relative to the size of the project. Nevertheless, they are still used where there is no alternative.
- **Sector-Wide Action programmes** 'A SWAp is a programme-based approach applied to a particular sector, such as education, health or agriculture. This will support a sector development programme (SDP), which is "a single comprehensive programme and budget framework, comprising a specific, time-bound and costed set of actions and activities within a sector" such as, in the case of statistics, an NSDS incorporating both government and donor resources ⁽²⁾).
- A **sector-wide programme for statistics** may or may not form part of a wider government or planning system reform. The aim is to improve the statistical and analytical capacity needed in key ministries. The approach provides for a general reform of the statistical function, including

⁽²⁾ Definition from Paris21: [A Guide to Using a System-wide Approach to Implement National Strategies for the Development of Statistics \(NSDS\)](#)

capacity building measures. The EDF10 programme in Mauritania proposes general support to statistics reform as part of good governance. Support to statistics SWAp is the objective of the 'scaling up' joint funding strategy discussed in [section B.1.3](#).

- **SWAp for education, health or other sectors** may contain a statistics element. This is perhaps the more common of the two approaches. For example, the Uganda EDF10 CSP identifies agriculture statistics as being a problem to be addressed within the rural development focal area.
- **Budget support programmes** typically have a capacity building component that can be mobilised to support the strengthening of statistical systems, either through project modality, technical assistance or pooled funding. EDF10 budget support to Rwanda includes support to statistics.

C.7.3.2. EUROSTAT'S ROLE IN SUPPORTING STATISTICAL CAPACITY BUILDING IN THIRD COUNTRIES

Eurostat is the longest existing regional statistical organisation in the world. Eurostat has considerable experience of developing harmonised statistical approaches across a region and in developing approaches to improve the quality of statistics from production to dissemination.

Eurostat has actively supported statistical capacity building for many years, both at national and regional level throughout the world, either bilaterally or through financial support to organisations such as PARIS21. Eurostat supports capacity building efforts in third countries through:

- Promotion of standards, methods and procedures;
- Provision of technical support to regional level statistical organisations across the world;
- Promotion and participation in regional international forums.

One of the objectives of the European Commission's [Regulation of the European Parliament and of the Council on the European Statistical Programme 2013-2017](#) is to promote and implement statistical advisory and statistical assistance activities in countries outside the EU, in line with the priorities of the foreign policy of the EU, with particular emphasis on enlargement and the European Neighbourhood Policy. In this context, the European Statistical System should exercise leadership internationally. In particular, the proposal for the European Statistical Programme 2013-2017 underlines that the European Statistical System should provide support to European Commission services for the implementation of development and international cooperation policies. For non-European regions or countries, the European Statistical System should design and implement technical cooperation programmes and provide technical assistance focused on data harmonisation and delivery, in their relations with international organisations and in matters of common statistical interest with non-European regions or countries.

To find out more...

- EuropeAid: [Budget support \(website\)](#) (including links to the European Commission Communication COM (2011) 638 'The Future Approach to EU Budget Support to Third Countries' and updated Budget Support Guidelines (2012))
- Eurostat: [Multiannual and Annual Statistical Programmes \(website\)](#)
- [Regulation \(EU\) No 99/2013 of the European Parliament and of the Council on the European Statistical Programme 2013-2017](#)
- [Eurostat pages on statistical cooperation with ACP and ALA, High Income Countries and cooperation with International organisations](#)
- [Eurostat pages on statistical cooperation with ENP countries](#)
- [Evaluation of the Commission Support for Statistics in Third Countries, 2007](#)

Eurostat statistical cooperation first point of contact:

- e-mail: ESTAT-STATISTICAL-COOPERATION@ec.europa.eu

C.7.4. European Commission types of action in statistics

C.7.4.1. OVERVIEW

This section looks at types of statistics actions that the European Commission is often involved in, in order to identify:

- the relation of policies to statistics-related actions;
- European Commission areas of experience; areas where the Commission finances statistics but is not technically involved;
- examples of current and recent interventions;
- action points specific to each type of action.

European Commission support for statistical interventions can be categorised into:

1. System-wide support at national level;
2. Large-scale operations (e.g. population censuses, household surveys);
3. Sector statistics intervention, capacity building and / or support for specific statistics production;
4. Strengthening regional statistics.

Box 7.2: Action points for statistics interventions

Diagnosis

- The diagnosis of problems and priorities should be drawn from a statistics strategy or else one should be developed as part of the intervention – see [section C.7.1](#)

Strategy

- The statistics strategy (e.g. NSDS) on which the intervention is based must link to the national poverty reduction strategy / national development plan
- The statistics that are expected to result from the action must be defined by their use: the policies to be prepared / monitored / evaluated
- There needs to be a clear analysis through the logframe (see [Box 6.6](#) for an example) that shows how the problems diagnosed will be addressed by the planned activities – see [section C.6.2](#) and [chapter C.8](#)
- As well as ensuring clear links with the development objectives of the partner countries, national statistics institutes should provide the lead at the formulation stage.

Design

- The level of disaggregation of statistics required (e.g. geographic localisation, gender-specific statistics) should be determined by the policy objectives and needs to be specified in general terms as an output. This is not a technical issue.
- Support for the use of statistics needs to be incorporated into statistics actions and its implementation monitored.

C.7.4.2. SUPPORT TO THE WHOLE STATISTICAL SYSTEM AT NATIONAL LEVEL

A strategic approach to statistics development aims to support a locally owned and led programme to develop the NSS in a comprehensive and co-ordinated way, typically implementing a NSDS and using country systems and procedures for implementation.

Key components of the system-wide approach are:

- A clear nationally owned policy, strategy and programme for official statistics
- A medium-term expenditure framework that reflects the long-term strategy
- Systematic arrangements for programming resources
- A performance monitoring system that measures progress and strengthens accountability
- Broad consultation mechanisms that involve all stakeholders, including mechanisms for dialogue and coordination across the national statistical system
- Partner government-led processes for donor co-ordination and dialogue
- An agreed process for moving towards harmonisation of procedures for budgeting, financial management, procurement, and monitoring and evaluation.

The policy objective of these interventions is often related to governance. Activities include but are not confined to statistical capacity building, including:

- Revision of statistical legislation;
- Relations with political level;
- Statistical infrastructure;
- Organisation of the NSS, notably co-ordination of methodologies and establishing a distribution of responsibilities;
- Management of the NSI;
- Direct support to statistics production and dissemination can be included.

This approach responds to beneficiaries' need for support in management and coordination of the statistical system as a whole. In order to ensure sustained political level support and provide a complete diagnosis of the system problems, a statistics strategy such as a National Strategy for the Development of Statistics ([section C.6.1.2](#)) should exist.

Some examples of European Commission programmes that include support for the national statistical system as a whole:

- Benin: Annual Action Programme for Benin PE/2009/10129 C(2009) 10380: Project to support public finance and statistics (2008-2013).
- Zambia: Annual Action Programme 2013 in Favour of the Republic of Zambia: Support Programme to Public Finance Management, Accountability and Statistics.
- Niger: Programme to support the development of the national statistical system for the promotion of governance and monitoring / evaluation of poverty (PASTAGEP) funded by the European Union (2012-2015). It falls within the framework of support for the implementation of the Action Plan of the National Policy of Civil Registry System in Niger.
- Eritrea: Governance and public finance management (PFM) is on the agenda of the National Indicative Programme 2014 to 2020 of the Eritrea-EU cooperation (11 EDF). The programme will focus on macro-economic planning and management (general statistics, regulatory framework, employment and productivity), public financial management (audit, financial statistics, fiscal policy), and the implementation of recommendations accepted by the GSE.

Box 7.3: Action points

- In system-wide interventions, there is usually a need to address the legal and regulatory framework and the overall coordination of the national statistical system. Past European Commission projects have often omitted this. The national statistics strategy evaluates this issue.
- There is a need to improve coordination and exchange of information between producers of statistics across the National Statistics System and between national and regional institutions
- Dissemination and promotion of statistical information needs to be addressed at the design stage by system-wide actions.
- A constraint on population censuses and system-wide statistics actions is often capacity, either a lack of trained personnel or even a lack of potential personnel with appropriate education

To find out more...

- PARIS21: [A Guide to Using a System-wide Approach to Implement National Strategies for the Development of Statistics](#)
- PARIS21: [The NSDS Approach in a Nutshell](#)

C.7.4.3. SUPPORT FOR LARGE SCALE OPERATIONS

The largest scale statistics operations are population censuses. The main sources for advice and support for population censuses are the [2020 World Programme on Population and Housing Censuses](#), the [United Nations Population Fund \(UNFPA\)](#) and the UN Statistics Division [Census Knowledge Base](#) (see [section B.1.3.3](#) and [chapter D.22](#)). Examples of European Commission support to population censuses are:

- Ghana: The 2010 Population and Housing Census in Ghana
- Zimbabwe: The Census 2012 in Zimbabwe
- Myanmar: The Myanmar 2014 Housing and Population Census

C.7.4.4 SECTOR STATISTICS SUPPORT AT NATIONAL LEVEL

Sector statistics interventions aim to ensure that statistical information is available for preparing, monitoring and evaluating sector policies. While there can be a focus on ensuring that indicators for sector budget support are available, it is important that the statistics intervention is viewed as producing data for national use according to national priorities. Sector statistics interventions are often mounted as relatively small parts of sector-wide programmes.

Sector statistics are addressed in greater depth in [Part D](#).

Box 7.4: Action points for sector level interventions for strategy development

- The national statistics strategy remains relevant at sector level
- Institutional links between national statistics institutes and 'line ministries' vary greatly in quality. In principle, these relations should be addressed by the statistical strategy.
- Administrative information can be held within ministries, institutions (schools, hospitals) or other organisations (e.g. private aid bodies). Access to this data and possible support for its improvement may need to be addressed at the decision-making level.

Box 7.5: Action points for sector level interventions to avoid duplicate surveys

- Duplicate surveys are two or more surveys in the same sector or policy field that are not coordinated in time and ask similar (but usually not the same) questions and are separately organised. Consequently they produce differently classified data, most commonly on different geographic classifications. The resulting data is usually not comparable or only comparable to a limited extent.
- Duplicate surveys can arise as a result of demands by donors for data that has defined characteristics or, at worst, must be produced by a specified survey. Most donors in statistics have made undertakings that should permit elimination of these practices (section C.6.3).
- Duplicate surveys that have external funding can be a means for statistics producers to support the incomes of their staff where core wages are insufficient (see Box 5.3).
- Duplicate surveys can only be eliminated definitively when both underlying conditions are removed.
- Survey seeking behaviour by statistics producers can be reduced by ensuring that the statistics system's finances do not depend on donor-supported surveys and that remuneration is comparable between statistical staff of similar grades whether they participate or not in surveys.

Some examples of European Commission programmes providing involving support for sector statistics:

- Niger: Support programme for strengthening the civil registration system in Niger (2012-2015).
- Tajikistan: Technical Assistance to support the Strengthening of the Health Information System (2012-2016). The project purposes are: To integrate reliable, relevant and timely routine data with essential statistical data from other sources i.e. Civil Registration, Agency of Statistics, and vertical programmes, for effective management. To establish the organisational framework needed to ensure high standards of data quality accessible from an integrated data warehouse. To establish effective M&E mechanisms, based on evidence, for assessing health system performance

C.7.4.5. STRENGTHENING REGIONAL STATISTICS

Regional integration requires comparable statistics to inform common regional policies. The regional statistical capacity approach provides economies of scale and good results in terms of harmonisation, comparability and exchange of methods and data. The European Commission has supported regional statistical capacity for regional integration in the TACIS and MEDA programmes and in the ECOWAS, UEMOA, CEMAC, COMESA, EAC, SADC, PALOP, CARICOM, MERCOSUR, Andean Community regions and ASEAN. Regional statistical interventions are described in more detail in detail in section C.8.6.

Informing regional policies to encourage free trade areas and customs unions led to support for statistics interventions in international trade (see chapter D.10). Economies of scale and an interest in developing the use of common statistical concepts led to support for statistical training at regional level (see section C.8.7). These areas, as well as national accounts (see chapter D.11), where the adoption of common concepts is also important, have been consistent areas of European Commission regional statistics interventions. As regional policy interests widen, such as transport networks (see chapter D.15), increasing interest at regional level in the Sustainable Development Goals and their indicators (see section B.4.1) and the need for multilateral surveillance data for monetary unions, so the range of regional statistics actions has broadened. Nevertheless, the focus remains on economic statistics such as external trade, price indices (see chapter D.12) and national accounts.

Common regional statistics actions have often been based around development and implementation of common statistics tools, such as Eurotrace for international merchandise trade and ERETES for national accounts (see section C.8.9). The emphasis is now placed on production and dissemination of the statistics concerned. Statistics related training is closely related to capacity building, so section C.6.2 is relevant. Section C.8.5 deals more specifically with training activities.

Some examples of regional statistics-related projects supported by the European Commission:

- **EU-ASEAN Capacity Building Project for monitoring integration progress and statistics (COMPASS, 2014-2018):** Technical cooperation, providing advisory services, studies, study tours, seminars and workshops, working groups' activities in specific statistical domains and in institutional strengthening, as well as ICT development. In addition, activities to narrow the development gaps between the most developed and the less developed ASEAN Member States in term of official statistics and policy monitoring systems. COMPASS builds on the achievements of the EU-ASEAN Statistical Capacity Building Programme 2009-2013.

- **CEMAC:** Programme Régional de Mise à Niveau de l'Afrique Centrale (PRMN) et du Programme de l'Infrastructure Qualité de la région Afrique Centrale (PIQAC), (10 EDF)
- **African Charter on Statistics and the Strategy for the Harmonization of Statistics in Africa (SHaSA):** Strengthening the framework for continental integration and continental and global cooperation frameworks. Support the improvement of labour-related statistics and information systems; promote standardisation and harmonisation of statistics through the African Statistical Charter and other measures. Support the SHaSA objectives on the production of quality statistics for Africa and the establishment of a sustainable institutional capacity in the African Statistical System.
- **SADC:** Regional Statistical Training Project (RSTP) supported by the European Union (ended in 2010). Results included the SADC Regional Statistical Training Strategy, 12 Regional Short Courses covering various subject matter areas and statistical processes and relevant training materials, Subjects covered included: sample survey design; national accounts; geographic information systems; human resources development; organisation and management of NSOs; international merchandise trade statistics; trade indices; business surveys and business frames; data analysis; survey and statistical methods; economic statistics; agriculture and food security statistics; regional model syllabus; and a programme of short courses.

The Pan African Statistics Programme (PAS) was launched in 2016. It supports the African Statistical System to improve the quality of statistics in Africa, to set up effective ways of working within the African Statistical System, to build capacity of people and institutions and to facilitate the transfer and uptake of good practice and common tools. In particular, PAS provides methodological and technical assistance through international and local technical experts in different statistical domain(s), supports the methodological work of the SHaSA working groups (methodological frameworks: guidelines, manuals, questionnaires, etc.) and the integration indicators. This also involves technical assistance missions (e.g. for tools, frameworks; knowledge transfer), as well as training (of trainers), workshops and seminars. PAS also provides the ASS and its methodological/technical networks with ad-hoc consultancy; assists AUSTAT in the overall methodological coordination of programme activities and the dissemination of results and in setting-up the AU Statistical Institute.

Regional interventions also promote the development of common management tools. For example, MEDSTAT II provided a Management and Information System (MIS) for eastern and southern Mediterranean countries that included an 'action database' to help structuring and programming training actions to improve statistical capabilities. MEDSTAT III strengthened the position of the National Statistical Institutes within their respective National Statistical System, particularly in priority thematic sectors. It also contributed to the production of more reliable and better quality statistics as well as to the harmonisation with EU and international

norms and standards in statistics. MEDSTAT IV aims at capacity development of the statistical systems and their harmonisation within the ENP-South region. MEDSTAT IV is executed under the ENI Regional South Strategy Paper (2014-2020) and the Multiannual Indicative Programme (2014-2017).

Box 7.6: Action points for regional statistics interventions

- Regional organisations also need to have an explicit statistics strategy and prioritisation.
- Preparation of regional integration actions, including definition of priorities, needs close collaboration with the regional institutions but the member national statistical institutes of the regional institution must also be positively involved in preparation.
- Regional interventions may require complementary actions at national level.
- Data communications between regional organisations and their member states are likely to become of increasing importance for new actions.

To find out more...

- [Evaluation of the Commission Support for Statistics in Third Countries, 2007](#)
- Eurostat information on [Eurotrace \(international trade\)](#) and [ERETES \(national accounts\)](#)
- [EU-ASEAN Capacity Building Project for monitoring integration progress and statistics \(COMPASS\)](#)
- [MEDSTAT programme](#) (ENP-South)
- [Pan African Statistics Programme \(PAS\)](#) (state of play as of 2016)

C.8

How to manage statistics actions



C.8. How to manage statistics actions

The chapter in brief

This chapter starts at the point when the decision has been taken that a European Commission statistics intervention is justified in order to achieve the goals agreed with its development partners. It gives guidance on how to prepare the various types of projects/programmes to support statistics capacity building and major statistical projects. It also provides practical advice for preparing and evaluating terms of reference at each stage of project/programme preparation; this also includes key points for terms of reference.

The first half of this chapter builds further on the information and discussions already presented in chapter C.7, chapter C.6 and chapter C.5. In particular section C.7.2 'Matching outputs to objectives: the logical framework of a statistics action' provides the basis for the discussion of the different phases of the project cycle for statistics interventions.

The second part of this chapter provides further information on some specific topics of high importance for statistics programmes and projects and for statistical capacity building in particular. These topics include support to the development strategies, management and advocacy for official statistics, support to regional statistical programmes, training and IT for official statistics, as well as support to methodological developments.

The key outputs of a statistics identification or pre-feasibility study are:

- The intervention's specific objectives are fully defined: what results are needed to achieve the purpose laid out in the strategy and programming documents.
 - Section C.7.2 discussed the three types of specific objectives common to all European Commission statistics interventions: improvement in statistics production, development of statistical capacity and improvement in the use made of statistics. One or more of these objectives might be relevant.
 - Alternatives for the operational objectives to be delivered by the project / programme are discussed, with a preferred option identified. Section C.7.2 discussed the six common output types at operational objectives level.
- A first view of the activities to be undertaken
- Analysis of the linkages between the activities, operational objectives, the expected results and the project purpose. This is particularly important for capacity building projects, where the achievement of planned outputs may or may not lead to the expected results.
 - Examination of the risks and uncertainties, together with the strategy proposed and assumptions made.
 - First appraisal of means and costs;
 - First analysis of the financial, coordination and implementation procedures;

Box 8.1 provides a checklist that covers drafting Terms of Reference and evaluating responses for identification or pre-feasibility studies.

C.8.1. Identification / Pre-feasibility

The background for this section is the situation in which:

- Absent or poor quality statistics have been identified as be a significant constraint to achieving policy goals because they do not permit policy measures to be adequately prepared, monitored and evaluated. The goal of overcoming this constraint has normally been incorporated in the strategy and programming documents (section C.7.1)
- The purpose of intervention has therefore been outlined in these documents (see section C.7.1 and section C.7.2)

Box 8.1: Terms of reference checklist for a statistics identification or pre-feasibility study

This box applies the DG EuropeAid documents *Standard Terms of Reference for Programme/Project Identification Studies* and *Standard Terms of Reference for Programme / Project pre-Feasibility Studies* to a statistics based action. This box provides information both on preparing study terms of reference and on response evaluation. It is intended to be applied not only in traditional programmes / projects but also in sector-wide programmes, contribution agreements and in actions related to budget support.

1. Study Background

Terms of Reference should contain:

- A description of the role of the (focal or non-focal) sectors concerned in the overall programme and the anticipated use of the statistical information that motivates the intervention.
- The discussion should reflect the context of 'Managing for Development Results' (section B.1.3) and any statistical strategy document that the preparer is aware of (section C.6.1).
- Political sensitivities that can have statistical implications should be outlined.
- Any required institutional framework for the intervention and the likely administrative framework (e.g. budget support, contribution agreement) should be specified, administrative interlocutors should be identified.

2. Study Objective

The study objective is to show how best to respond to the need for statistical information expressed in the strategy and programming documents and any statistical strategy document. The technical proposal should therefore contain:

- Decision criteria in terms of relevance, sustainability and feasibility for whether the preferred option should be accepted.
- Evaluation of technical alternatives. In some large scale surveys, the final choice of technical alternatives is preferably left to the feasibility / formulation stage.
- Capacity building alternatives: the evaluation should consider the impact of different approaches on the sustainability of statistics production and dissemination. The relevance and likely effectiveness of the capacity building measures should also be considered.
- Frequency and means of technical reporting and monitoring.

3. Issues to be studied

The technical proposal should show how the following issues will be assessed and should identify associated risks and assumptions:

- Confirmation of intervention coherence with strategy / planning documents agreed with European Commission and with any statistical strategy, such as an NSDS (section C.6.1).
- A statistics intervention is relevant if the results are likely to inform policy decisions in the sectors concerned.
- Rejection of a proposed intervention is most likely to relate to a lack of statistical sustainability.
- Technical alternatives: the technical choices (where they exist) often concern the degree of adherence to international standards and/or how far the statistics can be disaggregated.
- Capacity alternatives: even in an intervention that aims primarily at improving the coverage and quality of statistical information, there are alternative levels of associated capacity building.

4. Methodology

The proposed methodology should ensure that sufficient information is available to make the above decisions. The Assessment of the National Statistical System, section C.5.4, provides a system-wide checklist to assess what is lacking and what is required in order to produce quality statistics. This can be focused on specific sectors where appropriate:

- Technical aspects of statistics production (methodology, organisation, data processing tools and procedures, work schedule, technical and human resources).
- Capacity building: examine links between actions and results
- If the technical formulation of the project has been drawn: detect the possible unsolved technical problems. Otherwise, a thorough technical study must be envisaged within the formulation study.
- Analysis of the overall budget, of the envisaged mechanisms of co-ordination and management.
- Identify supports to statistics within related domains; experiences drawn from these supports; potential regional co-operation projects in which the partner country has been involved.

- Statistical capacity building projects, the development of a National Strategy for the Development of Statistics ([Section C.6.2](#)) is a priority
- The role of the National Statistical System during the mission, in particular which National Statistical System body is expected to be the counterpart, if this is previously determined.

In the statistical domain, the methodology section should always plan:

- Meetings and contacts with users and stakeholders (e.g. in form of workshops).
 - Examination of the last National Statistical System publications (in paper and internet version).
- Contacts with the future stakeholders at national level are also essential, in the form of either a regional workshop, or meetings with the various national stakeholders within a sample of countries.

Expertise Required

- Experience of institutional and technical aspects of official statistics, plus knowledge of the administrative environment, will be preferred to in-depth technical expertise in statistics.

To find out more...

- [Institutional Assessment and Capacity Development](#), European Commission EuropeAid 2006
- [Standard Terms of Reference for Programme/Project pre-Feasibility Studies](#)
- [Project Cycle Management Guidelines](#), Aid Delivery Methods Programme. European Commission EuropeAid 2004 (please consult the website of the Directorate-General Development for the latest information)

C.8.2. Feasibility / Formulation

This step aims to confirm the project's relevance and feasibility and to produce a detailed plan. The project's intended partners should play a fundamental role at this step. A **design study** may be at the core of the work performed at this step.

Again, this study should focus on the following elements:

- Achievement of the analysis of the institutional capacity of the concerned statistical service or of the whole NSS.
- In depth analysis of the problems, varying according to the type of project (global capacity building, sectoral assistance, participation to a wide-scope statistical operation).
- Consistency with other ongoing or planned supports.
- Precise definition of overall objectives, specific objectives, results and activities.
- Role of technical assistance in the implementation; definition of the terms of reference for consultancies. (Technical support usually takes the form of either a transfer of competence to beneficiary institution's staff or of provision of additional human resources.)
- Partner's ability to absorb the technical advice will be taken into consideration. Potential negative effects of technical assistance on the whole NSS will be detected and avoided. (See [section C.8.6](#).)

Box 8.2: Elements for terms of reference of a design study for a statistical project**Background to the assignment**

Put the mission back in the context of “management for results” and of the satisfaction of the users of statistics: specify whether the project is managed by the national/regional partner or whether it results from a request from the donor countries (the European Commission especially).

Specify the type of statistical support asked for: global statistical capacity building, statistical assistance within the framework of a sectoral programme or a specifically dedicated project, participation to a large-scale statistical process.

Specify the role of the National Statistical System during the mission, in particular which National Statistical System body will be involved.

Lay out the trends agreed by the European Commission and the partners at the end of the identification phase.

Objectives of the mission

Provide information allowing to make a decision on the idea of the suggested statistical support project (acceptance, refusal, modification) and to communicate all technical and financial items necessary to the preparation of a financing convention.

Issues to be studied

Analyse the coherence of the proposed project with the CSP/NIP (or RSP/RIP) priorities and the development policy of the partner.

Analyse the future project stakeholders, their motivation, institutional power, relationships, internal structure and management ability. In the course of the study, the degree of co-operation and co-ordination between the National Statistical System stakeholders must be accurately evaluated. If a project aims to support sectoral statistics, the relations between the statistical service in charge of producing the sectoral information and the institutional stakeholders concerned should also be analysed. In addition data users (institutional, private as well as general public) should be taken into account.

Analysis of the stakeholders institutional abilities:

- The users: who are they? What do they think of the available data? What is their image of the NSS/NSI? How do they express their requests? What are their relations with the NSS?
- Structure, organisation and co-ordination of the NSS. Legal framework for statistics and political influence on statistical activities, independence of NSS.
- Status and organization of the NSI/statistical services involved in the project: type of management, mission, strategy, planning of work, monitoring and evaluation, administrative and financial management (procedures, reporting), staff management (job description, payment, recruitment, skills, motivation).
- If necessary, statistical role of the regional organisation vis-à-vis the members states (mission and practice) and co-operation/coordination modes with the governments, organisation and internal coordination regarding statistical activities, means allocated to statistical activities.

Identify and analyse the problems to be handled by the project (e.g. SWOT analysis of the NSS/NSI and its statistical processes).

Identify the in-progress or past supports to statistics within the domain or in related domains; experiences drawn from these supports. Check the coherence with other in-progress or planned supports

Check the absorption capacities: due to the implementation of poverty reduction policies, NSSs have been increasingly demanded by donors to set up various surveys. Coordination of these actions is sometimes difficult, because NSIs from less-developed countries have limited methodological and technical means for achieving co-ordination.

Define in a detailed way the global objectives, the specific objectives, the results and the activities. Draw up the logical framework matrix. The implementation of a NSDS is a priority for the development of statistical abilities.

Describe the monitoring system of the project: in case of a regional project, the system used for the follow-up of local level activities must be very well described. The monitoring system should be as integrated as possible into the key partner’s own monitoring system. For participation to large-scale projects, the monitoring system will have to be fully integrated into the project’s own system.

Identify assumptions and risks. In statistical projects, assumptions and risks often relate to the following matters:

- Delays in the project implementation (e.g. legal framework, provision of national resources).
- Availability and stability of the national statistical teams.
- Perpetuation of the project results.
- Role of the technical assistance at the implementation stage and terms of reference for consultants especially as regards the transfer of competences towards and the provision of additional human resources for beneficiary institutions (e.g. sub-contracting).

Methodology

In the statistical domain, the methodology section should always plan:

Meetings with users and project key stakeholders: public institutions, international organisations, trade organisations and major actors in the domain in case of a sectoral project, non-trading companies (political representation, press, NGO).

Examination of the last National Statistical System publications (in paper and internet version).

When the study is completed, discuss the proposal of project with the partners. This allows to collect concrete feedbacks and to supplement the information relating to the project ownership and risks.

Required expertise

For this type of mission, the expertise will mainly depend on the type of project considered during the identification stage. A multidisciplinary team should be involved comprising experienced statisticians (also for each domain considered) and an expert in capacity building (with knowledge of the administrative environment in the country).

C.8.3. Implementation

C.8.3.1. START-UP PHASE

Several months (even years) may pass between the collection of information on the field during the formulation phase and the project's effective start-up. Meanwhile, the project background may have been modified by certain events or operations. The information must be updated in the start-up phase and potential impacts on the project must be evaluated. If need be, adaptation measures should be taken.

The updating process should include all effective changes regarding:

Global statistical capacity building:

- Legal framework of the statistical activity,
- Work on a National Strategy for the Development of Statistics,
- Organisation and functioning of the National Statistical System and National Statistical Institute; functioning of the services producing statistics elsewhere.
- National Statistical Council planned or implemented.

Sector support to statistics:

- List of statistical data collection operations planned in the sector. Such a list may impact the methodology, the collection operations as well as the data processing.
- Other supporting statistical projects related to the sector, started or planned.

At the end of the start-up phase, the list of activities relating to the project should be updated as well as the work plan. Terms of reference of potential technical advice may be reviewed and complemented.

C.8.3.2. IMPLEMENTATION PHASE

The project team should pay close attention to the timeliness of project results. In statistical capacity building actions, timeliness is not only dependent on planned actions (training, programmes, procedures and tools); **timeliness often depends on decisions to be taken or legal acts to be introduced by the beneficiaries.** This includes e.g. the official announcement of a census date. The progress in making such decisions (legislation, regulation, budget, staff, other means) has to be carefully monitored.

In particular the monitoring must include the funding mechanism. Indeed, starting up certain tasks requires corresponding financial means to be made available. Large operations often depend on joint financing or on national budget participation. This could be the case of interviewers training, printing of questionnaires, interviewers' and controllers' fieldwork. **On-time funding can be crucial.** The late start-up of certain tasks may deeply impact survey results. For example, the choice of the observation period of household expenses depends on civil and religious holidays; the choice of the observation period for harvesting depends on the agricultural cycle. As a consequence, **any delay in finalising tasks previous to fieldwork may deeply impact the quality of information.**

Statistical operations such as surveys or censuses are heavy operations. They involve a number of tasks and require big teams (thousands of people may be mobilized). **Stringent planning and close monitoring are requested.** The rules of monitoring, set up during the start-up phase, are an important factor in the operation's achievement. All of the operation's partners and stakeholders should be kept informed.

The data processing and results analysis phases depend on few people in comparison with the operations of field data-collection. Although reaching the end of the operation, these phases should be subjected to the greatest attention by the staff concerned. **A statistical operation is not closed until all results have been disseminated and analysed.** It happens too often that only a small part of the survey is really utilized or that a late use makes the information irrelevant.

C.8.3.3. FINAL PHASE

The final phase is essential because it regards the ownership of project results. In any kind of statistical project, this phase must include the preparation of the final report and the **archiving of all information.** The importance of CD-ROM/DVD archiving should be borne in mind, especially in the case of surveys as, due to their costs, they involve heavy investment. The comparison with older data is of high importance in analysing a survey and in interpreting its results... as far as these data are available!

For projects involving the setting-up of periodical operations of data collection, **the transfer of ownership of the new system to the national team** which will become in charge of the future operations is a very important phase. The future team manager's participation in the project will pave the way to successful ownership. Such a transfer should be planned in the same way as a service transfer and should include:

- Transfer of **documentation** on the methodology of the survey (design, questionnaire, fieldwork organisation) and on teams training;
- Transfer of **information technology** processing and dissemination tools: programmes, documentation and training;
- Transfer of the **data and metadata** that have been collected or produced (as well as archived) during the course of the project;
- Transfer of **survey report** with, if need be, a section devoted to data quality.
- This transfer is particularly important for the sustainability of the project.
- Table of assessment criteria and standards at the implementation step.

C.8.4. Evaluation

The reference methodology for an evaluation is defined in the document '*Evaluation in the European Commission. A Guide to the Evaluation procedures and structures currently operational in the Commission's external cooperation programmes.*'⁽²⁸⁾

Evaluation aims at an as impartial as possible appraisal. It either takes place during the implementation (mid-term) or at the end of the operation (ex post). The evaluation provides an opportunity to learn lessons from the support provided by the European Union.

The **mid-term evaluation** of statistical projects (or programmes with a statistical component) will be carried out if lessons learnt from the first implementation phase could lead to abridging, re-directing or otherwise amending the activity programme. Such an evaluation should be carried out in any of the following cases:

- the implementation is taking a long time (more than two years);
- numerous and complex activities have to be carried out in the frame of the projects or programmes (population census; wide-scope surveys, surveys requiring large samples); projects or programmes presenting innovation in the methodology, the data collection methods or even the processing or dissemination phases. In this case, a pilot-study is usually conducted for testing. It is appropriate to make an assessment just after the pilot-study;
- projects or programmes largely depending on decisions to be made or actions to be undertaken by the partner country.

Ex-post evaluations are really worth their costs:

- when the European Union's support follows a medium-term approach;
- when the support to statistics is provided as part of a more global sector support;
- when the socioeconomic context is radically changing.

The lessons learnt can greatly enhance the efficiency of the support to statistics.

⁽²⁸⁾ EuropeAid Office. Evaluation Unit March 2001.

As for any European Commission project, the assessment criteria used are relevance, performance, efficiency, impact and sustainability. Within each criterion, specificities of statistics which have to be carefully observed are the following:

Evaluation criteria for statistical projects

Relevance	<p>Do the project objectives aim at solving the problems identified in the provision of statistical information for the definition and monitoring of development (maybe sector) policies?</p> <p>Are they consistent with the NSDS?</p> <p>Has the analysis of the beneficiaries (within and outside the NSS) been correct in the light of the implementation? The analysis of intra-beneficiary relations and of the institutional context will be verified in a similar way. The risks might be re-assessed.</p>
Effectiveness	<p>Mid-term assessment: do the means committed fit with the effective results?</p> <p>Are the means that have been committed (by the project and by the beneficiaries) comparable to those used in past similar operations (surveys having resulted in similar data or regarding similar domains)</p> <p>To which extent have the stakeholders committed to the monitoring process? How far have they committed to integrating this process in the current process of the implementing institution? Did the project enable the institution to improve in this domain?</p>
Efficiency	<p>Sectoral statistics: are the expected data available? Are they good quality (or has the quality improved?) following the criteria of statistical quality.</p> <p>Global statistical capacity building: to what extent have the results helped to implement the NSDS?</p>
Impact	<p>Sectoral statistics: what is the appraisal of the sector managers on the project impact?</p> <p>Global statistical capacity building: how deeply did the project impact the rest of the NSS works?</p>
Sustainability	<p>Sectoral statistics: do the ownership of the project results and the beneficiary service resources enable future data production on a periodical basis?</p> <p>Global statistical capacity building: are the results sustainable in terms of NSS human, technical and financial inputs (budget, software and hardware, staff considering the expected turnover)?</p>

Again, a checklist for terms of reference of an evaluation of a statistical project is suggested. The presentation uses the general reference framework described in Chapter 9 of the "Project".

These specific elements can apply to final as well as to mid-term evaluation.

An example of Terms of reference of an evaluation study in the statistical field is given in [Box 8.3](#).

Box 8.3. Elements for terms of reference of an evaluation of a statistical project**Background of the assignment**

- Put the mission back in the context of “management for results” and of the satisfaction of the users of statistics: specify whether the project is managed by the national/regional partner or whether it results from a request from the donor countries (the European Commission especially).
- Specify the type of statistical support asked for: global statistical capacity building, statistical assistance within the framework of a sectoral programme or a specifically dedicated project, participation to a large-scale statistical process.
- Prepare a chronological description of the project.
- Specify the role of the National Statistical System during the mission, in particular which National Statistical System body will be involved.

Objectives of the mission

- Provide the necessary information for assessing project realisations and drawing the lessons of the project before deducing general recommendations for projects on statistical cooperation.

Issues to be studied

These questions are linked to the seven evaluation criteria retained by the European Commission²⁹: relevance, efficiency, effectiveness, impact and sustainability, coherence and added value of the Commission.

Relevance:

- Has the implementation of the project confirmed the initial analysis undertaken in the pre-feasibility and formulation stages?
- Has the project brought an answer to the true needs?
- Had the problems underlying the statistical support been correctly identified during their analysis and do they still reveal to be the true problems? If not, did the project adapt in order to answer to the true problems and needs?
- Has the logical framework been coherent and complete?

Efficiency:

- Have the different activities attained the objectives, at the expected quality and cost levels and according to the initial time schedule? The following issues should be checked: daily monitoring, cost and price to quality ratio, stakeholders’ contribution, technical assistance and monitoring.

Effectiveness:

- How have the results allowed reaching the specific objectives of the project?
- Global statistical capacity building: has the behaviour of the NSS vis-à-vis users and data diffusion changed? Has cooperation inside the NSS developed concretely? Has the operating system of the NSS changed? Have these changes brought the expected improvements?
- Sectoral statistical support: are the responsible (Partners, Delegations) of the sectoral Development programmes satisfied with the statistical data provided: coverage of the field of observation, quality of the data?
- Had the risks been correctly assessed, in particular regarding the adoption of the different regulations, the operating mode of the key partner, the staff’s mobilisation?

Impact:

- To what extent has the progress in statistics achieved by the project contributed to improve and develop the “management for results”? Has the follow-up of poverty reduction policies been reinforced consequently?

Sustainability:

- Have the positive effects of the projects been extended beyond the project?
- Have the stakeholders been kept mobilised around the objectives of the project all over its duration?
- Will the authorities respect their decisions vis-à-vis the development of statistical capacities? For example the commitments undertaken in the framework of the NSDS or pertaining to the change in National Statistical Institute’s statutes.
- Will the organisation providing sectoral data be able to carry on the production of new data with the same level of quality?
- Computing science playing an important role in statistics, have the technological choices made during the project been relevant? Will the tools be maintained?

Coherence:

- Is the project, in the end, still coherent with the development priorities of the partner, the CSP and with the support of other partners? Supports occurred in the course of the project but not formerly identified should not be omitted.

Value added of the Community:

- To what extent can the contribution of the Community be compared to a similar contribution that would have been provided by one of the Member States of the European Union?

Required expertise

For this type of mission, it is necessary to combine a double expertise in evaluation and in statistics, completed by a good knowledge of the administrative environment of the countries in the area.

C.8.5. Support in strategy and management; advocacy

Section C.5.3 has tried to demonstrate that support to statistics cannot be reduced to support in statistical methodology but must be complemented by a support in statistical strategy and management.

The ‘[Evaluation of the Commission support for statistics in third countries](#)’ (2007) also noted that:

- *“Neither the coherence of national statistical systems nor the need for efficient “statistical coordination” was systematically taken into consideration”*
- *“No statistics projects or programmes really addressed the design and functioning of the statistical system as a central coherent element of public administration; this resulted in more limited impact on the statistical systems as a whole”*
- *“Responses that focused only on specific indicators created a risk of fragmentation of the statistical system.”*

More recent projects (see, for example, support to Burkina Faso National Statistical Institute in [section C.7.2](#)) correct these drawbacks and introduce elements aiming at:

- improving centralised statistical coordination,
- transforming the NSI into a more autonomous public administrative body,
- providing tools for:
 - the programming of activities,
 - the management of financial resources
 - the development of human resources.
- providing resources in parallel to the statistical services of line ministries, in particular the ministries responsible for social affairs, health and education, given their importance in the Poverty Reduction Strategy.
- successfully completing such new objectives requires **non-statistical types of support** including potential technical advice in:
 - legislation,
 - public administration,
 - budget and external funds management,
 - marketing,
 - strategic planning,
 - human resource management,
 - staff training,
 - communication,
 - foreign languages,
 - etc.

It should be noted that Afristat, at its geographical level has already organised seminars for Heads of NSIs in order to make them aware of solutions to these problems. Work with peers has been particularly appreciated and the **regional approach** can be recommended. Unfortunately, the turnover at the head of NSIs is very high and such high level training should be frequently undertaken.

A global strategy has also been designed for fragile states and states emerging from critical situations such as crises or wars in order to take into account their specific situation.

Box 8.4: Strategies for fragile states and states emerging from critical situations such as crises or wars
Statistical information needs are crucial not only for the definition, implementation and monitoring of consolidation programmes of fragile states, but also for the programmes of humanitarian aid and reconstruction in countries emerging from crisis and war situations. However, in these countries, valuable statistical information is rare or even missing altogether.

In many fragile countries, administrative structures are failing for total lack of operating budget or lack of staff. The National Statistical System is unable to fulfil its mission and does not produce regular statistical information any more. Some statistical data may keep being produced, but presenting some drawbacks such as discontinuation of samples, partial geographical coverage due to low security in the fieldwork. Data collected often have little significance. Nevertheless, these operations continue to mobilise people who will be of great help once normal statistical work can be resumed.

In such **fragile countries**, only surveys are able to respond (often only partially and in limited areas) to the most important information needs regarding poverty. The implementation of light household surveys will enable the capture of household demographic characteristics, income and expenditure data, employment and unofficial activities. To conduct this work, existing teams within the NSS are called upon.

In countries emerging from crisis and war situations, priority has to be given to promptly gather the minimum two types of statistical information that allows aid programmes to be defined:

- Information on the state of the population: large moves of population occur during these periods, sometimes leading to a decrease in some age classes (emigration, deaths). Census data do not reflect the country's current situation any longer.
- Information on the conditions of the economic and social infrastructures: transport, public buildings and housing, industrial and commercial infrastructures.

In such cases, it is often impossible to design a heavy data collection campaign such as a census, because the necessary administrative structures no longer exist. Therefore, a demographic survey on a sample of households is generally conducted, complemented by an assessment of the infrastructures on the sample of geographical units to which the selected households belong. Such operations face several difficulties. First, local teams have to be re-constituted to carry out fieldwork, data analysis and the dissemination of results. As far as possible, NSS-experienced staff is favoured. Secondly, it is necessary to build representative samples while the sample frames either no longer exist, or are completely outdated. This work is most commonly carried out within the framework of a project linked to the reconstruction programme.

In both cases, the aim is to **favour the re-launching of statistical activities as a preliminary to any reconstruction of statistical capacities**. This reconstruction should be part of the general reconstruction programme or support for administrative capacities.

After periods of war or crisis, **non-governmental organisations (NGOs)** are often the only organisations present in the country. They generally possess data stemming from their internal management that could be used as a basis for roughly estimating the population in their activity area. Before launching any national statistical operation, contact with the NGOs is essential. The information they may provide will be used in defining the survey sample. In the absence of local authorities, they could also relay the information about the population.

An important effort still needs to be made in advocacy for the use of statistics in decision-making, which, according to the above cited evaluation report “may have constituted a major missing link between results and outcomes.”

Poor dialogue with data users remains a characteristic of a number of National Statistical Systems in developing countries. Improvement of this dialogue should be included in any strategic plan of development of statistics.

On these issues, PARIS21 has already organised several international meetings and developed advocacy material that can be very helpful. Details on how PARIS21 can help with advocacy efforts are outlined in the **‘Advocacy at a Glance’** booklet. To aid NSS managers and statisticians in developing countries with their advocacy work, PARIS21 has produced a **Country-level Advocacy Toolkit**. As inspiration and reference, PARIS21 also maintains a large **library of advocacy materials**

from regions and individual developing countries across the world.

On a general level, PARIS21 has also published the paper **‘Measuring Up to the Measurement Problem: The Role of Statistics in Evidence-Based Policy-making’** and the leaflet **‘Better statistics; Better policies; Better development outcomes’** on advocacy for statistics and the essential role of quality statistics for evidence-based policies and good governance. Furthermore, the booklet **‘Counting Down Poverty: The Role of Statistics in World Development’** highlights statistics’ central role in development and poverty reduction.

The **UNECE also promote good practices in dissemination and communication** by statistical organisations. This includes issues such as communication with the media and managing customer relationships and outreach.

C.8.6. Regional and sub-regional (multi-country) projects

C.8.6.1. MULTI-COUNTRY PROJECTS

In development co-operation, the terms 'region' and 'sub-region' correspond to geographical areas comprising a large number of countries. The [United Nations](#) defines five regions (Africa, Americas, Asia, Europe and Oceania) and twenty-one sub-regions. The World Bank defines six regions (Sub-Saharan Africa, Europe and Central Asia, the Middle East and North Africa, South Asia, East Asia and the Pacific and Latin America and the Caribbean). The term 'region' can also refer to regional organisations (e.g. [ECOWAS, the Economic Community of West African States](#)).

To avoid confusion, one should bear in mind that 'regional' in national statistics normally refers to sub-national areas (e.g. provinces, states). For more information on 'regional and small area statistics' in the statistical sense, see chapter D.18.

The [European Consensus on Development](#) (2006/C 46/01) recognises the "particular role and comparative advantages of the [European Commission]:

"[...] Drawing on its own experiences, and exclusive competence in trade, the [European Commission] has a comparative advantage in providing support to partner countries to integrate trade into national development strategies and to support regional cooperation whenever possible."

The increasing regional dimension of European Union statistical projects over the past decades has been highlighted by the '[Evaluation of the Commission Support for Statistics in Third Countries](#)' (2007). Statistical projects at regional level may:

- support a policy aiming at regional integration;
- meet the political needs of a regional organisation;
- provide support in the context of regional partnership agreements;
- support statistical schools and training centres.

The 'Evaluation' considered that 'the projects aimed at strengthening regional integration yielded very good results in policy areas where there was good ownership by the regional institution and the member states (e.g. indicators for multilateral surveillance in the UEMOA); in other areas the results were not as good (e.g. data on external trade in the same region).' The 'Evaluation' pointed to two factors that were important for the success of regional programmes: the existence of a regional institution serving as a link between the donor and the member countries of the region; and the institutional and technical strengths of the member countries' NSIs.

To strengthen the links between the positive results of statistical programmes and projects and the development of evidence-based decision-making, the 'Evaluation' recommended that the regional approach should be continued and enhanced. In order to improve the efficiency and effectiveness of statistical programmes and projects, better use should be made of the competences and means of regional and sub-regional organizations with statistical responsibilities.

There is no specific methodology developed to manage the cycle of regional statistical co-operation projects. Throughout the project cycle, however, matters deriving from their regional dimension have to be taken into account: the mandate of the institution, the capacity of the institution to animate a network of national and international stakeholders, the possible existence of a strategy for statistics at regional or at continental level, the expected level of integration and the related statistics needed.

The European Commission's Communication COM(2008) 604 '[Regional integration for development in ACP countries](#)' proposes an approach for EU support to regional integration for ACP development. This support is founded on the basic principles of the Cotonou Partnership Agreement: ownership, dialogue and sustainable development.

The Communication proposes that the EU commits to support the priorities:

- Strengthening regional institutions
- Building regional integrated markets
- Supporting business development
- Connecting regional infrastructure networks
- Developing regional policies for sustainable development

Subsidiarity is a key guiding concept. It is in the interest of all partners involved to deal with issues at the level that will maximise the efficiency and effectiveness of the activities. This is also vital to strengthen the feeling of ownership amongst decision-makers at both regional and national level and strengthening their commitment to the statistical programmes and projects. It is also important with respect to alignment of the statistical programmes and projects with both regional and national development priorities. However, strong co-ordination and monitoring is crucial to assure that efficiency and effectiveness are realised.

In its final report '[Coordination of statistical capacity building programs at the sub-regional level](#)', the Coordinating Committee for Statistical Activities (CCSA) Task Team on Co-ordination at the Sub-regional Level argued that Regional Strategies for the Development of Statistics (RSDS) at the sub-regional level should be the basis for co-ordinating donor assistance and for ensuring that development assistance is well targeted. The RSDS should be based on the NSDSs in place, on general regional development

strategies and on a detailed assessment of the strengths and weaknesses of the regional statistical system.

PARIS21 has developed an approach to develop and implement an RSDS. The objective of an RSDS is to prepare an action plan that will meet the information needs of regional integration policies. It should ensure that the statistics from the NSSs are comparable, by applying international standards and good practices. The RSDS aims at facilitating the development of a regional statistical system, as well as data with a strictly regional dimension (e.g. on climate change or on common water resources). The RSDS is complementary to the national NSDS processes, and vice versa. Success factors are political commitment at the highest regional and national levels, constructive dialogue between data producers and users, availability of required resources and co-ordination with technical and financial partners. The PARIS21 approach is presented in the booklet *'The RSDS Approach in a Nutshell'*.

C.8.6.2. REGIONAL ORGANISATIONS WITH A STATISTICAL MISSION OR COMPONENT

The motivation and role of regional organisations for development of statistics were presented in section B.2.4.2, which also lists a number of regional organisations with statistical activities (see Box 2.7).

Strengthening regional trade and/or economic development is often the core objective of regional organisations. To monitor this development and evaluate the impact of regional policies, comparable statistics covering all member states of the organisation is required. Therefore, they promote and support the implementation of common standards in the member states, e.g. common classifications, methodologies and quality systems (see section C.8.6.3). The departments responsible for statistics in the regional organisations (see Box 2.11) need effective communication of data from the NSIs of their member states, as well as access to international statistical databases. Regional data series and indicators compiled by regional organisations are normally generated on the basis of data reported by their member states.

Afristat is an example of a regional body with an exclusively statistical purpose. Its statistical functions as a regional organisation are presented in Box 8.5.

For development partners providing support to statistics at the regional level, capacity building is likely to be a major concern, both for the statistics units of the regional organisations and for the national statistical systems of the member states. In general, communication and co-ordination is essential. A good practice to improve co-ordination and involve national stakeholders in the regional process is to identify or designate national focal points. This generally improves communication and feedback and strengthens the member states' sense of ownership and involvement in the regional process.

Box 8.5: A regional body with an exclusively statistical purpose: Afristat

Afristat – the Economic and Statistical Observatory for Sub-Saharan Africa – highlights a regional organisation with an exclusively statistical purpose. Established in 1993 by the 14 African Franc Zone members, Afristat comprises 19 Member States. Afristat's headquarters are located in Bamako, Mali.

Afristat's goal is to support the development of statistics in its Member States, mainly economic, social and environmental statistics. It provides consultancy services to the National Statistics Institutes of its Member States. It has statutory power in terms of harmonisation of concepts, standards and statistical methods. Its responsibility includes the institutional assessment of the NSSs of its members.

Afristat responds to the need for regional economic integration through its support for comparable statistical information. Member States define a work programme, which is implemented by operations to support collection, processing and dissemination of statistical information and its economic analysis.

The 2007 Bamako Declaration by 18 African and 2 EU countries builds on Afristat's coordinating role to:

- Enhance the coordination and programming of statistical activities
- Develop concerted statistical programmes adapted to national strategies
- Enhance the effectiveness of technical aid
- Improve monitoring of achievements in statistical development in Africa

To find out more...

- [Afristat: Economic and Statistical Observatory of Sub-Saharan Africa](#)
- [Bamako Declaration](#) on the coordination of aid in French-speaking Africa in the field of statistics

The regional organisations are also in a position to exploit economies of scale by working closely with the organisation's member states on common statistical needs. In particular, this concern training of staff (see section C.8.7), building up IT infrastructure, databases and software (see section C.8.9), etc.

When the number of professionals in each member state needing a specific training is small, it may be more efficient to organise such training sessions at regional level. This also has the added value of creating a forum for exchanging and discussing professional experiences and good practices across the member states. However, practical considerations and costs may be prohibitive. Alternatively, economies of scale may also be achieved through running the same

training courses in individual member states or by setting up e-learning courses

Common statistical software also creates economies of scale, both in software development, introduction, maintenance and training. The use of common software enables the development of local expertise and makes training and support more efficient.

C.8.6.3. RANGE OF REGIONAL STATISTIC PROJECTS

Improving regional organisations' use of statistics in their policy formulation, analysis and evaluation is one of the key motivations and aims of regional projects (see also [section B.2.4.2](#)). Generally, regional and international organisations do not involve themselves in the collection of data, but rather on ensuring that their member states work in a coordinated manner towards commonly agreed goals. The aim is to provide data for the organisation's member states that are as comparable as possible, in order to provide stakeholders at all levels with information for viable analyses of regional development, comparisons of individual countries and a consistent evidence base for policy decisions and monitoring. These stakeholders include decision makers at regional level as well as on national level, donors, international organisations, NGOs, analysts and researchers, media and the general public.

For regional organisations with a mission to strengthen regional economic integration, multilateral monitoring is essential to pursue the objectives of regional integration and convergence of the economic policies of the member states. In this context, the quality, comparability and timeliness of macro-economic statistics are of high importance. Furthermore, donor decisions on country resource allocation uses macro-economic statistics as key input (see [section B.3.3.1](#)); thus, the availability, reliability, comparability and timeliness of these macro-economic statistics are vital. This also applies to a number of social statistics, including the SDGs.

Box 8.6: Example: Improved comparability of Gross Domestic Product estimates in AFRISTAT countries

The urgent needs of the sub-regional organisations (UEMOA, CEDEAO) required the development of more comparable GDP figures for the member states, starting from the GDP figures calculated by the member states themselves. In the short term, the GDP targeted are final GDP figures, whose contents are in general explicitly known, rather than provisional GDP estimates, whose contents may be less clear.

The requirements For Statistical Data For Multilateral Monitoring Of National Economic Policies are defined by the Commission of UEMOA (the West African Economic and Monetary Union). To effectively fulfil its function, the Commission of UEMOA has set up a network of National Committees for Economic Policy. These national offices

assist the Commission in collecting, treating and analysing information on the economic, monetary and financial situation. They regularly provide databases of comparable indicators to the Commission of UEMOA, according to a pre-defined calendar. The statistical data to be provided by the member states are defined through regulations of UEMOA.

In theory, the comparability of statistical data should be based on the fact that the countries use the same concepts and methodologies to produce data for the same periods. To this end, the Commission of UEMOA carries out statistical activities with the same methodological tools in parallel in all the member states. AFRISTAT has participated in the production of harmonised and comparable statistical indicators since 1996. Initially, comparable data were produced based on existing national data produced according to not harmonized methods. The second stage consisted in making the countries adopt harmonized methods of data processing.

The SNA93 was implemented in the process of modernization of the national accounts of the AFRISTAT member states. This is currently reinforced by the use of the ERETES software system for national accounts in a majority of countries. In collaboration with the sub-regional organisations CEMAC, UEMOA and CEDEAO, and with the financial support of the European Commission, AFRISTAT initiated a process of harmonization of methods for developing the national accounts in two stages:

In the short term:

- Establishing conversion tables between the GDP figures currently calculated by member states and "more comparable" GDP estimates. These conversion tables have made it possible to adjust for some of the variations due to differences in the national accounts methodology applied on national level.

In the medium term:

- Re-basing the national accounts on new base years, using a harmonised and SNA93 compliant methodology and common tools. The harmonisation of the methodologies was facilitated by the adoption of a number of accounting standards and statistical standards by the sub-regional organisations (the Handbook of Balance of Payments revision 5 and harmonization of methods; the SYSCOA accounting standard for public limited companies; a common accounting standard for banks; harmonisation of the methods for Statements of Government Operations; harmonised methodologies for price collection and calculation of the consumer price indexes (CHAPO software); a common framework for the production of external trade statistics, using the EUROTRACE software).

Source: AFRISTAT: [Besoin d'information statistique et fiabilisation des dispositifs de production de données, notamment de conjoncture dans les pays de l'UEMOA \(the need for statistical information and reliability of data production systems, especially for short term economic data, in UEMOA countries\)](#) (2010)

Box 8.7 Example: Practical issues in a region-wide statistical data collection – the UEMOA harmonised price index

Each UEMOA state produces a harmonised price index. It is based on a methodology common to all eight member states. In each member state, data are collected on a monthly basis and a monthly index is calculated using the same software (so-called CHAPO). The data are transferred to the UEMOA Commission every month and are used in the calculation of the UEMOA regional price index.

Occasionally, member states were unable to produce their index for several months due to a hard-disk failure in the computer that was hosting CHAPO. The consequence was that during this time, due to a very basic technical problem, the UEMOA Commission was unable to produce the UEMOA regional price index.

This example illustrates the importance to regional projects of proper routines and contingency plans at both regional and national level. Furthermore, it clearly shows the critical importance of proper ICT structures and equipment for transmission of data and administration of common software solutions (see also section C.8.9).

Regional organisations may also focus on other areas. For regional organisations of developing countries, a key area is the development towards the Sustainable Development Goals, including social issues such as poverty and hunger, health and education, gender equality, as well as environmental sustainability.

An example of cooperation amongst regional organisations and institutions is given in the paper [‘The challenges of monitoring and reporting on the Millennium Development Goals in Africa by 2015 and beyond’](#).

The [CCSA Task Team on Coordination at the Sub-regional level](#) distinguishes between two types of regional statistics projects: Projects that support regional integration and strengthen the statistical capacity of regional organisations and projects supporting national statistical systems through a regional approach.

The first group of projects often support several objectives: development and application of common classifications, methods and definitions for the member states of the regional organisation; promotion of common data collection programmes using harmonized methods; collection, compilation, dissemination and analysis of statistical data for the region. Typically, the key activities include one or more of the following:

- Strengthening co-ordination and management of regional statistics, including the regional legal framework;
- Building and strengthening regional statistical infrastructure, including harmonisation of definitions and classifications and development of databases;
- Investment in appropriate infrastructure, especially information and communication technology (see section C.8.9);

- Support for regional data collection activities and for the compilation of harmonized regional statistics;
- Supporting data dissemination;
- Human resource development (see section C.8.7).

The second group of projects covers those aimed at improving the capacity of national statistical systems, with support organised and delivered at regional level. Such projects and programmes are especially interesting if the countries in the region covered are small, they have a common background, a common language and/or face similar challenges regarding their statistical systems.

A considerable share of the European Commission’s funding for statistical development is channelled through regional

Box 8.8: Examples: Regional harmonisation of methodologies and tools – PARSTAT 1-2-3 surveys and COMESA statistical software support and training

Harmonisation of statistical methodologies:

In the framework of PARSTAT, the statistical part of the UEMOA Community programme to support regional integration (PARI), the same methodology for observing the informal sector (1-2-3 survey) was shared by the member states Benin, Burkina Faso, Ivory Coast, Mali, Niger, Senegal and Togo. The 1-2-3 survey was based on the principles of modular mixed mode (household/enterprise) surveys. The use of a harmonised methodology made it possible to analyse the size and the characteristics of the informal sector across the UEMOA and between its member states. The same methodology has since been applied in e.g. the Democratic Republic of Congo, Burundi and Vietnam.

Harmonisation of statistics processing tools:

The COMESA States have chosen the Eurotrace software suite, developed by Eurostat, to produce their external trade statistics. The choice of a common software solution has enabled the development of local expertise and the COMESA Secretariat has continuously provided training and technical support to Eurotrace installations in its member states. Regional trainings have been organised on an annual basis, where participants from each member state have been invited to the COMESA secretariat for one or two week trainings, with the ultimate objective of sharing the acquired knowledge with their colleagues back in the NSI. However, the high turnover of staff in the NSIs and the redeployment of staff to other units lead to rapid loss of the acquired expertise. In response to this challenge, the COMESA Secretariat has developed an e-learning platform and e-learning course material for Eurotrace, called [E-Eurotrace](#).

and sub-regional organisations and programmes. MEDSTAT, EU’s programme to supporting statistical capacity and

specific sector statistics in Mediterranean partner countries is one example; others include projects in the Caribbean, in Southern Africa, and so forth.

In large scale projects, the European Commission applies the good practice of dedicating a 2–5% share of allocated resources to statistics, i.e. to institutional development linked to collection and processing of the necessary information to monitor and evaluate the programme. This is fully in line with Recommendation 6 of the [‘Evaluation of the Commission Support for Statistics in Third Countries’](#) (2007). The aim of this recommendation was to generalise and improve the current practice in budget support programme:

Based on its review of regional programs and operations of the World Bank over the period from 1995 to 2005, the World Bank’s Independent Evaluation Group (IEG) concluded that there seem to be five key determinants of success for any regional program:

- Strong country commitment to regional co-operation;
- The scope of objectives has to match both national and regional capabilities;
- There needs to be clear delineation and coordination of the roles of national and regional agencies;
- Acceptable governance arrangements take time to be put in place, but are crucial;
- Planning to sustain the benefits once the program comes to an end must be built in from the beginning.

Compilation of regionally comparable data involves procedures for data transfer from the member states to the regional level. These procedures should clarify the list and format of data to be transferred, the transfer mode and the transfer schedule. A lack of timely data in a member state (or even late transfer) disturbs the production process of regional statistics; dependent on the context, estimations may be used for the country concerned. However, in the longer term this is not a satisfactory solution. The issues preventing timely transfer of national data should be addressed together with the country concerned, in order to seek permanent solutions to assure the availability of national data. This issue highlights the importance of efficient co-ordination at regional level and of good communications with the focal points or coordinators at national level.

In Africa, the African Development Bank, the African Union Commission and the United Nations Economic Commission for Africa have cooperated to develop a [‘Strategy for the Harmonization of Statistics in Africa’](#) (SHaSA). The SHaSA provides some background information on the African integration process and highlights priority statistical requirements for its three major dimensions:

- political integration and regional and continental governance;
- economic integration;
- social and cultural integration.

In addition, the SHaSA highlights various initiatives that have been undertaken by stakeholders at national, regional and international level to foster the development of quality statistical information in Africa. The SHaSA aims to be a valuable practical tool for producers and users of statistics, by defining a vision, strategy, objectives and initiatives, as well as a mechanism for implementation, monitoring and evaluation.

When harmonisation is deemed the most appropriate approach to improve comparability of member states’ data, harmonisation objectives must be defined in a realistic way. Two approaches to harmonisation could be envisaged:

- **Harmonisation of concepts, nomenclatures and methodologies:** International recommendations are adjusted to the specific requirements of the regional organisation’s member states and to their situation regarding statistical capacity and the development of the statistical system.
- **Harmonisation tools:** Common statistical and technical tools are defined and put in place. When processing tools in the regional organisation’s member states are missing or of poor quality, the conditions for developing and/or implementing shared tools are favourable, leading to higher efficiency, stability and comparability at lower costs.

C.8.6.4. INSTITUTIONAL ISSUES

Coordination is crucial to regional projects. A strategy for coordination of the project should be defined from the outset. One should keep in mind that the actors are not only the official statisticians; governments have to have awareness of the importance of quality statistics to evidence-based policy making. Governments are both key users of statistics and responsible for strategies and resource allocation, on national level as well as on regional level, through their role in the decision-making processes of the regional organisations.

Advocacy for statistics is thus an important action in the context of regional and national commitment to statistics, their harmonisation and their inclusion in regional and national development strategies. The regional approach may strengthen the national advocacy efforts for statistics, by building pressure on governments to comply with at least the minimum of the requirements of the regional project.

Effective advocacy for statistics, both in terms of promoting evidence-based decision making as well as ensuring that statistical activities are properly financed and resourced, is crucial to the development of national statistical systems. PARIS21 has developed a range of [statistical advocacy materials and an advocacy tool-kit](#) and maintains a library of regional and national advocacy.

A key question is who will co-ordinate the regional project. Several options are feasible; a regional organisation with a dedicated statistics function is often a natural coordinator. Alternatively, one of the national statistical institutes or other national institutions involved may take on a coordinating

role. Another solution would be to establish an ad-hoc coordination entity for the specific regional project.

Often, regional projects involve a number of different stakeholders at national level. It is a good practice to use national focal points/coordinators to coordinate the networks of national stakeholders and activities at national level, when possible.

User-orientation is a key aspect of statistical quality (see section C.5.3). However, the user group for regional statistics is wider than the user group outlined in Box 2.6. Obviously, governments within the region are key users, both in their function as national decision makers and through their role in the decision-making processes of regional organisations. Commissions or Secretariats of regional or sub-regional organisations are other key users, requiring consistent regional data and comparable national data for multilateral monitoring of policies and national compliance, for evaluating the progress of regional integration, etc. International organisations are also important users of national statistics, and thus have a strong interest in the comparability of national statistics and their consistency with international principles, standards and good practices. Donors and other technical and financial partners also require regional and national data.

C.8.6.5. PROJECT ISSUES

The scope of regional projects is linked to the mandate of the regional organisations, their capacity and their ability to coordinate with their member states. Each regional organisation has its defined mandate and objectives; this will naturally also limit the domain and the scope of project they can deal with.

There is no standard approach or rule that can be applied to all regional projects; regions are simply too different. The importance of efficient coordination and a well-designed strategy for the project must be underlined. However, there are some core principles to be considered:

- User relevance
- Efficiency of a regional versus a national approach
- Advocacy and commitment of regional and national decision-makers
- Integration in and consistency with general development strategies at regional and national level
- Coordination strategy
- Subsidiarity
- Capacity building
- Sustainability of results

Training and capacity building are crucial. Regional projects must have a realistic approach regarding the available IT environment and the expected investment in IT. The sustainability of the investment in IT infrastructure and associated human capital is critical for the long term viability of the project, on regional and on national level.

Training is also a key part of statistical capacity building. A regional approach may often prove efficient for training on specific statistics-related issues. Regional organisations are well situated to co-ordinate and set up training programmes to meet the needs of its member states. If regional trainings are arranged centrally, a budget for travel costs must be included. Alternatively, the same training courses can be offered in individual member states, thus reducing the travel required to the instructors, or by setting up e learning courses. Issues concerning training for official statistics are further described in section C.8.7.

C.8.7. STATISTICAL TRAINING

The European Union has funded a number of projects for the initial training of statisticians (scholarships, study awards,

To find out more...

About the regional dimensions of European Commission support to statistics

- European Commission Communication COM(2008) 604: [Regional integration for development in ACP countries](#)
- [Evaluation of the Commission Support for Statistics in Third Countries](#) (2007)

About statistics in a regional or sub-regional context

- [Reference Regional Strategic Framework for Statistical Capacity Building in Africa](#) (RRSF)
- African Development Bank, African Union Commission and UN Economic Commission for Africa: [‘Strategy for the Harmonization of Statistics in Africa’](#) (SHaSA)
- UN ECA - African Centre for Statistics: [‘The challenges of monitoring and reporting on the Millennium Development Goals in Africa by 2015 and beyond’](#) (Dr D. Sanga; 2011)
- UNDP: [Regional Report on the Achievement of the MDGs in the Caribbean community](#) (2004)
- ESCAP: [Accelerated achievement of MDGs and the Post-2015 development agenda in South-East Asia](#) (2010)
- AFRISTAT: [Besoin d’information statistique et fiabilisation des dispositifs de production de données, notamment de conjoncture dans les pays de l’UEMOA \(The need for statistical information and reliability of data production systems, especially for short term economic data, in UEMOA countries\)](#) (2010)
- CCSA’s Task Team on Coordination at the Sub-regional Level: [‘Coordination of statistical capacity building programs at the sub-regional level](#) (2008)
- PARIS21: [The RSDS Approach in a Nutshell](#) (2012)

To find out more about data harmonization

- [Cross-Cultural Survey Guidelines](#)
- Roland Gnos: [‘International Statistical Comparisons - Ex-ante or Ex-post Harmonisation?’](#) (Federal Statistical Office of Germany)

funding and other assistance to statistical training schools) as well as for vocational training.

These actions have been largely appreciated. Evaluation of the Commission Support for Statistics in Third Countries indicates that:

“Particular improvements could be observed in partners’ capacity to collect and process data, in early warning indicators and regional trade data, in the conduct of surveys, and in a move towards adoption of internationally recommended practices.”

Most of the initial training activities have been developed at the sub-regional level and have succeeded in creating regional networks of statisticians who often keep in touch after their initial education.

Vocational training is particularly necessary in new information and communication technologies, with an emphasis on their application in analysis and dissemination. But vocational training is also justified to help statisticians to adapt to the national and global development agendas. Statisticians educated a decade ago have probably not been trained in the production of environment or governance statistics or in the analysis of gender issues.

Experience has shown that such training is often more efficient at sub-regional level. However, there are also limits to the possibilities for arranging training at regional level, such

as limited language skills or too different competence levels between the countries.

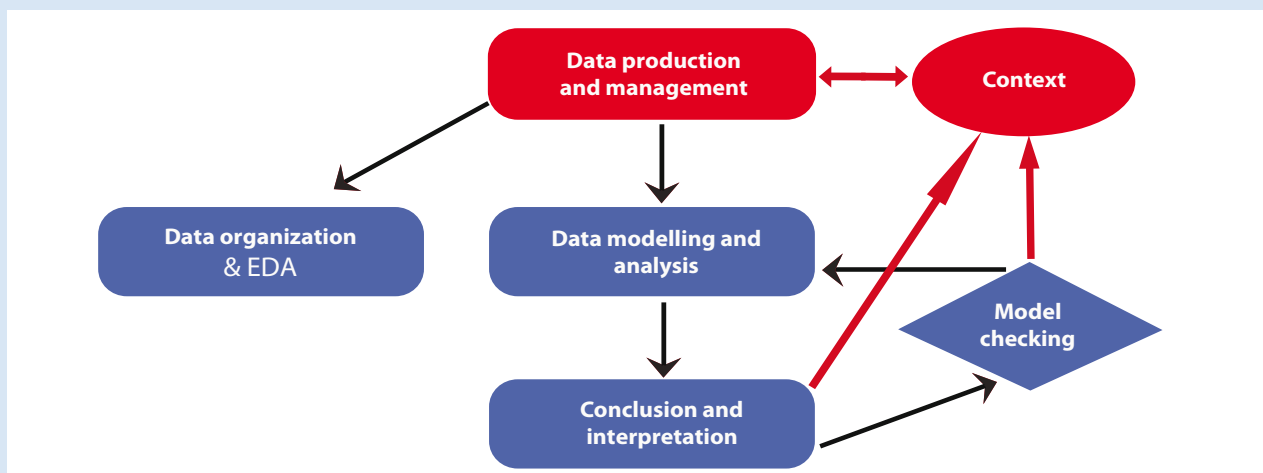
A number of Statistical Training Centres have been set up in Africa. In addition, many statisticians have been trained outside the region. However, Africa still lacks statisticians and related professionals, in particular with up-to-date knowledge of new statistical subjects, methodologies and tools. In response, more and more African countries have created national training centres within their NSI or co-operate with national universities to further the education of statisticians. Regional and international partners have also set up a number of initiatives and activities aimed at enhancing the statistical training capacity of African countries:

- The PARIS21 Working Group on Statistical Training in Africa;
- The African Statistical Coordination Committee Working Group on Statistical Training;
- The Statistical Commission for Africa (StatCom-Africa) Working Group on Statistical Training;
- The African Capacity Building Foundation Group (to be set up) to accompany its specific project on statistical training.

To coordinate all initiatives and activities on statistical training in the region, the Statistical Commission for Africa (StatCom-Africa) has endorsed the African Group on Statistical Training and Human Resources (AGROST) as one of its working groups. AGROST has adopted a Statistical (STPA) for 2011-2013 and [a statistical training programme in the framework of the Global Strategy for Improving Agricultural and](#)

Box 8.9: The gap between university education and skills used in National Statistics Offices

Most of the work of the National Statistical Institutes (NSIs) is concerned with the red area (Data production and management) of the diagram below, while universities focus mainly on the blue area (Data organization and exploratory data analysis; Data modelling and analysis; Conclusions and interpretation; Model checking). The participants of a SADC ‘training of trainers’ workshop were asked to estimate the proportion of time spent in the red and blue areas. Participants from NSIs said that they spent over 95% of their time in the red area, while universities said they spend 100% of their time in the blue area. Participants saw this distinction as the reason why most university graduates need further training before they are efficient in jobs in the National Statistics Systems (NSS).



The issue is how to close the gap or how to provide sustainable alternative or complementary training. Solutions may be different between regions and linguistic areas, on the basis of different educational and administrative structures.

Source: SADC Secretariat, European Development Fund and Eurostat

Rural Statistics. In support of AGROST, the UNECA – African Centre for Statistics commissioned four studies on *‘Trends of statistical training and human resources development in Africa’* as a foundation for the future activities in statistical training and human resources development in Africa:

- *‘Statistical training needs and capacity assessment’*;
- *‘Compendium of African Statistical Training Centres’* (in French);
- *‘Review of the statistical training curricula in Africa’* (in French);
- *‘Harmonization and Standardization of Statistical Curricula and Qualifications’*

C.8.8. OTHER METHODOLOGICAL SUPPORT

To find out more...

- African Group on Statistical Training and Human Resources (AGROST): *Statistical Training Programme for Africa* (STPA)
- UN ECA – African Centre for Statistics (for AGROST): *‘Trends of statistical training and human resources development in Africa’*; *‘Statistical training needs and capacity assessment’*; *‘Compendium of African Statistical Training Centres’* (in French); *‘Review of the statistical training curricula in Africa’* (in French); *‘Harmonization and standardization of statistical curricula and qualifications’* (2011)
- United Nations Economic Commission for Africa: *Global Strategy for Improving Statistics for Food Security, Sustainable Agriculture, and Rural Development: Action Plan for Africa 2011-2015 – Training Component* (2012)

Training remains a core aspect of statistical capacity building. However, at each step of the statistical process, support can take a number of other forms, depending on the needs of the partner country or region:

Building statistical infrastructure:

- Providing Geographical Information System (GIS) software to help in the design of a census or of a sample for another survey;
- Providing ICT hardware and software, for instance for building and maintaining business registers, administrative registers, person registers, etc., for contacts with data providers and contacts with data users;
- Methodological and general documentation of all core activities, processes and tools;
- When internet access is limited or unstable, making sufficient paper copies of relevant international classifications, standards and methodologies available to the data producers concerned;
- Ease the access to internet;

- Spread information on cost-effective methodologies and good practices that have been developed in other countries.

Data collection:

- Standard questionnaires: for household surveys, the **International Household Survey Network** (IHSN) offers useful information, including the **IHSN Question Bank** which provide a repository of international questionnaires, interviewer instructions, classifications, concepts and indicators; IHSN with actual country questionnaires; advice on the **key principles of questionnaire design** (see also section B.1.3.3.)
- The **Accelerated Data Program** (ADP) help countries improve their survey programs and increase the use and value of survey data. ADP provides technical and financial support to survey data documentation and dissemination, and to the improvement of survey methods (see also Box 5.2).

•

Data processing:

- Modern statistical software, which is more and more efficient (see section C.8.9);
- Development of standard tools for processing surveys, automation of the production process for short-term indicators;
- Archiving tools. (For example, the establishment of national survey databanks is one of the key outputs of the Accelerated Data Program’s work with developing countries).

Analysis:

- Modern statistical software offers more and more powerful analytical tools (see section C.8.9);
- Examples of similar analysis made in other countries.

Dissemination:

- A GIS software is needed to present data broken down by district. This may attract new users and uses, for example decision makers at local levels and detailed analysis of how poverty, health supply and supply of education is distributed between local districts;
- Providing standard tools for dissemination of databases to the general public. For example, the **DevInfo software** supports both standard indicators (the MDG indicators) and user-defined indicators. It is supported by the UN development Group.
- Tools to design websites.

From the list above, it is obvious that the supply of new ICT tools play a major role. Of course, the supply of such tools must come together with the training needed to use them properly.

C.8.9. Support for IT in statistical capacity building

The existence and the proper management of an appropriate Information and Communication Technology (ICT) system is essential to produce modern statistics and is a key component of a sustainable statistical capacity. This applies not only to the NSIs and their regional offices, but also to all other statistics-producing agencies in the NSS. The NSS in many developing countries faces problems caused by a lack of modern computer and networking equipment, suited to the tasks at hand. ICT is important in the whole statistical process: from registers (sampling frames), via sampling, data collection and processing, data storage, to analysis and dissemination.

In response to these challenges, ICT has a natural, integrated role in several development cooperation programmes addressing statistical capacity and statistical systems.

Common regional statistics actions have often been based around development and implementation of common statistics tools. Eurostat has developed and supports the implementation of the [Eurotrace software for external trade of goods statistics](#), the [ERETES software for national accounts](#) and the [ECOTRIM software for temporal disaggregation of time series](#) (short term statistics, quarterly national accounts). Besides updating to the latest international standards and maintenance of the tools, Eurostat can provide training on some of the tools.

There is also specialised software addressing issues specific to official statistics available free of charge, such as the [τ ARGUS](#) and [μ-ARGUS](#) software for statistical disclosure control.

Other international organisations, such as UNCTAD and UNICEF, also support implementation of software solutions within their fields. The [DevInfo software](#), developed from UNICEF's ChildInfo software, is a database system for monitoring human development. It supports both standard indicators (the MDG indicators) and user-defined indicators.

If statistical software is designed to be multilingual and to handle different local settings from the start, it is much easier to share. The UNECE Secretariat and the Conference of European Statisticians Sharing Advisory Board have published '[Principles and Guidelines on Building Multilingual Applications for Official Statistics](#)' with practical guidelines for software developers to facilitate international collaboration.

Under the World Bank's [STATCAP](#) financing programme, countries may obtain loans or grants to invest in the improvement their statistical capacity. This specifically includes investments to improve statistical infrastructure (such as registers, database structures and geographic information systems) and the use of information technology. See section C.6.3.

The hardware requirements of an NSI and/or the NSS must be carefully reviewed in cooperation with the beneficiaries, to assure that the equipment is appropriate both to the tasks and to the national situation. A realistic assessment of the

needs and of the material capacity of the partner is crucial. Large-scale investments in IT normally involve a certain time lag from order to actual installation. It might also take time to adapt new software to the specific environment in the NSI. Scheduling should take this into account. In particular, training activities should be scheduled so that one can be certain that the equipment and software are in place.

Increasingly, classical paper interviews are supplemented by new tools such as web-based questionnaires and portable devices such as smartphones, tablet PCs, etc. Using portable tools and Computer-Assisted Personal Interviews (CAPI) increases the efficiency of interviewers while yielding better quality data, more rapidly. However, costs are high: one needs a smartphone, tablet PC or similar for each interviewer, and programming and training costs can be considerable. There are also practical issues to consider, such as the robustness of the devices and the possibilities to recharge them while in the field. The suitability of the software and the questionnaire is also crucial. Thus, the pros and cons of electronic survey solutions must be carefully considered. A number of examples are given in the 'To find out more' box below.

Physical and electronic security is crucial for confidentiality (i.e. that no identifiable individual data are available for non-statistical purposes), therefore for NSI integrity. Physical protection, well-functioning firewall technology and encryption routines are important.

Data access through the web and access controlled institutional portals are helping National Statistical Institutes and development organizations to reach out to users.

The African Development Bank launched the Open platform at the end of 2011, with the aim of facilitating and strengthening user access to quality data in African countries (see also Box 2.8). More than 30 developing countries have adopted the [Open Government Partnership](#); open data portals are established in more and more developing countries, e.g. in [Kenya](#) and [Moldova](#).

To find out more...**About software and dissemination standards for official statistics**

- UNECE and the Conference of European Statisticians Sharing Advisory Board: '[Principles and Guidelines on Building Multilingual Applications for Official Statistics](#)' (2012)
- [ERETES](#) software for national accounts
- [ECOTRIM](#) software for temporal disaggregation of time series (short term statistics, quarterly national accounts); estat-methdology@ec.europa.eu
- [Eurotrace](#) software for external trade of goods statistics
- τ [ARGUS](#) and μ -[ARGUS](#) software for statistical disclosure control
- [DevInfo](#) database system for monitoring human development (including the MDG indicators)
- [Statistical Data and Metadata Exchange](#) (SDMX)
- UNECE and the Conference of European Statisticians: '[Recommendations on formats relevant to the downloading of statistical data from the Internet](#)' (2001)
- UNECE and the Conference of European Statisticians: '[Best practices in designing websites for dissemination of statistics](#)' (2001)

About use of new technological data collection tools

- World Bank blog: [Paper v Plastic Part I: The survey revolution is in progress](#) and [Paper or Plastic? Part II: Approaching the survey revolution with caution](#) (Markus Goldstein, Raka Banerjee and Talip Kilic; 2012)
- Living Standards Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA): Website section on [CAPI development and implementation](#); [Comparative Assessment of Computer-Assisted Personal Interview \(CAPI\) Software Packages](#) (2011) and its [Executive summary](#); [Using Mobile Phones to Collect Panel Data in Developing Countries](#) (2010); [Collecting High Frequency Panel Data in Africa Using Mobile Phone Interviews](#) (2012)
- [KoBo Project](#) - research expertise and open-source applications for mobile data collection in conflict and transition
- Water For People: [Field Level Operations Watch \(FLOW\)](#) - combining Android cell phone technology and Google Earth software to record water; IRC International Water and Sanitation Centre: '[The use of FLOW for monitoring WASH service delivery in Ghana](#)' (2012)
- Johns Hopkins University Global Water Program (GWP): [Androids Come to Ghana](#)(2010)
- USAID: [The Feasibility of Computer Assisted Survey Interviewing in Africa: Experience from Two Rural Districts in Kenya](#)(Paul C. Hewett, Annabel S. Erulkar and Barbara S. Mensch) (2003)

About Open Data for measuring development

- World Bank: [Open Data initiative](#)
- African Development Bank: [Open Data for Africa](#)
- The [Open Government Partnership](#)

D

Statistics for policy issues



D.9

Introduction to sector statistics covered by the Guide



D.9. Introduction to sector statistics covered by the Guide

Improvement of statistics in developing countries can be supported as a dedicated project by European funds. However, statistics are also a horizontal issue, providing data for evidence-based policy making, programme and project formulation, monitoring and evaluation (see [Part C](#)). Thus, statistics are not only relevant system-wide, but also to all policy areas identified as priorities by the [European Consensus on Development](#) (see [section B.1.5](#)). As recommended by the [Evaluation of the Commission Support for Statistics in Third Countries](#), in all major sector programmes and projects funds should be reserved to develop sustainable statistics required to monitor and evaluate the process and evaluate the outcomes and impact of the intervention.

Part D of the *Guide, Statistics for Policy Issues*, looks at how statistics can be used and supported for decision making and monitoring achievements in the context of European Commission sector policy areas. The chapters each focus on a specific policy area (or a part of a policy area) where the European Commission has a 'comparative advantage', as identified by the European Consensus on Development. Each of the policy areas covers a wide range of statistics subjects. Moreover, a statistics field might be relevant for more than one policy area. For example, water statistics might be important for the environment, water and energy and human development. The scope of the individual chapters of Part D is defined according to the UNECE's [Classification of Statistical Activities](#) of the United Nations Economic Commission for Europe, whereas the organisation of Part D follows the sector policy areas of the European Consensus on Development.

The chapters offer advice to European Commission staff involved in sector programmes and projects in developing countries on how specific sector statistics can be used to inform sector policies, to monitor progress and evaluate outcomes and impacts in the sector. The chapters of the *Guide's* Part D specifically address the data needs and uses in the specific statistics area. They provide the main definitions and concepts used in the specific statistics area and the key sources for data and metadata (see [Box 2.8](#)). While general aspects of statistical quality was discussed in [section C.5.3](#), the chapters of Part D describe how the quality of data in the sector covered can be analysed, highlighting sector-specific quality issues. The chapters all conclude with practical advice on how the system for producing sector statistics can be set up or enhanced and what actions should be undertaken to improve data availability and data quality in the sector.

The overall aim of these chapters is to give non-statisticians involved in the formulation, implementation, monitoring and evaluation of sector programmes and projects a basic insight into the statistics needed in the sector. The chapters are not intended to turn users into sector statistics specialists, but rather to give them the necessary knowledge to find, use, analyse and improve sector statistics as key tools in their work. In particular, the information provided helps users to improve the evidence base for sector interventions and to define actions to improve it further in the medium and long term.

Each chapter follows a (more or less) standard structure:

- Sector policy applications: what these data is used for;
- Concepts and definitions of the sector statistics;
- Sources of data and metadata in the sector;
- How to analyse data quality and identify problems;
- How to improve sector statistics and build a statistical action in the sector.

All chapters of the *Guide's* Part D *Statistics for Policy Issues* contains an introductory '*The chapter in brief*' box, a '*To find out more box*' with the key references and Internet resources (all hyperlinked) for these sector statistics, as well as a number of boxes containing practical examples of programmes, projects or terms of reference in the sector, practical checklists and advice or more detailed information on specific issues.

[Box 9.1](#) provides a quick overview of the content of each chapter, including key concepts and statistics covered, enabling the user to quickly identify the chapters covering topics of special interest to their work. It also gives the correspondence between the chapters of *Statistics for Policy Issues*, the statistics activities specified in the Classification of Statistical Activities and the policy areas defined by the *European Consensus on Development*.

Box 9.1: Chapters of Part D by policy intervention area of the European Consensus on Development (with reference to the UNECE Classification of Statistical Activities (CSA))

Chapter	Content	UNECE classification
Trade and regional integration		
D.10 External trade and Balance of Payments	External trade statistics, balance of payments statistics, trade in services, current account of the BoP, foreign affiliates statistics, trade classifications, mirror studies, ASYCUDA and EUROTRACE software.	2.6
D.11 National accounts, economic accounts and the non-observed economy	System of National Accounts (SNA), Luxembourg Recommendations, national accounts concepts and definitions (GDP, GNI), institutional sectors, supply and use tables, quarterly national accounts, classifications, ERETES software, the non-observed economy.	2.1 & 2.2
D.12 Price statistics	Consumer Price Index (CPI), Harmonised Index of Consumer Price (HICP), Producer Price Index (PPI), Export and Import Price and Unit Value Indices, prices in the National Accounts and Purchasing Power Parities (PPP).	2.7
D.19 Government finance and public sector statistics *	(See under 'Governance, democracy, human rights and support for economic and institutional reforms' below).	2.5
D.13 Business statistics	Structural Business Statistics (SBS), Short-Term business Statistics (STS), manufactured products statistics, Foreign Affiliates Statistics (FATS), international sourcing, business services, business demography, statistical units, classification of economic activities and products, business registers, TRAMO and SEATS software, non-observed economy, 1-2-3 surveys.	2.3
Environment, sustainable management of natural resources		
D.14 Environmental statistics	DPSIR framework, emissions to air, ozone depleting substances (ODS), air quality, emissions to water, water resources, water quality, waste statistics, statistics on biodiversity and protected areas, Land Cover and Land Use (LU/LC) statistics, environmental accounting.	3.1
Infrastructure, communications and transport		
D.15 Transport statistics	Transport and the MDG, road transport, rail transport, maritime transport, air transport, infrastructure, transport enterprises, freight transport, passenger transport, transport of dangerous goods, Sub-Saharan Africa Transport Policy Program (SSATP), Africa Infrastructure Country Diagnostic (AICD), Programme for Infrastructure Development in Africa (PIDA), mirror studies.	2.4.4
Rural development, territorial planning, agriculture, food security		
D.16 Human settlements and housing statistics	Design of urban planning policies and assessment of the impact of population growth on the natural environment by analysing collected data on migration and urbanization, inadequate shelter and basic amenities, lack of services and infrastructure (e.g. water and sanitation), environmental degradation through pollution.	1.7
D.17 Agricultural, forestry and fishing statistics	Economic Accounts for Agriculture (EAA), Agricultural Price Statistics (APS), agricultural structures (farm structure), agricultural production statistics (crop and animal), agri-environmental indicators, wood and wood product statistics, forest resources assessment, trade in wood products, statistics on fisheries and aquaculture, Global Strategy to Improve Agricultural and Rural Statistics, Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA), non-observed agricultural production and employment.	2.4.1

Box 9.1: Chapters of Part D by policy intervention area of the European Consensus on Development (with reference to the UNECE Classification of Statistical Activities (CSA))

Chapter	Content	UNECE classification
D.18 Regional and small area statistics	Spatial Development Initiative (SDI) in Africa, administrative and functional regions, nomenclatures of territorial units, small areas, Urban Audit, small area estimation, EURAREA project, regional statistics and indicators.	3.2
Governance, democracy, human rights and support for economic and institutional reforms		
D.19 Government finance and public sector statistics	Accounting principles: cash basis versus accrual basis, guidelines for Government Finance Statistics (GFS), government sector and public sector, government debt, revenue and expenditure, balancing items, consolidation, Public Expenditure and Financial Accountability (PEFA).	2.5
D.20 Justice and crime statistics	Criminal justice system, civil law, common law, Criminal Justice Assessment Toolkit (CJAT), offences, persons arrested, prosecution, sentences, type of crime, prison population, resource statistics (number of officers and personnel, budget), victim surveys, Crime Trends and Operations of Criminal Justice Systems (CTS), International Crime Victim Survey (ICVS), data protection.	1.8
Human development		
D.21 Living conditions and poverty statistics	Poverty measurement (absolute and relative) indicators on income and consumption (e.g. poverty gap ratio, at-risk-of-poverty-rate), living conditions (e.g. material deprivation, persons in households with low work intensity), social indicators measuring social exclusion / inclusion (indicator selection depending on the diversity of the country concerned and the differences in levels of development on a global scale), social indicators of development (indicators on employment and self-sufficiency, health, social cohesion including life satisfaction).	3.3.1
D.22 Population and migration statistics	Demography (population registers and censuses, household characteristics and housing); vital statistics (births, deaths, marriages and divorces); population structures and growth; demographic projections; families and households (marriages, divorces and household size); migration, refugees and asylum seekers.	1.1
D.23 Education statistics	Educational participation, illiteracy, educational institutions and systems, human and financial resources invested in education, lifelong learning, vocational training and adult learning, impact of education, assessments of student performance. Information on the achievement of the Millennium Development Goals (MDGs).	1.3
D.24 Health statistics	These include life expectancy, health status, health and safety, health determinants (including lifestyle, nutrition, smoking, alcohol abuse), health resources and expenditure, health care systems, morbidity and mortality (including infant and child mortality), hospital admission, causes of illness and death, specific diseases (e.g. AIDS), disabilities, pharmaceutical consumption and sales, health personnel, remuneration of health professions, environmental health status, health inequality, health accounts.	1.4
D.25 Income and consumption statistics	Monitoring of household income (e.g. salary, transfers) and consumption. Income / expenditure-based measures of poverty (e.g. gap), consumer protection, and household consumption patterns inform policy makers on social distribution of economic wealth of a country.	1.5

Box 9.1: Chapters of Part D by policy intervention area of the European Consensus on Development (with reference to the UNECE Classification of Statistical Activities (CSA))

Chapter	Content	UNECE classification
D.26 Sustainable development indicators	Sustainable development goals, World Commission on Environment and Development ('Brundtland commission'), 'Our common future', UN Commission on Sustainable Development (CSD), UN Conference on Environment and Development ('Earth Summit'), Rio Declaration on Environment and Development, Agenda 21, Johannesburg Plan of Implementation, Poverty-Environment Initiative, poverty-environment linkages, policy performance indicators, regionally adapted frameworks, Guidelines and Methodologies for Indicators of Sustainable Development, DPSIR framework, UNECE/OECD/Eurostat Working Group on Statistics for Sustainable Development, CSD core indicators, headline indicators, ESALC SDI framework, Eurostat Quality profiles framework, composite indicators.	3.3.6
Social cohesion and employment		
D.27 Labour market statistics	Data collection based on the International Standard Classification of Occupations (ISCO) and the International Classification of Status in Employment (ICSE). Labour force (economically active population) employment and unemployment (including rates), informal employment, labour conditions, job vacancies and job creation, health and safety at work, strikes and lockouts.	1.2
D.28 Social protection statistics	Poverty, inequality, social cohesion, vertical and horizontal redistribution, vulnerability, social exclusion, Decent Work, social protection systems (insurance, assistance, transfers), Social Protection Expenditure and Performance Reviews, Social Expenditure database (SOCX), Social Security Inquiry, ESSPROS, MISSOC, Social Risk Management, functional classification of expenditures by schemes, micro-insurance, cash transfers, public works programmes, in-kind transfers, accounting records, administrative forms, household surveys, Household Income and Expenditure Survey, Gini coefficient, Living Standards Measurement Study (LSMS), Multiple Indicator Cluster Survey, Demographic and Health Survey, Core Welfare Indicator Questionnaire, Public Finance Management, Poverty Reduction Strategy Papers, Poverty Reduction and Growth Facility, PEFA PFM Performance Measurement Framework.	1.6

D.10

External trade and balance of payments



D.10. External trade and balance of payments

The chapter in brief

This chapter covers statistics that inform the European Union's 'Trade and Regional Integration' policy areas as defined in the European Consensus (see [section B.1.5](#)).

Chapter D.10 covers a wide area of external trade and balance of payments statistics. The chapter starts by identifying the main policy areas for which these statistics are used and continues by providing a user's view of the statistics involved, including a description of the differences between external trade and balance of payments statistics. The chapter then identifies the main sources of data and information about methods, continues by discussing how to analyse the quality of the statistics in this field and concludes with information about how to support an intervention in trade statistics

- Monitoring medium-term macroeconomic policy: trade volumes and price levels (import and export price indices) are used in the national accounts, which is the main instrument for observing the economy as a whole. The contribution to growth of net exports is a key policy indicator.
- Importers and exporters use international trade statistics to identify and quantify markets, often needing statistics on very precisely detailed products.

D.10.1. Policy applications: what this data is used for

External trade and balance of payments statistics have a wide variety of uses, including:

- Providing timely information about trade sectors, both goods and services, in which governments have a keen interest, such as main export products.
- Supporting trade policy, including trade negotiations, monitoring trade agreements and resolving trade disputes. This is a major driving force for improving external trade data in developing countries. Within the European Union, external trade data are also used for multilateral and bilateral negotiations within the common commercial policy, for definition and implementation of the anti-dumping policy and for evaluating the progress of the Single Market.
- Monitoring financial stability and monetary policy: the balance of payments measures the external deficit / surplus with the rest of the world and from this is calculated net external debt, the size and composition of which are closely observed by the monetary authorities (usually central banks). If the external deficit is linked to a government sector deficit, then fiscal policy – taxes and government expenditure – can be also affected by these measures.
- Short term economic monitoring: trade and payments ⁽³³⁾ statistics are published frequently (usually monthly for trade, quarterly for payments) and are timely indicators of a country's economic activity (other such indicators include CPI, financial statistics and output data). For example, since increased economic activity usually results in an increase in imports, an observed change in imports (or in payments for imported goods) from its trend rate of growth can be an early indicator that overall economic growth has deviated from its recent path.

⁽³³⁾ Statistics on cross-border transactions recorded in the balance of payments

D.10.2. Concepts and definitions

The statistics covered in this section are defined by section 2.6 'International trade and balance of payments' of the new UNECE Classification of International Statistics Activities, which was introduced in [section B.4.3](#). This area is defined as covering statistics on all cross-border transactions recorded in the balance of payments and includes

- trade in goods and services
- external positions and debt
- foreign direct investment
- foreign affiliated trade
- tariffs, market access, foreign aid, development assistance and resource flows to developing countries.

This chapter deals with the general aspects of the above, and does not go into details regarding specific groups of products.

- Details on specific commodities/services can be found in the respective chapters of Part D of this *Guide*, such as [chapter D.15 Transport statistics](#) and [chapter D.17 Agricultural, forestry and fishing statistics](#), etc.
- Exchanges between multinational companies and activities of foreign affiliates.

External trade in goods statistics are based on physical flows of goods across borders, while trade in services covers the provision of services by residents of a country to non-residents and vice versa.

Other commonly used names for external trade statistics are international trade statistics, merchandise trade statistics (goods), foreign trade statistics or simply trade statistics. When using any such figures, care should be taken as to whether they include or exclude trade in services, as these terms are sometimes used to include only trade in goods transactions.

External trade in goods statistics have historically been collected through **customs administrations**, who primarily record imports and exports for collection of duties. Statisticians take advantage of this source, often supplementing customs data with information obtained from other sources to provide full coverage of external trade. Publication of good quality trade statistics therefore depends on effective coordination with the customs administration.

In the European Union, customs records do not cover trade in goods between member states, because transactions within the EU customs union are no longer subject to tariffs or customs surveillance. Other sources need to be used, such as a data collection system based on monthly reporting by enterprises. [Box 10.1](#) outlines the method used by Eurostat to collect data on trade with non-EU countries and within the EU.

Box 10.1: Eurostat's trade statistics system

Extra-EU trade statistics data are collected by using a copy of the customs declaration, which traders provide in fulfilling their reporting obligations to the Customs authorities. The statistical information depends, therefore, very much on customs practices, definitions and policies, with only a few details being collected purely for statistical purposes. Making use of existing customs procedures means that there is nearly total coverage of data on trade with non-EU countries.

As a result of the abolition of customs control at the borders between the Member States, intra-EU trade statistics are collected directly from traders. The reporting burdens are simpler, compared with the extra-EU system, and private individuals and small scale traders are excluded. However, any natural or legal person registered for VAT in a Member State who carries out intra-Community trade above a certain threshold is obliged to report monthly on its intra-Community trade to the national statistical authorities. The national authorities use data from the fiscal authorities to identify the target population and maintain registers on trade operators.

External trade statistics are intended to provide full coverage, therefore in principle the following transactions should be included: trade unrecorded by customs (such as trade in electricity and products transported by pipeline such as gas and petroleum), barter trade, goods on consignment, goods on financial lease, goods traded between enterprises under common ownership, goods traded on government account, processing and repair trade. Enterprise surveys are generally used as a means of collecting data on these headings.

Trade in services is more difficult and more complex to measure than trade in goods, dealing as it does with payments made for services provided by residents of one country to residents of another, regardless of where the transactions take place. Historically, many countries have estimated their external trade in services totals by using bank settlement data, which shows the value of payments made in non-national currencies. Surveys of enterprises or individuals are generally needed to break these totals down into the product headings of trade in services.

The required indicators for trade statistics are as follows:

- trade flow (exports, imports, re-exports, re-imports)
- trade partner (i.e. country)
- trade value (monetary terms)
- trade product
- trade quantity in kg (goods)
- trade quantity in supplementary units (goods)

The trade quantity is important because this enables the calculation of export and import unit values which are used for national accounts and are themselves useful short-term macroeconomic indicators.

The current account of the **balance of payments statistics** measures all current payments between a country and the rest of the world, including payments for trade in goods and services (the balance of trade ⁽³⁴⁾); factor payments: income from capital and remittances by workers abroad; as well as international transfers. The capital account covers transactions in investment assets.

The current account of the balance of payments therefore covers a considerably wider range of transactions than the external trade data. The balance of trade covers broadly the same transactions as the external trade data, although the different concepts used (for example, change in ownership of goods as against physical flows) mean that, unadjusted, there is no reason for the two data series to match precisely. Since the differences mostly concern the timing of transactions, the balance of trade in goods and the external trade data should be consistent over time, so that data for longer periods should be comparable.

In many countries balance of payments data is sourced from international bank transfer documentation, which is usually completed by remitters of funds, and collected by monetary authorities, usually central banks. Additional information can be obtained through value added tax collection systems. Other records of monetary authorities are also used, such as in the case of imports and exports of gold.

Even developed countries experience difficulties in compiling merchandise trade statistics. As discussed in the OECD Statistics Brief ⁽³⁵⁾, 'a number of measurement issues and comparability problems remain. In particular the increasingly important phenomenon of globalisation, entailing the internationalisation of production and sales and new forms of delivering goods and services to customers across countries, new developments in information and communications technologies and the growing importance of e-commerce requires new approaches and poses new methodological challenges.' With increasing globalisation, exchanges between **foreign affiliates** and their parent companies are often made at prices which are not market prices.

⁽³⁴⁾ Monetary value of exports minus imports of goods and services

⁽³⁵⁾ [Trade in Goods and Services: Statistical Trends and Measurement Challenges](#) (October 2001)

A specific collection of statistics, Foreign Affiliate Trade Statistics (FATS) has been set up to cope with this problem. Compilation of these statistics is likely to be difficult for many developing countries.

Describing traded goods and services necessitates a classification. In external trade in goods statistics the recommended classification is the 2007 (latest) version of the Harmonised Commodity Description and Coding System (Harmonized System, HS) which is based on the nature of the commodity. Earlier versions of the Harmonised System (88, 92, 96, 2002) are still used by some countries. The EU's Combined Nomenclature (CN) is a more detailed version of the HS. An alternative classification is the Standard International Trade Classification, which is based on stages of production and is therefore more suitable for some economic analyses. The current version is revision 4 (SITC, Rev. 4), which was accepted in 2006, though the previous revision is still in widespread use. The Broad Economic Classification (BEC) is based on the SITC and is available for economic analysis. Its top-level classification is as follows:

1. Food and beverages
2. Industrial supplies not elsewhere specified
3. Fuels and lubricants
4. Capital goods (except transport equipment), and parts and accessories thereof
5. Transport equipment and parts and accessories thereof
6. Consumer goods not elsewhere specified
7. Goods not elsewhere specified

Trade in services is broken down into eleven product headings:

- Transportation (sea, air and other) – passenger, freight and other
- Travel - business and personal
- Communications services
- Construction services
- Insurance services
- Financial services
- Computer and information services
- Royalties and licence fees
- Other business services - merchanting and other trade-related services; operational leasing services; miscellaneous business, professional and technical services
- Personal, cultural and recreational services - audio-visual and related services; other cultural and recreational services
- Government services

D.10.3. Sources of data and metadata

External trade data are published at national, regional or global levels. National data sources cover the trade of a country with its trading partners and are usually published by the NSI or the customs or revenue authorities if they collect the data, while in some countries the Ministry of Trade publishes the data. Regional organisations which manage a free trade area or customs union usually publish data on trade within the region as well as on the region's external trade with non-member countries. In the European Union, for example, the primary data source for external trade data is Eurostat, rather than the Member States.

Global organisations publish data on trade between all possible pairs of countries. Global trade databases are very large, for example, the [United Nations Commodity Trade Statistics \(COMTRADE\) Database](#) contains more than one billion trade records. In addition, commercial trade databases exist that seek to add value to the data. In developing regions, non-government databases (non-profit or commercial) can provide data that is not available from government or regional organisations' websites. The COMTRADE database disseminates detailed annual data for trade in goods in the Harmonised System (HS – explained above) at 6-digit level and in other classifications on the required indicators. In addition, the database provides the following indicators at commodity group level:

- gross and seasonally adjusted trade value (in national currency or in USD),
- unit-value indices,
- volume indices,
- growth rates of trade values and indices,
- trade value (in billion Euro),
- shares of a country in world trade,
- main trading partners,
- balance of external trade

A selection of links to global, regional and national trade databases is shown in the box '[To find out more...](#)' below.

Some databases, for example COMTRADE, provide data according to HS, SITC and sometimes BEC classifications. Correspondence tables can also be used to convert from one classification system to another or to update from an old revision to a current version of a classification system. United Nations and Eurostat sources of correspondence tables are shown in the box '[To find out more...](#)' below.

The IMF provides the most comprehensive global database of [balance of payments statistics](#) ⁽²⁶⁾. Other data sources are central banks, the European Central bank being responsible for publication of Eurozone data.

⁽²⁶⁾ The IMF balance of payments database requires subscription

The United Nations is the repository of most methodological manuals for trade in goods and services. The IMF is the responsible authority for definitions in the balance of payments. The UN [International Merchandise Trade Statistics: Concepts and Definitions](#) (IMTS, Rev.2; there is a Rev 3 under development) contains international standard definitions and methodological recommendations. The companion document, the [International Merchandise Trade Statistics Compilers Manual](#) discusses in detail the conceptual and institutional framework of data collection, the sources of data, methods of data compilation, and data dissemination, reconciliation and exchange. Metadata on international merchandise trade statistics, including at country level, can also be obtained from the [United Nations' Commodity Trade Statistics \(COMTRADE\) Database](#). The [Manual on Statistics of International Trade in Services](#) provides international standard recommendations on methodology as well as classification of services delivered through trade and recommended treatment of the local delivery of services through foreign affiliate trade. An overview of country treatments of statistics on trade in goods and services and on the balance of payments is given in the [IMF GDDS / SDDS country pages](#).

The [Eurostat database](#) provides access to the EU's external trade statistics and metadata. It also provides balance of payments statistics for non-EU countries, from international sources: this information is only accessible by European Commission's agents (see [section B.3.4](#))

D.10.4. Analysing data quality and identifying problems

The quality of external trade statistics depends on the data coverage, how quickly statistics are published, their compliance with international recommendations, especially classifications, and the availability of indices based on the data.

The recommendation on the coverage of external trade in goods statistics (IMTS Rev 2, paragraphs 64-68, on which much of this paragraph is based) is the 'general trade system', which most countries follow. The general trade system is in use when the statistical territory of a country coincides with its economic territory, but a few countries still use the special trade system, which is in use when the statistical territory comprises only a part of the economic territory, for example when an export processing zone is excluded from reporting trade statistics. The trade system or 'trade regime' can be verified from the IMF GDDS / SDDS web pages (see [section B.2.4](#)), which shows, for example, [Egypt](#), as using the special trade system ⁽³⁷⁾.

Other issues of availability of statistics and their conformity to international conventions can be analysed relatively easily. A major issue is whether the published data conforms to a recent trade classification (or nomenclature) system, such as the Harmonised System, as outlined above. Publications should cover all trade, not simply a 'top twenty' list of exported and imported products. Data sources should cover all trade transactions. A review of the data published on-line by Senegal (see link in the '[To find out more](#)' box below) is instructive - because data is collected through Customs procedures, data on imports, which are subject to customs scrutiny, are often more complete than export data, which are not. Export data for primary products should therefore be compared with any available production data. Many developing countries often have difficulty in systematically collecting data on quantities (weights or 'supplementary units'), as these are not required for import tariffs. Their availability in detailed statistics publications should therefore be checked.

External trade transactions can be omitted or incorrectly recorded in the statistics. One way to identify these problems is to look at **asymmetries** in the statistics between those of a country (or trading group) and its trade partners; a country's export statistics rarely match the corresponding import data of the partner country ⁽³⁸⁾. A country's or trading group's trade with the EU can be examined through a '**reconciliation**' or 'mirror' study. Such a mirror study aims to identify the main discrepancies between the two sets of data and why they come about. It should also propose measures to reduce or eliminate these problems. An example of 'Terms of reference' for such a mirror study is shown in [Box 10.2](#). This example is based on those which were used in comparison of trade statistics between EU and [COMESA](#) and among COMESA Member States.

⁽³⁷⁾ as of November 2008

⁽³⁸⁾ Even after freight and insurance costs have been allowed for – exports are usually evaluated fob (free on board) and imports as including cif (cost, insurance and freight).

Box 10.2: Example terms of reference for a trade reconciliation study

In theory, a country's recorded exports are the mirror image of its trading partners' recorded imports. In practice, there are often discrepancies between the two. External trade statistics reconciliation studies are a systematic process of identifying and assessing the causes of disparities in trade flows published by two countries or regions. To achieve this, an initial analysis of concepts and definitions used is undertaken.

The short term objective of a reconciliation exercise is to explain and assess the causes of discrepancies in trade statistics and hence obtain mutually agreed datasets of better quality. Longer-term objectives may include harmonising the conceptual framework of two sets of statistics, which could lead to the use of new procedures in trade data compilation.

Structure of Assignment

- The lead consultant will have undertaken a previous reconciliation study.
- A selected number of country statisticians based at COMESA country statistical offices and customs authorities will act as national study team members. The aim is to build capacity among COMESA trade statisticians in reconciliation exercises.
- The lead consultant will explain the methodology to selected COMESA Member State statisticians and analyse the 2005 data provided by the Member States to COMESA. A review of the results will be undertaken by the country statisticians.
- The team leader will provide guidance to the country statisticians on the methodological aspects as well as the proposed adjustments to the 2005 dataset.

Roles of Team Members

- The lead consultant will define the work plan for the second phase of the reconciliation between EU data and selected COMESA Member States' data. All data will be shared with the national statisticians in the selected COMESA Member States for further analysis.
- COMESA Member State Statisticians will act as team members for data related to his/her specific country. Issues raised by the lead consultant pertaining to specific country data will be dealt with by him/her. If any methodological aspects described by lead consultant have not been fully explained to a Member State statistician to his/her satisfaction, the statistician must indicate this to the lead consultant and to the COMESA Secretariat.
- The COMESA Secretariat will coordinate between the lead consultant and Member State team members and will review the report.
- EUROSTAT will play an advisory role including review of final report.

Activities

- Review the mirror statistics study previously undertaken for COMESA.
- Undertake an EU-COMESA mirror statistics study for 2005 data.
- Compare findings of earlier study that used pre-2005 data with results based on 2005 data.
- Review 2005 results by COMESA Member State statisticians, COMESA Secretariat, Eurostat.
- Design of reconciliation format with clearly defined methodology and structure for analysis.
- Analyse discrepancies found by the lead consultant supported by national consultants.
- Finalise report making concrete recommendations for areas of improvement.
- Present report by national consultants at stakeholder workshop dealing with the trade negotiations and trade policy analysis.

The starting point is a top down examination of trade data for credibility, with the aim of identifying inconsistencies in recent data, especially data changes from year to year that are difficult to explain. The output is a list of sectors and / or trading partners where there are questions about the quality of the data. The procedure should then be repeated at increasingly greater levels of data disaggregation. Graphing the main changes can help to identify problems such as time period recording errors or errors in which goods are recorded as switching between different classifications.

Quality information can be found for most countries for both [external trade](#) and [balance of payments statistics](#) on the website of the IMF General Data Dissemination System (GDDS – see [section B.2.4.1.3](#)). The countries that subscribe to the IMF's Special Data Dissemination Standard (SDDS – also see [section B.2.4.1.3](#)) additionally have IMF reports that show how the country meets the main quality aspects of [external trade data](#) and [balance of payments statistics](#). However, few low income countries subscribe to SDDS. International data quality standards are available from the IMF's Data Quality Assessment Framework (DQAF, introduced in [section C.5.3](#))

website and related pages. DQAF specific quality rules cover balance of payments statistics. General DQAF rules apply to the external trade statistics. Links are shown below in the '[To find out more](#)' box.

Eurostat publishes an annual [Quality Report on International Trade Statistics](#) which provides a detailed analysis of the quality of EU Member States statistics in this field. In general the most significant sources of errors when compiling foreign trade statistics are the following:

- undocumented shipments,
- transiting goods,
- underestimation of low-valued transactions,
- late filing,
- reporting errors,
- data capture errors.

A quality based assessment of trade statistics starts with analysis of the data quality as above but must have the broader coverage of [DQAF](#) or another assessment framework. In particular, the institutional framework needs close attention: is the responsibility for collecting, processing, and disseminating the statistics clearly specified at every stage in the process?

Data collection and transmission issues also need to be addressed in the assessment. These include, for example, statistical returns from remote customs posts and the potential for their estimation, unrecorded trade from porous borders and/or mis-recording of customs declarations arising from lack of knowledge or corruption.

An NSI's capacity to analyse the data; their IT systems, staff issues and the means of dissemination of the resulting statistics must also be covered by the assessment. For more information on improving the capacity of statistical systems and NSIs, see chapter C.6.2.

D.10.5. Improving sector statistics

This subsection focuses on statistical actions to improve external trade statistics. The objective of any intervention in external trade statistics is to ensure comparable, accurate, complete and timely published data. The assistance provided has to address all the appropriate points in the chain of data collection and processing from customs point, or collection of survey data, to publication of statistics.

Typically, more than one institution is involved in the production of trade in goods statistics, generally customs and statistics authorities, who may not have much experience of working together. As typical issues include the incorrect completion of customs declarations where there is no customs interest (for example, recording of exports and of quantities (weights or 'supplementary units'), customs / revenue authorities need to be involved throughout the planning and implementation of any intervention. Effective coordination between customs authorities and the NSI is required on:

- data sharing (including the legal framework),
- ensuring that the customs declaration forms take statistical needs into account
- IT and communications systems
- supervision of the actions of customs officers and their training and
- data analysis.

A formal service-level agreement or memorandum of understanding between the organisations involved is often necessary to align the interests of the two services. Possible implementation actions include the training of customs officers as well as freight forwarders responsible for completing customs declarations.

External trade statistics interventions are generally developed as regional projects, where they may play a part in support of regional integration, such as regional trade agreements. A regional economic community is therefore often designated as the focal point, responsible at a minimum for compiling and publishing comparable regional trade statistics. This initial responsibility can increase to cover training in the software used and in trade statistics generally and the provision of technical assistance to its members, notably in installing and maintaining the software. The publication of regional trade statistics on-line by the regional economic community requires a statistical database and leads directly to on-line publication of other regional economic statistics. This process can be seen in operation in, for example, [COMESA](#) in eastern and southern Africa.

Computer systems for customs processing and trade statistics compilation are an important part of customs and trade statistics projects, a number of alternative systems being available for both processes. Two issues are particularly important: system compatibility and the linkage of systems with specific sources of advice. European Commission support is not limited to any specific software.

One widely used customs processing software is [ASYCUDA](#), the current version of which is 'AsycudaWorld', a system initiated and supported by UNCTAD, though some developing countries choose other customs software and sources of technical expertise. The decision is often linked to the systems used by main trading partners.

A software package for external trade statistics compilation in developing countries is [Eurotrace](#), developed by Eurostat. Eurotrace has already been installed and will be used in around 50 countries in the Western Balkans, in Western, Southern and Eastern Africa and in the Caribbean. Eurotrace's functions are:

- to import, validate and manage the data necessary for the development of external trade statistics, in particular customs data (from ASYCUDA or other customs systems);
- to process this data, by carrying out quality controls and ensuring international standards are complied with;
- to define and load data to aggregated datasets ready for dissemination.

The priority currently being discussed (June 2009) is to support the gradual migration of the Eurotrace application towards Open Source Software (OSS). This move is likely to be linked to an increased role for the user group, which is expected to play a major role in setting future strategy. Eurostat is currently responsible for maintenance and development of Eurotrace, although this may also be handed over to the user group. Further information on [Eurotrace can be found on the Circa website](#). Registration is required for participation in the user group.

Box 10.3 shows an indicative standard set of terms of reference for installing Eurotrace and providing relevant training. The coverage of the customs authorities should be emphasised. Box 10.4 summarises the external trade statistics and Eurotrace training programmes provided by Eurostat for regional economic communities and their member states. Further training is provided on a regional basis.

It should be re-emphasised that any interventions should be seen as external trade statistics projects and not as software installation projects. Publication of quality statistics is the output.

Box 10.3: Case study: Terms of reference for installing the Eurotrace software and providing relevant training

General description of statistical functions:

Eurotrace is a software suite consisting of products which may operate in isolation or independently of each other. It is distributed free of charge by Eurostat as part of statistical cooperation with third countries. Eurotrace and Comext Stand alone both use Microsoft Visual Studio products (Visual Basic and Visual C++), the API standards and Microsoft's object-orientated technologies.

The package comprises the following:

- DBMS: tools for defining, incorporating, validating and managing all types of external trade databases which use customs data (or other sources of information);
- Editor: tool for gathering, modifying and validating all types of data "on the fly". Mainly used for processing customs entries;
- COMEXT: multidimensional data browser which incorporates advanced functions, such as calculation of aggregates, definition of complex formulae and a variety of export formats.

Mission No 1

This mission is optional and may be replaced by a standard questionnaire.

Objective: Define the stages of product installation and assess equipment and training required.

- Day 1: make product presentation to the team that compiles external trade statistics
- Day 2/3: Check the sources and nomenclatures normally used by the external trade statistics team; check the equipment available and identify any requirements.
- Day 4: Contact Customs and any other providers of data on external trade.
- Day 5: Draw up the work schedule for software installation together with the national team; produce a preliminary report.

Results and products to be provided:

- Mission report;
- Standard pre-installation questionnaire.

Mission No 2

Objective: provide training for users and obtain a complete listing of tasks which can be used to produce validated data on external trade.

Week 1: installing and defining the database together with:

- Statistics team leader. The aim is to validate the procedures and resulting data;
- Computer specialist responsible for the databases. The aim is to validate the information structure and how the software administration is distributed;
- tailoring the pre-prepared domain to the country's requirements and installation: 3 days;
- training course for administrators: 2 days / max. 4 people: using the validated task list.

Week 2: training

- Training course for designers: 2 days / max. 4 people: creating and implementing the processing procedure (domain, dictionary, data set, validation, derivation, etc.). The training course outlines the parameterisation of Eurotrace in line with the practical requirements of users, based on their computing and database knowledge;
- Training course for users: 3 days / max. 10 people: normal use of the software (editing of data, importing, exporting, browser).

Results and products to be provided:

- Standard report (installation checklist);
- Specific work programme with a view to preparing the final mission.

Mission No 3

Objective: to check that the software installed works properly by providing any additional support required and to finalise initial data set on Comext Stand alone (development of a CD).

- Day 1: check Eurotrace operation and assess user knowledge of software in order to give advice where needed or identify a need for further training;

- Day 2: assess how Eurotrace is used by examining the data quantity transferred, the sources of requests for data and the type and number of requests sent to the statistics unit;
- Day 3: assess the quality of data and, where necessary, encourage local managers to carry out more rigorous quality assessments;
- Days 4 and 5: help the departments to develop a Comext CD.

Results and products to be provided:

- Standard report on completion of the installation;
- Comext CD focusing on the year for which the latest data is available.

Software and hardware (minimum) configuration

- Windows XP (incl. server); MS Office PRO; virus check, compression, archiving, etc.

One server / one to four workstations, each with:

- 1GHz processor; 512MB RAM; 160GB hard disk; DVD RW; Internet (ADSL if required)
- Network ARJ45+Hub required, uninterruptible power supply, air conditioning (if essential)

What users must know

- Knowledge of the Windows and MS Office environment

Statistical team:

- Knowledge of how to produce external trade statistics on the basis of customs data
- Knowledge of all the specific methods used when processing data in the country
- Ability to select implementation method based on cost, efficiency and quality criteria.

IT team:

- Knowledge of the database (theoretical knowledge, at least)
- Knowledge of MS Access is an advantage
- Knowledge of SQL (on any DBMS) for the designer part.

Profile of experts for missions

- Knowledge of French and/or English.
- Experience in statistical cooperation with ACP, ALA or MED countries is strongly desired.
- Experience in presenting training seminars, theoretical or practical courses is an advantage

The statistics expert(s) should have a degree in economics, statistics, econometrics or a related subject. The experience required is:

- A minimum of 5 years work experience in public statistics.
- At least 2 years experience in the field of external trade statistics.
- Knowledge of information systems for compiling data on external trade: Eurostat Users Guide, International Merchandise Trade Statistics: UN Concepts and Definitions.

The Computer expert(s) should have a degree in computer studies. The experience required is:

- Experience of installing and defining the Eurotrace domain and of on-site training.
- Knowledge of managing Windows and networks for on-site parameterisation.
- Perfect knowledge of the Eurotrace Windows software and of systems for managing databases of statistics on external trade.

Documentation and training for installers

- Training manual for users; Training manual for trainers
- User guide; Methodological manual; Technical documentation
- Standard training

Box 10.4: European Commission training in external trade statistics and in the Eurotrace software

Training courses in international concepts and in the Eurotrace software were set up by Eurostat. The specific objectives of such short training courses are to:

- provide a basic understanding of the data collection procedures and of the processing of external trade statistics;
- train trade statisticians and computer experts from National Statistical Institutes on the use and management (configuration) of the current version of the Eurotrace software;
- enable the effective interpretation of published external trade statistics;
- train participants to be trainers on sources, methods and processing of trade data using the Eurotrace software; and
- discuss the way forward regarding harmonisation of foreign trade statistics within the region.

The courses focused on the following issues:

- purposes and uses of foreign trade statistics;
- merchandise trade – basic concepts and definitions;
- classifications used in foreign trade statistics;
- sources and methods for foreign trade statistics;
- methodology for informal cross-border trade;
- estimation of missing external trade data and adjustment methodologies;
- computer systems for foreign trade statistics;
- quality assurance for foreign trade statistics;
- main outputs for foreign trade statistics;
- dissemination methods for foreign trade statistics; and
- how to train others on sources, methods and use of the Eurotrace software for foreign trade statistics.

To find out more...**Global data sources**

- [United Nations Commodity Trade Statistics \(COMTRADE\) Database](#)
- [IMF Direction of Trade Statistics](#) – database (requires subscription)
- [IMF Balance of Payments Statistics](#) – database (requires subscription)

Selected regional and national data sources for trade statistics

- [Eurostat trade statistics](#) - also a source of metadata
- [European Central Bank](#) - Euro area balance of payments statistics

Africa:

- [COMSTAT](#) - statistical database for the COMESA region
- [Database of SADC trade](#)
- [ECOWAS](#) – see 'Publications' page
- [Senegal](#)

Americas:

- [CARICOM](#)
- [ECLAC / CEPAL](#)
- [US Census Bureau](#)

Asia:

- [ASEAN](#)
- [China Ministry of Commerce](#)
- [IndiaStat](#)
- [Pakistan Federal Bureau of Statistics](#)

Metadata

- [United Nations trade publications page](#) includes:
 - [International Merchandise Trade Statistics: Concepts and Definitions](#) – global recommendations for external trade statistics
 - [Manual on International Trade in Services](#) – this link shows the IMF description
- [IMF Balance of Payments manual](#) (6th edition)
- [IMF GDDS / SDDS web pages](#) – Outlines national trade and payments methodology
- [IMF DQAF webpage](#)

Classifications registries:

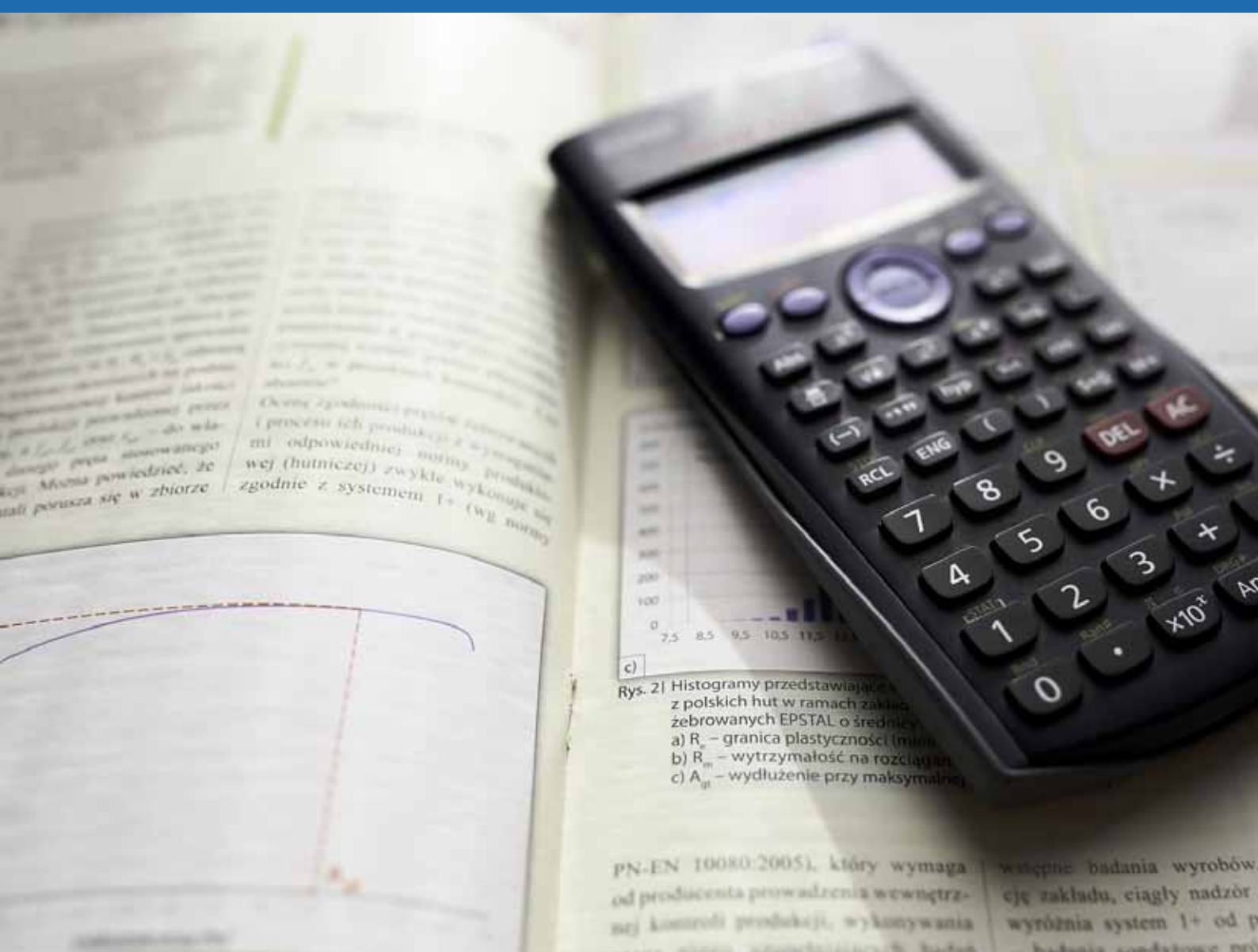
- [Eurostat RAMON metadata server](#)
- [UN Classifications registry](#)

Software systems

- [ASYCUDA \(Automated SYSTEM for CUstoms DAta\)](#)
- [Eurotrace](#)

D.11

National accounts, economic accounts and the non-observed economy



D.11. National Accounts, economic accounts and the non-observed economy

The chapter in brief

The main focus of this chapter is National Accounts, dealing with topics like implementation of the 1993 System of National Accounts (1993 SNA) and update to the 2008 System of National Accounts (2008 SNA).

This chapter also gives the definition of Gross Domestic Product (GDP) and Gross National Income (GNI). It gives a short overview of the institutional sector accounts, the Supply and Use Tables and input-output Tables, etc. It also gives an overview of statistical data required for the National Accounts compilation in current and constant prices.

The monitoring of a country's economy requires up-to-date and reliable National Accounts information on the structure and developments of the economic situation. The National Accounts information should also be comparable with the National Accounts information for other countries in the same region and for other ACP countries. It should also comply with international recommendations as given in 1993 SNA and 2008 SNA.

The Non-Observed Economy is discussed, as well as the production borderline which is drawing a line between what should be included in the National Accounts concept of production and what to exclude.

D.11.1. Policy applications: what this data are used for

Today's National Accounts are the core of a modern system of economic statistics. The National Accounts are the main instrument for observing the economy as a whole, the economic growth and the macroeconomic policy. The National Accounts are also a key policy indicator.

International organisations, analysts and policy makers pay great attention to the evolution of GDP and to other National Accounts variables such as final consumption, capital investment, saving, etc.

In addition to annual National Accounts figures, quarterly data are also available for some developing countries.

The National Accounts figures are highly dependent on the quality of the statistical system that exists in a given country. For international comparisons it is important to remember that the quality of National Accounts is not the same in all countries.

Box 11.1: Historic and prevailing versions of the System of National Accounts (SNA) and the European System of Accounts (ESA)

The objective of both the System of National Accounts (SNA) and the European System of Accounts (ESA) is to provide a comprehensive conceptual and accounting framework for compiling and reporting macroeconomic statistics for analysing and evaluating the performance of an economy.

The 1953 SNA was published under the auspices of the UNSC. It consisted of a set of six standard accounts and a set of 12 standard tables presenting detail and alternative classifications of the flows in the economy.

The 1968 SNA (the Blue Book) extended the scope of the National Accounts substantially by adding Supply and Use Tables, input-output tables, complete institutional sector accounts and balance sheets. It was also giving more attention to estimates at constant prices. With the 1968 SNA, a comprehensive effort was made to bring the SNA and the Material Product System (MPS), used in the centrally planned economies, closer together.

The **1993 SNA** represented a major advance in national accounting and embodies the result of harmonizing the SNA and other international statistical standards more completely than in previous versions. 1993 SNA is co-signed by the United Nations, the International Monetary Fund, the OECD, the World Bank and the European Commission.

The ESA 1995 is compatible with the 1993 SNA, but include additional details. The EU member countries have been obliged to implement the 1995 ESA.

The 2008 SNA, The United Nations Statistical Commission called for an update of the 1993 SNA in 2003 to bring the SNA into line with the new economic environment, advances in methodological research and user needs. The 2008 SNA was prepared by the [Inter-Secretariat Working Group on National Accounts \(ISWGNA\)](#), which consists of: the IMF, the OECD, the UN Statistics Division and regional commissions of the UN, the World Bank and Eurostat. The 2008 SNA is published jointly by these five organisations.

The ESA 2010 is compatible with the 2008 SNA and will be accompanied by a new ESA transmission programme, intended to provide the legislative basis for the EU member countries for the transmission of National Accounts data to Eurostat from 2014.

Essential objectives of both the 1993 SNA and the 2008 SNA are harmonisation between the National Accounts system and the other related systems of statistics such as IMF Balance of Payment Statistics, IMF Government Finance Statistics and IMF Banking Statistics' Accounts.

Box 11.2: Luxembourg Recommendations on Global Implementation and Outreach for the System of National Accounts

Following the request of the [United Nations Statistical Commission](#), Eurostat and the UN Statistics Division organised a high level conference on “International Outreach and Coordination in National Accounts for Sustainable Growth and Development” in 2008. The conference adopted the “[Luxembourg Recommendations on Global Implementation and Outreach for the System of National Accounts](#)”. The Luxembourg Recommendations outline the principles and recommendations that will guide the global implementation and outreach programme for the SNA in developing countries in the coming years.

The Luxembourg Recommendations are grouped in according to the three distinct principles of “[Managing for Development Results](#)” (see [section B.1.3.2](#)):

(a) Strategic planning principle – Mainstreaming strategic planning for the development of national accounts and related basic statistics at the national, regional and international levels

Best practices are readily available on how to develop strategic planning frameworks for the development of statistics. One example is PARIS 21’s [guidelines on National Strategies for the Development of Statistics \(NSDSs\)](#) (see [section C.6.1](#)). The [United Nations Development Assistance Frameworks \(UNDAFs\)](#), the [General Data Dissemination System \(GDDS\)](#) as well as the World Bank’s [Country Assistance Strategies \(CAS\)](#) and World Bank/IMF [Poverty Reduction Strategy Papers \(PRSPs\)](#) provide other examples of strategic planning frameworks.

Recommendation 1 – Strategic planning frameworks

A strategic planning framework should be formulated for national statistical capacity in national accounts and other economic statistics. This should be integrated with balance of payments, government finance statistics and environmental accounting and statistics, etc. The framework should be a component of the National Strategy for the Development of Statistics (NSDS), be regularly updated and be consistent with the GDDS and other reference frameworks of the country. National, regional and international strategies on economic statistics should be synchronized, and actions determined by information from strategic planning frameworks and other mechanisms. Further alignments have to be pursued according to various frameworks (such as the [RRSF](#) in Africa and [ECLAC’s Strategic Plan 2005-2015](#)).

(b) Coordination, monitoring and reporting principle – Coordinating the programming, monitoring of and reporting on the strengthening of the statistical infrastructure for economic statistics

Recommendation 2 - Coordination, monitoring and reporting

Regional Commissions, in collaboration with other regional partners, play a central role in the coordination, monitoring, reporting and maintenance of existing mechanisms. The aim is to enhance the efficiency of technical cooperation programmes and alignment with national commitments for development of official statistics. National donor groups on statistics should play a role in improving coordination, monitoring and reporting in statistical capacity building. NSIs or other agreed coordinators should coordinate the national statistical system to enhance effectiveness. South-South cooperation should be further developed.

Recommendation 3 - Global governance

A global governance structure should be created to develop coordination, monitoring and reporting procedures, avoid duplication, to assess performance of the implementation programme and the progress of countries/regions against set benchmarks. This structure could take the structure of the latest [International Comparison Program \(ICP\)](#) round as a model. Modular structures should be agreed and classifications for international, regional and national statistical capacity programmes used (including quality assessments).

(c) Statistical system improvement principle - Improving the national, regional and international statistical system

Recommendation 4 - National statistical capacity building

National statistical capacity building in national accounts and related economic statistics should be achieved through a unified implementation programme. This includes development of statistical infrastructure, sustainable donor activities, technical assistance, training capacity and application of common software tools (e.g. [SDMX](#), [ERETES](#)). Common training modules in national accounts and related statistics, including distance learning, should be developed. Promotion and adaptation of national accounts data for policy purposes underpin strategic planning frameworks.

D.11.2. Implementation of the System of National Accounts

D.11.2.1. MILESTONES FOR 1993 SNA IMPLEMENTATION

Both the SNA framework and the ESA framework have two main sets of accounts:

- The institutional sector accounts, see [section D.11.3.2](#)
- The Supply and Use Tables with goods and services accounts, see [section D.11.3.3](#).

Upon request from the UN Statistical Commission, six milestones for 1993 SNA implementation were defined by the [Inter-Secretariat Working Group on National Accounts \(ISWGNA\)](#).

According to these recommendations, the milestones should be:

Milestone 1: Gross domestic product (GDP) at current and constant prices by industries and also final expenditure accounts.

Under Phase 1, the complementary data system giving “*Supply and Use Tables*” in current and constant prices is recommended. This establishes consistency between the output approach, the expenditure approach and the income approach.

In many developing countries, the next 1993 SNA milestones are often developed later or have not been developed at all:

Milestone 2: *The rest of the world account* with external trade figures for imports and exports of goods and services fully consistent with the IMF’s BoP system (BPM5).

Milestone 3: Production accounts and generation of income accounts for the institutional sectors. A full set of sector accounts for general government. (The production and generation of income accounts cross-classified both by institutional sectors and by industries should provide direct links between the *Institutional sector accounts* and the *Supply and Use Tables*. It should also ensure consistency between these two parts of the national accounting system.)

Milestone 4: *Institutional sector accounts* for the household sector and non-financial corporations.

Milestones 5 and 6: *Financial accounts and capital accounts for all institutional sectors*.

The ISWGNA listed the following annual tables and accounts as a minimum requirement for implementation of the 1993 SNA:

- Value added and gross domestic product (GDP) at current and constant prices by activity (industry);

- Expenditure of GDP at current and constant prices;
- Components of value added by activity (industry);
- Sequence of the institutional sector accounts for the total economy, (until net lending);
- Rest of the world account (until net lending).

The ISWGNA also recommended:

- Annual Supply and Use Tables
- Quarterly value added and GDP at current and constant prices by activity (industry)

A draft plan of milestones for implementation of the 2008 SNA was presented at the 42nd session of UN Statistical Commission in 2011. This follows the same sequence as the milestones for the implementation of SNA 1993.

D.11.2.2. IMPLEMENTATION STRATEGIES FOR THE 2008 SNA

In most regions, advisory groups on national accounts and economic statistics have been set up. They prepare [regional implementation programmes for the 2008 SNA and the supporting statistics](#). These regional programmes are aligned with the [global implementation programme for the 2008 SNA](#). They cover three stages of the implementation of the 2008 SNA through a multi-year programme:

Stage I: Review of strategic framework and detailing of national and regional implementation programmes;

Stage II: Adaptation of classification frameworks, business registers and frames, surveys, administrative data sources and information technology infrastructure; and

Stage III: Application of adapted frameworks and source data, backcasting and change-over to 2008 SNA.

There is a consensus that these programmes should include:

- an assessment of the countries’ current capacity to produce supporting statistics for national accounts compilation;
- a roadmap to enhance the scope and quality of basic economic statistics and national accounts;
- a minimum common data set of annual and high frequency statistics with metadata descriptions.

The ISWGNA prepared the following table on 2008 SNA implementation milestones to the [42nd session of the United Nations Statistical Commission \(UNSC\)](#) in February 2011:

Implementation milestones	Complementary data systems	SNA-related data and development
Pre-SNA phases	Basic data on production, turnover, consumption, exports and imports. Consumer and producer price indices. Balance of payments goods and service account Monetary survey statistics	
Milestone 1: Basic indicators of gross domestic product (GDP) Final expenditures on GDP current and constant prices GDP by industry at current and constant prices	Supply and use table worksheets Balance of payments: current, capital and financial accounts Government finance statistics (GFS) transaction accounts	
Milestone 2: Gross national income and other primary indicators • for rest of the world External account of primary incomes and current transfers Capital and financial accounts	Capital stock statistics International investment position GFS transactions and stocks in assets and liabilities Monetary and financial statistics	Quarterly national accounts Regional accounts Satellite accounts for environment and other satellite accounts Input-output analysis
Milestone 3: Institutional sector accounts: <i>First step:</i> • For all institutional sectors Production account • For general government Generation of income Allocation of primary income Secondary distribution income Use of disposable income Capital and financial accounts	Same as for milestone 2	Same as for milestone 2
Milestone 4: Institutional sector accounts: <i>Intermediate step 1:</i> • For all institutional sectors Generation of income Allocation of primary income Secondary distribution of income Same as for milestone 2 Use of disposable income Capital accounts	Same as for milestone 2	Same as for milestone 2
Milestone 5: Institutional sector accounts: <i>Intermediate step 2:</i> • For all institutional sectors Financial account	Same as for milestone 2	Same as for milestone 2

The UNSC expressed a need for flexibility in the time horizon for the implementation of the 2008 SNA by Member States. It should take into account the needs of countries at different stages of development.

International and regional organisations facilitate the implementation of the 2008 SNA, especially through the regional implementation strategies. These institutions and other donors are urged to devote greater resources for this purpose. This includes the appointment of experts/advisors on national accounts. It is also important for countries to establish their national implementation programmes for the

2008 SNA and to support statistics in line with the regional and global implementation programmes;

The African Development Bank (AfDB), the African Union (AU) and the UN Economic Commission for Africa (UNECA) have established an African Group on National Accounts (AGNA) to foster the implementation of the 2008 SNA in Africa. The AGNA has prepared a [‘Draft African Strategy for the Implementation of the 2008 SNA’](#). The implementation of 2008 SNA is also followed up by [training workshops, seminars and regional meetings](#). Similar approaches have been pursued in the other [major regions around the world](#).

D.11.3. National Accounts concepts and definitions

D.11.3.1. GROSS DOMESTIC PRODUCT (GDP) AND GROSS NATIONAL INCOME (GNI)

D.11.3.1.1 Gross domestic product (GDP)

Gross domestic product (GDP) is the most commonly used economic indicator in the National Accounts.

- GDP can be compiled both by the production, income or expenditure approach.
- GDP is the sum of gross value added by all resident producers in the economy (institutional sectors or industries).
- GDP is calculated without making deductions for depreciation of produced assets or for depletion and degradation of natural resources.

Gross value added for a sector or industry is a measure of the contribution to GDP made by the individual producer, sector or industry.

Simplified: $GDP = \text{SUM Output} - \text{SUM Intermediate consumption} = \text{Sum Value added}$

GDP by **the production approach**

- Output at basic value is defined equal to output at producers' value minus taxes on products plus subsidies on products.
- Value added for all sectors or industries is calculated as output at basic value minus intermediate consumption at purchasers' value.
- GDP is calculated as the sum of value added for all sectors or industries plus taxes on products minus subsidies on products.

GDP by **the expenditure approach**

- GDP is calculated as the sum of Final consumption (Household Government, NPISH) + Gross fixed capital formation + Change in inventories + Exports - Imports, all valued at purchasers' prices.

GDP by **the income approach**

- GDP is equal to the sum of incomes (compensation of employees, gross operating surplus and gross mixed income of firms) increased by taxes net of subsidies on production.

GDP in current prices per capita is used as a broad measure of living standards, although there are a number of international statistical initiatives to provide alternative and more inclusive measures. The European Commission released a Communication in 2009, [GDP and beyond - Measuring](#)

[progress in a changing world](#), which aims to address the need for complementary indicators (alongside GDP) covering social and environmental progress.

GDP is also calculated in volume terms (based on previous year's prices or on prices of a base year). GDP in volume terms is intended to allow comparison of economic growth and development over time, since the impact of price developments (inflation) has been removed.

Starting with GDP at current prices, some countries deflate (i.e. divides) GDP at current prices with a "price indicator" (the GDP deflator) to obtain the GDP in real terms. Other countries deflate the National Accounts at a very detailed level (see [section D.11.3.4](#))

Annual percentage growth rate of GDP in volume terms is an important indicator. The economic growth in many developing countries is very dependent on the agriculture sector. This is especially the case for small countries. The mining industries and the information and communication industries are also fast-growing industries in many African countries.

D.11.3.1.2. Gross national income (GNI)

The difference between the numerical values of GDP and GNI is that GDP refers to production (output) and GNI refers to primary income. Primary incomes are income directly linked to production or ownerships of assets that may be needed for purposes of production:

The total primary income receivable to residents from non-residents
minus

The total primary income payable by residents to non-residents
=
Net primary income from abroad

Thus:

Gross domestic product (GDP)
minus
Net primary income from abroad
=
Gross national income (GNI)

D.11.3.2. THE ACCOUNTS FOR THE INSTITUTIONAL SECTORS AND REST OF THE WORLD

An institutional unit is an economic entity that is capable in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities.

The institutional sectors of SNA are groups of similar kinds of institutional units.

The institutional sector accounts describe for each sector the stages of the economic process and how income is generated, distributed, redistributed and used for consumption or acquisition of assets.

The main institutional sectors are:

- Non-financial corporations,
- Financial corporations
- General government
- Households,
- Non Profit Institution Serving Households (NPISH's)
- Rest of the world account

A complete system of institutional sector accounts will have a more detailed grouping of the sectors as split between different types of non-financial and financial corporations.

An overview of the sequence of accounts for institutional sectors:

- *The production accounts*
- *The distribution and use of income accounts*
- *The accumulation accounts*
- *Balance sheets*

D.11.3.3. NATIONAL ACCOUNTS WITH SUPPLY AND USE TABLES (SUT)

The SUT focus on the product balances: where products come from and where they are used. Products are both goods and services.

Supply Table:	Domestic production + Imports
	=
Use Table:	Intermediate consumption + Final consumption + Gross fixed capital formation + Change in inventories + Exports

For some countries, Supply and Use Tables (SUT) are fully integrated in the National Accounts system and serve both statistical and analytical purposes (ref. SNA 93 chapter XV).

According to the recommendations given by ISWGNA, the first milestones for a SUT project under 1993 SNA implementation would be:

- Balanced Supply Tables and Use Tables compiled both according to the production approach and to the expenditure approach.

For developing countries, the balancing of the Supply and Use Tables is often of particular importance for compiling National Accounts. The compiler can then use judgement to reach a balance by adjusting the components as necessary.

Several developing countries (ACP countries) are using SUT as an integral part of the compilation of final annual National Accounts at current prices. They are also used as the framework for balancing National Accounts and compiling National Accounts aggregates. Some countries are also compiling SUT in previous year's prices. Others finish SUT after the final National Accounts aggregates are published.

SUT compilation incorporates the components of the three approaches for measuring Gross Domestic Product (GDP): The production approach, the expenditure approach and the income approach. This enables a single estimate of GDP to be determined, both in current prices and in volume terms.

SUT represent an integral part of and check on the economic statistics and the National Accounts estimates produced for the economy. They represent an important tool for constant price estimates (the double deflation technique), giving balanced SUT in both current year's and previous year's prices.

SUT should also be converted to Input-Output tables (IOT), industry by industry or product by product tables. SUT and IOT represent statistical databases for econometric models and economic planning.

Developed or developing countries following the old British national accounts tradition were compiling GDP by the Income and Expenditure method and had no tradition for compiling SUT. GDP was often calculated as an average of the GDP compiled in these two ways. Good administrative data are needed for calculating GDP by the Income method.

Satellite accounts, such as the "*Tourism satellite accounts*" and the "Environmental accounts" can also be developed with a direct link to the SUT.

D.11.3.4. NATIONAL ACCOUNTS WITH SUPPLY AND USE TABLES (SUT) IN CONSTANT PRICES

When SUT are compiled for two years, constant price compilation can take place by converting the current year SUT into the previous year's prices. Alternatively, the SUT can be compiled in current and constant prices at the same time.

Advantages of **calculating values at constant prices in a SUT framework**

- The use of a SUT calculation scheme supports the calculation of values at constant prices, volume indices and price indices for transactions of goods and services in the National Accounts.
- SUT at current prices provide an excellent compilation framework for constant price estimates. SUT give a readily available overview of transaction data, price indicators and volume indicators.
- When SUT at constant prices are established in an accounting framework, they give volume indices and deflators of several variables and at different levels of aggregation, interrelated in a systematic way.

D.11.3.5. QUARTERLY NATIONAL ACCOUNTS

Quarterly National Accounts could constitute the central instrument for short-term economic analysis. There is strictly no difference between the quarterly accounts and the annual accounts as regards the basic principles. The aim of the quarterly accounts is to provide at the earliest possible moment reliable figures for the changes in the major macroeconomic aggregates. The quarterly accounts are simplified compared with the annual accounts, but requires timely short term indicators.

D.11.4. National Accounts statistical classifications

D.11.4.1. CLASSIFICATION FOR INDUSTRIES AND PRODUCTS

The [International Standard Industrial Classification \(ISIC\) Revision 3](#) (or [Revision 3.1](#)) is widely used for classifying activities (industries) in business registers and in Economic statistics for enterprises. In the NSI, statisticians may work with the statistical data at a very detailed level. The National Accounts will be compiled at a more aggregated level, but might specify in detail the most important industries in the country. Because of confidentiality rules, only aggregated data may be available to the public.

Many countries are now in the process of revising the classification used in registers and the economic statistics to introduce the new [International Standard Industrial Classification \(ISIC\) Revision 4](#).

The National Accounts have to be revised accordingly. The product classification used in Supply and Use Tables must also be changed from the [Central Product Classification \(CPC\) Version 1.0 from 1998](#) to the new [CPC Version 2.0](#), revised in accordance with the new ISIC Revision 4.

For the EU member countries Eurostat has adopted NACE as the statistical classification of economic activities and CPA as the statistical classification for products. From 2009 on, the revised classification [NACE Revision 2](#) has replaced [NACE Revision 1](#). The new [CPA 2008](#) is revised in accordance with NACE Rev. 2. The EU member countries must change to NACE Rev. 2 and CPA 2008 for reporting of National Accounts in 2011.

D.11.4.2. CLASSIFICATION FOR FINAL DOMESTIC EXPENDITURE

The following classifications for the **expenditure approach** should be integrated in the National Accounts compilation:

- [COICOP](#) classification for household consumption expenditure
- [COFOG](#) classification for government final consumption expenditure
- [COPNI](#) classification for final consumption expenditure of the non-profit institutions serving households (NPISHs)
- Gross fixed capital formation by industry

D.11.5. Sources of data for the National Accounts compilation

D.11.5.1. ORGANISATION OF THE STATISTICS

The National Statistical Institute (NSI) is responsible for the National Accounts in the majority of developed and developing countries, but we also find countries where the National Accounts work is the responsibility of the National Central Bank.

A business register in the NSI should in principle cover all production units: However, in many developing countries the register has insufficient coverage and is not regularly updated.

For the National Accounts (NA) compilation, the NA divisions are relying on a large number of statistics compiled by other divisions of the NSI or by other government departments. A mixture of statistical surveys and administrative data can be used as data source for the National Accounts compilation. Line ministries such as for agriculture, health and education will often have statistical services. A formal service-level agreement or memorandum of understanding between the NSI and other government departments compiling statistics is sometimes necessary to align the interests of the services.

The compilation and balancing of the National Accounts implies in many developing countries that the National Accounts staff are both controlling and correcting different types of statistics used as input for the National Accounts compilation.

D.11.5.2. DATA SOURCES FOR NATIONAL ACCOUNTS

D.11.5.2.1. Data sources for annual National Accounts in current prices

In a developing country, all economic statistics and also relevant data sources from different government ministries should be used for the national accounts compilation.

Important data sources are:

- Agriculture statistics and agriculture census (see [chapter D.17](#))
- Livestock censuses
- Fisheries statistics (see [section D.17.2.7](#))

- Banking statistics and statistics for other financial institutions
- Annual Economic Survey for large enterprises or for a sample of enterprises (see [chapter D.13](#))
- Energy statistics
- Government Audited Accounts and Budget Documents (see [chapter D.19](#))
- Labour force survey (see [chapter D.27](#))
- External trade statistics with value and quantity data for imports and exports (see [chapter D.10](#))
- Integrated Household Survey
- Consumer price indices (see [chapter D.12](#))
- Population Census, Housing Census (see [chapter D.22](#) and [chapter D.16](#))

Banking statistics and statistics for other financial institutions

Statistics for financial institutions are from the National Central Bank or from the Financial Market Supervising and Regulatory Agencies. Special rules are given for compiling and distributing the production from banks, based on interests received and paid, called “financial intermediates services from banks” (FISIM). FISIM allocation in the National Accounts is based on the monetary and banking statistics and information from the Balance of Payments (BOP) and the International Investment Position (IIP).

General government budgets and accounts

In the National Accounts, the value of the output of services from general government is calculated as the sum of the production costs: intermediate consumption, consumption of fixed capital and compensation of employees. On the expenditure side, gross output is equal to the sum of the government fees (sales of goods and services) and government final consumption expenditure (the residual). The government final consumption expenditure should be classified by the COFOG groups. Some countries are not able to compile figures for consumption of fixed capital for the government, and that will give an underestimation of value added for general government

Integrated Household Surveys or Household Budget Surveys

When they are available, data from Integrated Household Surveys or Household Budget Surveys can be used directly or indirectly as a data source for estimating Household Final Consumption Expenditure. Even with annual Household Budget Surveys, small samples and a high degree of non-response might make this important data source unreliable. For estimating the Household consumption figures, the results from the Household Budget Surveys have to be evaluated and compared or balanced with other data sources used for supply of goods and services.

Imports and exports of goods and services

Detailed data for imports and exports of goods and services are of great importance for the National Accounts and SUT compilation in developing countries. Eurostat has developed the EUROTRACE software package to manage data for external trade statistics (see [chapter D.10](#)).

The balance of payments statistics should be the mirror of the Rest of the world account in the National Accounts. The current account of the balance of payments statistics measures all current transactions between a country and the rest of the world, including transactions in goods and services (the balance of trade); factor payments: income from capital and remittances by workers abroad; as well as international transfers.

The definition given in the ‘Balance of Payments and International Investment Position Manual, sixth edition (2008) (BPM6) for trade in goods’ is consistent with the 2008 SNA definitions. Good routines for data sharing (including the legal framework) are required between the NSI and the Central Bank. In some countries the Balance of Payments is compiled within the NSI which should ensure full harmonisation between the National Accounts and the Balance of Payments figures.

D.11.5.2.2. Data sources for quarterly national accounts

For a developing country with scarce resources, production of regular and timely monthly or quarterly statistics can be very difficult or almost impossible. Main statistics which would be needed for timely quarterly national accounts are:

- Monthly production in agriculture, fishing, etc.
- Monthly or quarterly index of industrial production, etc.
- Monthly import and export statistics
- Monthly producer price indices and consumer price indices

D.11.5.2.3. Price indices or volume data for compiling national accounts in constant prices

Price or volume indices are needed for compiling supply of products and use of products in constant prices. The price indices can be based on Producer Price indices and Consumer price indices. Unit value indices can be calculated based on volume indicators. Input price indices can be used for government services where no relevant price or volume information exists.

Producer Price indices (PPI) are mainly based on questionnaires from surveys where the prices are defined as sales price at the factory gate to the domestic market.

Consumer price indices (CPI) are acceptable price indices for service industries, supplying services to the households.

Unit value indices: When the product specification is so detailed that the products can be regarded as homogeneous products, unit value indices can be used. They are acceptable for deflating agricultural, forestry and fishing products and also mining products.

Input price indices: Where no available price indices or volume indicators exist for business services, input price indices can also be used. The input price indices for the different industries should be compiled by weighting price indices for intermediate consumption and the wage indices for compensation of employees for the different industries.

Price indices for imports and exports are important for calculating SUT in constant prices,

For imports and exports of goods, special exports and imports price indices might be collected. Unit value price indices for ordinary homogenous products can also be based on customs declarations for imports and exports.

D.11.6. Analysing data quality and identifying problems

D.11.6.1. SPECIFIC QUALITY ISSUES FOR NATIONAL ACCOUNTS

The quality of National Accounts data depends on the methodology used and the data coverage, how quickly statistics are published and their compliance with international recommendations.

Delays, statistical errors and incomplete statistical data may require time consuming estimation of the National Accounts figures. Several versions of preliminary and corrected data from statistical surveys will also require corrections of the input data for National Accounts and new balancing of the National Accounts figures.

Comparability between National Accounts in different developing countries is a huge problem.

Some countries are still compiling National Accounts according to 1968 SNA or have only partly introduced 1993 SNA (see [Box 11.1](#)). Inclusion or exclusion of non-observed economy is also a problem for the comparability between National Accounts in different countries.

To evaluate the National Accounts, IMF is conducting user assessments in both developed and developing countries to prepare the IMF's [Reports on Observance of Standards and Codes](#) (ROSCs). The IMF's reports are focusing on topics as prerequisites of quality, methodological soundness and accuracy and reliability.

D.11.6.2. THE "NON-OBSERVED" ECONOMY

D.11.6.2.1. Activities missing from statistical data collection

The economic activities missing from statistical data collections and from administrative sources have become known as the *"non-observed economy" (NOE)*. *NOE* refers to productive activities that may not be captured in the basic data sources used for compiling national accounts. Elements not observed will include estimates for informal enterprises not covered in statistical enquiries and corrections to some measures of informal enterprises that are captured in statistical enquiries.

The following activities should be recorded within the production boundary in the national accounts:

- underground activities,
- informal activities, including production of households for their own final use,
- illegal activities should be included in GDP but this is difficult in practice. Different way of measuring illegal economy also reduces the comparability between countries.
- other activities omitted due to deficiencies in the basic data collection program.

Production of households for their own final use is defined as those productive activities that result in goods or services consumed or capitalized by the households that produced them.

The following types of production by households are included within the production boundary whether intended for own final consumption or not:

- Production of goods for own final consumption, e.g. of agricultural products and their subsequent storage, gathering of berries or other uncultivated crops, forestry and the collection of firewood, hunting and fishing.
- According to 2008 SNA also other kinds of processing such as dressmaking and production of pottery and furniture should be included within the production boundary for countries where this is important.
- Own-account production of housing services by owner-occupiers;
- Own-account construction, including that by households;
- Production of services by paid domestic staff;

Domestic and personal services provided by members of a household for their own consumption are not included within the production boundary.

This means that activities like cooking, housecleaning, and looking after children and elderly people are excluded from GDP. These services are only included if they are carried out by people paid for doing so.

D.11.6.2.2. The informal sector and the non-observed economy

The informal sector definition was adopted by the Fifteenth International Conference of Labour Statisticians in January 1993 and was linked to the conceptual framework of the SNA.

The informal sector was considered a sub-sector of the SNA institutional sector 'households', but the expression "informal sector" used in the context of the ILO work is used with a different meaning from the SNA grouping of institutional units. In the SNA, sectors are made up of complete institutional units. The ILO work focuses only on production activities and does not include the consumption and accumulation activities of the unit. Households having no productive activity are simply not included in the informal sector.

The non-observed economy (NOE) overlaps with, but is not the same as the ILO concept of *the informal sector*. The *observed and non-observed informal sector* involves in many least-developed and developing countries an important labour force, which contributes to economic production. The main aim of compiling statistics should be to cover as far as possible the productive activities belonging to the SNA. An exhaustive coverage of the National Accounts is an important quality aspect.

The informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes for the persons concerned. These units typically operate at a low level of organization, with little or no division between labour and capital as factors of production and on a small scale. Labour relations - where they exist - are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees.

Production units of *the informal sector* have the characteristic features of household enterprises. The fixed and other assets used do not belong to the production units as such but to their owners. The units as such cannot engage in transactions or enter into contracts with other units, nor incur liabilities, on their own behalf. The owners have to raise the necessary finance at their own risk and are personally liable, without limit, for any debts or obligations incurred in the production process. Expenditure for production is often indistinguishable from household expenditure. Similarly, capital goods such as buildings or vehicles may be used indistinguishably for business and household purposes.

A restriction is that at least some of the production must be sold or bartered. Some of the household enterprises that the SNA treats as producing "for own final use" are excluded from *the informal sector if they* produce exclusively for own final use. The activity of dwelling services produced purely for owner-occupation is excluded from the Informal sector.

The informal economy is considered as comprising informal employment (without secure contracts, worker benefits, or social protection):

- Informal employment in informal enterprises (small unregistered or unincorporated enterprises), including: employers, employees, own-account operators, and unpaid family workers in informal enterprises;
- Informal employment outside informal enterprises (for formal enterprises, for households, or with no fixed employer), including: domestic workers, casual or day labourers, temporary or part-time workers industrial outworkers (including home-workers), and unregistered or undeclared workers.

A key reference on the measurement and estimation of the non-observed economy is the OECD's '[Measuring the Non-Observed Economy – A Handbook](#)' from 2002, which focuses on the non-observed economy in a national accounts framework. The UNECE has documented national practices regard the national accounts treatment of the non-observed economy, e.g. in the report '[Non-observed Economy in National Accounts – Survey of Country Practices \(2008\)](#)'. Eurostat's '[Essential SNA: building the basics](#)' is a practical handbook aiming to support the Least Developed Countries, micro-states and others in implementing the 2008 SNA; it contains a chapter specifically on the measurement and estimation of the non-observed economy and the informal sector in developing countries in compliance with the 2008 SNA.

D.11.7. Improving the National Accounts

D.11.7.1. ORGANISATION OF THE WORK

Difference in economic growth observed for different developing countries may not always be real, but due to insufficient economic statistics which have required estimation and even guessing.

The NSI management and the National Accounts Divisions should have close contact, including regular meetings with other data producing agencies, such as the Central Bank and various ministries producing economic statistics for different sectors. It is important that other data providers understand and give priority to the data requirement for the National Accounts compilation.

Turnover of staff is a big problem in the NSI in many ACP countries. Turnover of qualified and trained staff is very serious for the National Accounts. The compilation of National Accounts requires special knowledge about the country's economy, special training in the National Accounts compilation methodology and also knowledge about the coverage and quality of the different economic statistics required for the National Accounts compilation.

Box 11.3: Eurostat's Handbook 'Essential SNA: Building the Basics'

As a follow-up to the Luxembourg Recommendations, Eurostat has developed the handbook '*Essential SNA: building the basics*', to support countries that need to develop the basics of a National Accounts system. The aim of this Handbook is to support the implementation of the 2008 SNA in Least Developed Countries, small island and fragile states that are in Milestone 0 of the implementation process, i.e. countries that are either in the early phases of implementing 1993 SNA, still follow the 1968 SNA or do not follow any SNA at all.

In addition to the 'Essential SNA' Handbook, an on-line helpdesk for methodological questions, a discussion forum, monthly papers about specific National Accounts topics and an e learning tool are available. The Handbook is translated to French, Spanish and Portuguese. A number of workshops will be facilitated in ACP and/or ALA.

Based on input from regional organisations and from high-level experts in National Accounts, the Handbook presents the following key issues for basic implementation of 2008 SNA:

Institutional issues: the necessity of creating a legal framework for National Accounts implementation and the strategy for developing the statistical system as base for National Accounts. This also includes dissemination issues;

Technical issues regarding the statistical infrastructure, such as the business register and the classifications which should be used;

Technical issues on statistical and administrative data sources required for National Accounts compilation, especially the use of data to compile National Accounts indicators;

Specific issues for National Accounts compilation, common to all target countries. These include, amongst others, the informal sector and the compilation of National Accounts in the conditions of high inflation.

For more information about 'Essential SNA', please consult the website:

http://ec.europa.eu/eurostat/statistics-explained/index.php/Building_the_System_of_National_Accounts

Box 11.4: ERETES national accounts software

ERETES is an information system used for the elaboration of National Accounts according to the SNA. It is used in around 30 countries all over the world. Main programs concerning implementation are carried out in Africa and Latin America, funded by amongst others France, UNDP, etc. Eurostat is engaged in the transfer of knowledge to the community of users. In particular, 4 regular regional workshops are organised. Furthermore, the ERETES users group is established to define mid-term orientations.

In line with the Luxembourg Recommendations suggesting using a common tool for the production of National Accounts, Eurostat continues its support to ERETES. The tasks during 2009-2012 include upgrading ERETES to 2008 SNA (including the balance sheet and the production of long time series), informal sector and quarterly National Accounts, as well as four regional or national workshops.

ERETES operates from a database with the basic economic data around which different technical tools (commodity flows, branch accounts, matrices from whom to whom, summary tables) or organizational (follow-up of work, note pad, online help) allows coordinated and consistent teamwork. It reconciliates the data and allows calculation of GDP according to the 3 traditional approaches (production, expenditures, income). ERETES is available in English, French and Spanish.

The monitoring is ensured by a Directors' Committee, consisting of the French national statistical institute INSEE and the copyright co-owners Eurostat and the French Ministry of Foreign Affairs.

Box 11.5: Implementation of ERETES national accounts software

The duration and type of assistance required for implementation of ERETES largely depend on the future users' level of experience of national accounts. Practical experience indicate that, to provide assistance, around seven one-week missions by an expert national accountant with specialist knowledge of the ERETES software are required. These missions coincide with the seven phases of compiling accounts using ERETES:

Phase 1 : Identification

- A country wants to adopt the ERETES software for compiling its national accounts. ERETES meets its requirements.
- The identification mission must analyse the local equipment, IT and statistical environment in the light of ERETES' requirements and propose the necessary update. An in-depth presentation of the software will help the users to participate in this analysis.
- Where appropriate, the base year will be chosen and a timetable drawn up for the first accounting year.
- An analysis of the IT situation will list any requirements in terms of equipment, software and basic computer training.
- An analysis of the statistical situation will involve a first overview over the available data and will identify any measures that may be necessary to supplement the incoming data.
- A detailed presentation focus mainly on the handling of the tool by future users. It provides a complete view of all the work to be done, so that the full scope of this work can be appreciated and an informed decision taken on whether to install ERETES.
- If the decision to install ERETES is confirmed, the installation timetable will be fixed. On average, two years are needed to compile a base year plus a current year. At the end of these two years, the team will have fully mastered working with ERETES.
- This identification mission is scheduled to last ten days in the country concerned.

Phase 2 : Installation

- The equipment and the necessary software are available, the team possesses the necessary IT skills. The work classifications have been drawn up and the main sources of data have been identified.
- The objectives of this mission are :
 - to install the software in all the planned workstations,
 - to load the local work classifications
 - to initialise the first accounting year
- The database management system and the ERETES software will be installed and customised on all the envisaged workstations.
- The local IT correspondent is appointed; he will participate in the installation of the software, in order to be able to repeat the procedure on his own. Training in the IT aspects of ERETES will be provided to the entire team and to any interested IT technician.
- The local classifications prepared by the National Accountants will be verified and loaded in the database.
- The procedure for launching the first accounting year will be completed.
- The preparation of sources is a delicate task, which is the sole subject of the next mission. This mission will clarify the role of each attribute and the importance of the work on sources, so that the team can begin to assemble its sources.
- This mission will be undertaken jointly by an ERETES computer specialist to deal with all IT aspects and a national accountant specialised in ERETES

Phase 3 : Processing of sources

- The national accountants have collected all required sources to compile the accounts.
- Users are trained to prepare the files that allow them to load their sources into ERETES. At the end of this mission, they must be capable of undertaking this task on their own. Specific exercises from the test set permit users to become familiar with the problems encountered when processing sources; choice of attributes, organisation of data, changeover from business accounts to national accounts.
- The entire team will participate in the study of prepared sources, organisation and aggregation of data. They will identify gaps in the information system and possibilities for remedying these. Then, each of the sources will be reviewed in order to decide :
 - the correspondence tables which should be used with the national accounts' classifications
 - the pillars around which these basic data should be concatenated
 - the most sensitive cases in terms of the allocation of methodological attributes.
 - It is usually during this mission that the table of Production modes is finalised.
- During this mission, the users will have several opportunities to test the IT procedure for loading data in the database.

Phase 4 : Pre-reconciliation

- The available source data have been processed and loaded in the database. An initial expert assessment of the overall consistency of these data must be made by the national accountants.
- This mission outlines the target objectives for each group of data and indicates the methods used in each case: external trade, final consumption, intermediate consumption, employment, gross fixed capital formation, output, taxes, trade and transport margins, salaries, inventories.
- In-depth training: Specific exercises of the test set permit users to become familiar with the techniques used in pre-reconciliations, in particular how to construct pivot tables and use them to analyse data.
- Various types of main problems need to be resolved: confrontation of two sources; corrections of the valuation method or of the time of recording; verification of the apparent rates of tax or social contributions; employment balance by industry and method of production (for assessment of the informal economy – see section D.11.6.2).

Phase 5: Work on local posts

- The data loaded in the base have been pre-reconciled, and are now sufficiently consistent so that one can pass to the stage of decentralization.
- This mission outlines the iterative cycle "Decentralisation, work on local posts, repatriation, transversal work" and train users to work on the tables used in the decentralisation phase.
- Decentralisation will be carried out by one of the administrators of the base, under the supervision of the external national accounts expert.
- Presentation of the different work tables on local posts proposed: supply/use balances, industry accounts, "who to whom" matrices (balance distributive transactions and financial transactions). Exercises from the test set and practical exercises based on local data will help users to become familiar with the various tools available.
- Repatriation will be undertaken by one of the administrators of the base, under the supervision of the external national accounts expert.
- A brief presentation of the transversal work procedure.

Phase 6: Synthesis

- Several successive iterations of the cycle "Decentralisation, work on local posts, repatriation, transversal work" have been carried out. The main inconsistencies initially presented by their data have been eliminated. In particular, the global supply of Intermediate Consumption derived from supply/use balances have been reconciled with the global demand expressed by the industry accounts.
- This mission must permit users to finish compiling the accounts of their base year. First the Use matrix will be completed, followed by the principal synthesis tables: the Supply / Use table, the table of Integrated Economic Accounts.
- Synthesis of the Inter-Industry Trade Table: From the outset, only the margins of the table are in balance: the core of the Intermediate Consumption matrix needs to be supplemented.
- Finalisation of the synthesis tables.
- The Table of Integrated Economic Accounts may be used for publication straight away.
- A detailed timetable for compiling the accounts of the next accounting year is prepared.
- Phase 7: Work on current year
- The base year accounts have been finished, ready for publication. This base and its entire documentation have been archived. The team has collected the sources for year $n + 1$ and is starting to process them.
- Train users in the specific characteristics of work on a current year.
- Review each of the work phases to identify their specific characteristics in a current year:
 - loading of sources: how to load value, volume, or price indices
 - pre-reconciliation: how to pre-reconcile prices
 - decentralised phase: the specific price and volume work tables
 - synthesis: projection of intermediate consumption

Box 11.6: ECOTRIM software for temporal breakdown of time series

The ECOTRIM software for temporal breakdown of time series (short term statistics, quarterly national accounts) has been developed by Eurostat. It runs under Microsoft Windows. ECOTRIM supplies a set of mathematical and statistical techniques to carry out 'temporal disaggregation'. It can be run either in interactive mode, with the user directly involved in the analysis, or in batch mode.

The statistical methods used for compiling quarterly national accounts can be classified as direct procedures and indirect procedures; indirect procedures are based on temporal disaggregation of the annual accounts data, in accordance with mathematical and statistical methods which use reference indicators that permit extrapolation for the current year. These methods may also be used to produce 'flash estimates' by using the available information in the best possible way, including, in the framework of a statistical model, the short-term available information and the low frequency data in a coherent way.

Temporal disaggregation techniques are useful also in compiling short-term statistics. Monthly indicators of GDP can be derived from the available information respecting the coherence with quarterly data. Temporal disaggregation can also be used to compile a range of other short term statistics, such as short-term industrial statistics, employment statistics and money and banking statistics.

ECOTRIM currently offers the following techniques:

- Temporal disaggregation of univariate time series by using or not related series and fulfilling temporal aggregation constraints;
- Temporal disaggregation of multivariate time series with respect of both temporal and contemporaneous aggregation constraints;
- Flash estimates of current year observations by using or not available information on related series.

Eurostat runs a project for development and maintenance of ECOTRIM. The plans include updating the Visual Basic/C++ version and upgrade the interface to better match production and users' requirements, as well as making the system Windows 7 compatible and compile a 64-bit application. It is also planned to include more recent methods, such as univariate regression-based temporal disaggregation and reconciliation by two-step procedures.

The ECOTRIM tool is used in Europe and in a number of other countries, including e.g. Senegal and Cameroon. The ECOTRIM user manual is available in English and French. Eurostat may under certain conditions be able to organise trainings in the use of ECOTRIM.

For more information, please e-mail to estat-methdology@ec.europa.eu

Box 11.7: Technical advice and training in National Accounts: Institutional co-operation project in Malawi

Norway is supporting Malawi through an “Institutional Cooperation Project”, a twinning project between Statistics Norway and the [National Statistical Office of Malawi](#), the Ministry of Economic Planning and Development and the Ministry of Finance. One goal of this project is to give technical advice and training for a sustainable National Accounts system. Improved quality and coverage of the National Accounts system should give a much improved basis for economic and social policy planning in the Ministry of Finance and the Ministry of Economic Planning and Development.

The objective of the project is to give training to the National Accounts and Balance of Payment Branch in NSI (NA/BOP branch) to introduce a sustainable methodology for the compilation of the National Accounts according to international recommendations (see [Box 11.1](#)). The staff of the NA/BOP branch has theoretical and practical “hands-on training” by long- and short-term advisers from Statistics Norway. Some of the statisticians in the NA/BOP branch have also participated in IMF National Accounts training courses or on SADC courses.

Based on available economic statistics in Malawi, it was decided to start with Supply and Use Tables (SUT), in accordance with SNA93. Important data sources were Crop production statistics, Annual Economic Surveys for large enterprises, Government accounts, Integrated Household Surveys and a planned Agriculture Census. For external trade statistics, the [EUROTRACE application package](#) gives detailed information about imports and exports. The Balance of Payments (BoP) figures in the NA/BOP branch cover import and export of services.

The frame for the first benchmark SUT was considered carefully regarding the level of detail. The following assessments were important:

- Establishing an aggregated National Accounts Industry Classification relevant for Malawi, specifying around 100 industries based on ISIC 3.1;
- Establishing a National Accounts Product Classification based on CPC, specifying around 400 products. Important food products in the Malawian economy were specified, also with a split between products sold to the market and products for own use. Products as food aid have been given special product codes.

The main data sources for the constant price compilation are price indices for agriculture products, consumer price indices and unit value price indices for imports and exports, based on value and quantity data from the EUROTRACE software. The methodology introduced, with constant price compilation in previous year's prices and chain price indices, was new to the Malawi government. However, it was accepted since it is the recommended methodology in SNA93.

Excel work sheets are used for data input and the final tabulations. The NA/SUT data are stored in a database. The NA/BOP branch uses software provided by Statistics Norway which interacts with the Excel work-sheets to perform balancing of the SUT and to calculate the complex formulas of the SUT in current and previous year's prices and the Input-Output tables.

In March 2007, revised National Accounts figures for the years 2002-2004 and preliminary aggregated figures for the years 2005 and 2006 were released. Comparison between old and new estimates showed that the level of GDP in current prices was revised up by 38.0 per cent in 2004 and 37.4 and 37.7 per cent in the two preceding years.

The ‘[Malawi National Accounts Report 2002-2005](#)’ explains the concepts, sources and methods used. National Accounts figures for Malawi are also published by the [Reserve Bank of Malawi](#) in its “Financial and Economic Review” and by the Ministry of Development Planning and Cooperation in the “Annual Economic Report”.

A further development has been to integrate the main parts of the Institutional Sector Accounts in the National Accounts System. An Excel workbook with the sequence of institutional sector accounts from Production account to Capital account has been developed. The data sources are from the SUT, the Government accounts and from Balance of Payments for the Rest of the World. The Non-financial corporations and Household sectors are combined and used as a residual. The “National Accounts and Balance of Payments Technical Committee” are compiling preliminary annual National Accounts estimates after conducting a small Business Interview sample twice a year.

A main revision of the National Accounts for Malawi is planned for 2011. The classification system will be based on ISIC 4 and CPC and some main aspects from SNA2008 will be introduced. Important new data sources are: A National Census of Agriculture and Livestock (NACAL) for 2007, the 2008 Population and Housing Census, revised data from the Annual Economic survey and an integrated Household Survey for the year 2010 (IHS-3).

A team of economic and environmental experts was in 2010 engaged by the Ministry of Development Planning and Cooperation, financed by the UNDP, to assess the contribution of natural resources to the Malawi economy. A conclusion was *“the GDP figures understate the true contribution of forestry by not capturing the extensive use of wood for fuel”*. The team had also other examples; The NSO defended the NA figures, answering *“in any country in the world, some activities in the economy are not fully factored into the official GDP measurement”*.

To find out more...**References and websites**

- [System of National Accounts 2008 - 2008 SNA website](#)
- [Intersecretariat Working Group on National Accounts \(ISWGNA\) website](#)
- [Integrated Economic Statistics website](#)

About National Accounts in developing countries

- Eurostat: [‘Essential SNA: building the basics’ Handbook](#)
- [Luxembourg Recommendations on Global Implementation and Outreach for the System of National Accounts \(2008\)](#)
- [Intersecretariat Working Group on National Accounts \(ISWGNA\): ‘Implementation Programme for the System of National Accounts 2008 and Supporting Statistics’, ‘Guidelines for monitoring the 2008 SNA implementation’ and the SNA Implementation website](#)
- [African Group on National Accounts \(AGNA\): ‘Draft African Strategy for the Implementation of the 2008 SNA’ \(2010\)](#)
- [United Nations Economic and Social Commission for Asia and the Pacific \(ESCAP\): ‘Proposed regional programme for the improvement of economic statistics in Asia and the Pacific’ \(2010\)](#)
- [United Nations Economic Commission for Africa: Reforming national accounts systems in Africa \(2009\); Implementation guide for the 2008 System of National Accounts \(2008 SNA\) in Africa \(2010\); Handbook on Supply and Use Table: Compilation, application, and practices relevant to Africa \(2012\)](#)

System of National Accounts and European System of Accounts

- [System of National Accounts, 1993 \(1993 SNA\)](#)
- [System of National Accounts, 2008 \(2008 SNA\)](#)
- [European System of Accounts, 1995 \(ESA1995\)](#)
- [European System of Accounts, 2010 \(ESA2010 draft\)](#)
- [Eurostat Manual of Supply, Use and Input-Output tables \(2008\)](#)

Methodology – Non-Observed Economy

- [OECD: Measuring the Non-Observed Economy – A Handbook \(2002\)](#)
- [UNECE: Non-observed Economy in National Accounts – Survey of Country Practices \(2003\)](#)
- [UNECE: Non-observed Economy in National Accounts – Survey of Country Practices \(2008\)](#)

Methodology – Balance of Payments

- [IMF Balance of Payments manual, 5th edition \(BPM5\) \(1993\)](#)
- [IMF Balance of Payments and International Investment Position Manual, 6th edition \(BPM6\) \(2009\)](#)

Software

- [ERETES](#) software package for National Accounts
- [ECOTRIM](#) software for temporal breakdown of time series (short term statistics, quarterly national accounts); e-mail to estat-methodology@ec.europa.eu
- [EUROTRACE](#) software package to manage data for imports and exports of goods

Data sources

- [United Nations: National Accounts Main Aggregated Database](#)
- [World Bank: Economic Policy and External Debt](#)
- [OECD: Data](#)
- [World Bank: World Development Indicators](#)
- [Eurostat: National Accounts statistics](#)
- [Statistical Commission for Africa \(STATCOM-Africa\)](#)

Classifications

- [UN Classifications registry](#)
- [International Standard Industrial Classification, Third Revision \(ISIC Rev. 3\) \(1990\)](#)
- [International Standard Industrial Classification, Fourth Revision \(ISIC Rev. 4\) \(2008\)](#)
- [Central Product Classification, Version 1 \(CPC\) \(1998\)](#)
- [Central Product Classification, Version 2 \(CPC2\) \(2008\)](#)

D.12

Price statistics



D.12. Price statistics

The chapter in brief

This chapter covers the full range of price statistics, concentrating on the main indicators. It starts with the policy applications of price data. The emphasis is on explaining the differences between the various measures of prices and inflation.

The main price indicators and activities are presented. These are the Consumer Price Index, Harmonised Consumer Price Indices, the Producer Price Index, Export and Import Price and Unit Value Indices, prices in the National Accounts and Purchasing Power Parities. Each section starts with an explanation of the applications of the data. Emphasis is placed on issues relating to developing countries.

The chapter then identifies the main national and international data sources for price statistics, which are relatively straightforward and accessible. The chapter then looks at how to examine the quality of price data.

The chapter concludes with recommendations on how to improve price statistics.

D.12.1. Policy applications of the data

Prices are used everywhere and every day to measure the relative value of goods and services in terms of money.

Price statistics are used to measure changes in the relative values of goods and services, to measure changes in the overall price level – inflation, price stability or disinflation – and to compare the overall level of prices between countries.

The most widespread use of price statistics is to measure inflation. There is no single measure of price changes that is useful for all purposes. Instead, various indices are used for different purposes, including the following:

- The Consumer Price Index (CPI);
- The Producer Price Index (PPI);
- The GDP (Gross Domestic Product) deflator.

The CPI is the most common measure of inflation because it is available monthly in most countries, it is often published rapidly and its meaning can fairly easily be understood. The CPI is used to alter the price of commercial contracts in response to inflation – this is called price indexation. Contracts that include price indexation clauses can include rents, wages, social protection benefits or financial instruments such as interest payments. The CPI is also a mean for evaluating changes in living standards.

The CPI is commonly used to represent the overall inflation rate of an economy, even though the index covers only consumer expenditure. The advantage of using the CPI is its frequency and rapidity of publication. Monetary policies, such as inflation targets, use the CPI for these reasons.

Many developing countries compile a Producer price index PPI on a monthly or quarterly basis. This is a measure of the cost of goods as they leave the factory. The PPI is therefore an advance or ‘leading’ indicator of inflation. However, it is more difficult to produce an accurate PPI than the CPI in many developing countries. The GDP deflator is more demanding still to calculate. It is produced on a quarterly basis in developed and many middle income countries and in some low income countries, usually on an annual basis. Its production always takes longer than the CPI or PPI.

Consumers, businesses, government and investors often need to understand whether a particular price, of petrol or telephone services for example, is increasing relative to other prices. In regulated sectors, there is a clear policy interest in analysing sector price changes relative to other sectors. Telecommunications is a good example, as are the prices of agricultural products (see [section D.17.2.2](#)). The CPI and PPI provide useful information for this purpose. Specific sector price statistics may also be published but this is not common in developing countries.

External trade policy proposals require price information as an input to analysing the potential impact of trade liberalisation, for example. Export and import price indices or unit prices provide the necessary information.

The CPI can also be used to compare inflation rates and hence inflation policy outcomes between countries.

When economies are closely linked and share common policies, such as a common currency, comparing inflation rates becomes very important. To ensure that the comparisons are meaningful, the participating countries must harmonise their consumer price indices. Harmonising price statistics means adopting a common nomenclature and methodologies; national consumption baskets can be maintained. The EU harmonised index of consumer prices is known as the HICP.

An HICP can also be used at sector level to compare the effects of changes in energy prices, for example, on each country’s price level.

Comparing price levels between countries is important for a variety of uses. One set of measures of relative price levels are known as purchasing power parities (PPPs). These are ‘exchange’ rates that are based on the actual cost of comparable goods and services. PPPs convert GDP and other measures of value into a common, technical currency, eliminating the effect of price level differences across countries. Currency exchange rates do not meet these policy needs because they are determined not only by price level differences, but by other factors as well. The PPP exchange rate is therefore a measure of the difference in the price level between countries.

International and regional policy purposes where PPPs are used include: ⁽²⁹⁾

- International poverty headcount index (World Bank)
- Comparing relative sizes of economies and estimating weighted averages of regional growth rates (IMF)
- Allocation of structural and cohesion funds (European Commission)
- Human Development Index (UNDP)
- Gender empowerment measures (UNDP)
- Health inequality assessment (World Health Organization)
- Assessing per capita expenditures in education (U.N. Educational, Scientific and Cultural Organization)
- Monitoring the welfare of children (U.N. Children's Fund)
- Designing effective aid programs (International Organizations)

Other uses of PPPs include:

Analysis of an economy's comparative advantage on prices and expenditures of goods or services (national policy makers)

Evaluation of investment costs and industry growth potential across countries

PPP adjusted cost of living allowances (users include EU, UN, OECD, NATO, international agencies, non-government organisations and multinational corporations)

Selecting the price statistics that are based on the most appropriate concept is particularly important in analysing open developing economies. This is because prices in different parts of the economy can change considerably relative to one another. For example, consumer goods prices might increase much more slowly than investment goods prices after a currency devaluation.

The policy profile of the CPI is among the highest of any official statistics because of its direct relevance to the population, its easily understood nature and its frequency. In many developing countries, the CPI is the only statistics series that is regularly updated on the National Statistics Institute's website. Newspaper reports of the CPI are common in many, perhaps most, countries. High or rising inflation as measured by the CPI is used as common basis for accusations of government policy failure, whether justified or not. It is also a common tactic to accuse governments of manipulating the CPI, once more whether this is justified or not. For these reasons, it is very important that the way that the CPI is measured is accurate and transparent.

The importance of the CPI to economic policy, its relative ease of collection and its public profile mean that it is usually accorded a high priority in developing countries. The PPI and related indices are also often given a fairly high priority, although achieving reasonable accuracy requires a considerable sustained effort. Import and export price indices often have a lower profile, partly due to the difficulties in their compilation. GDP deflator calculation is often accorded a fairly low profile in developing countries due to capacity constraints.

D.12.2. Concepts and definitions

D.12.2.1 OVERVIEW

This chapter covers any statistical activity dealing with prices, like Consumer Price Indices (CPI), inflation, Producer Price Indices (PPI), price indexes for specific products and services (e.g. Information and Communication Technology products), Purchasing Power Parities (PPPs), and international comparisons of GDP. Not covered here are interest rates, wages and currency exchange rates.

As we saw in the section above on uses of data, price statistics are designed to record price levels and changes in different parts of the economy:

- The Consumer Price Index (CPI) measures the changes over time in the price paid for a basket of goods and services that is representative of consumer expenditure;
- The Producer Price Index (PPI) measures the average change over time in the basic prices actually received by producers of goods and services.
- The GDP (Gross Domestic Product) deflator is a measure of inflation in the whole economy, taken from national accounts data.

Only the GDP deflator (and series related to it) is a measure of price changes in the economy as a whole. This comes at the cost of less frequent publication, a longer time needed for its preparation and increased complexity, hence its non-availability in some developing countries.

Most price statistics series are usually indices. A price **index** can be understood as an aggregate price of all the different items (goods and services) that are included in a representative 'basket'. In its base period a price index is given a value such as 100; index values for later periods indicate the subsequent average change in prices from the base period. The (CPI) consumption **basket** (or product list) is a weighted list of goods and services that are acquired or used by consumers, in the case of the CPI. The PPI basket is the weighted list of goods and services sold to domestic businesses. The **weights** are numbers that reflect the relative importance of each item as part of the total basket.

⁽²⁹⁾ World Bank: [Major uses of PPP results](#)

How are the basket and its weights set up? In the base year, a detailed survey or census is used to collect precise information about the goods and services exchanged and the prices paid or received for them. A household expenditure survey is usually used for the consumer price index. A business census or detailed survey is needed for the PPI. The goods and services bought or sold are organised into **elementary groups** of similar items according to a standard **classification**. Within each elementary group, **representative** items are selected. Their price movements, taken together, provide a good estimate of the overall change in prices for the elementary group as a whole. The price change of the elementary group is calculated as the average change in the prices of these items from the base year average. The price changes of each elementary group are progressively **aggregated** to the overall index using the expenditure weights.

The basket of representative goods and services needs to be changed to reflect changes in consumer preferences as well as the emergence of new products. Therefore, the basket should be updated as often as possible. In developed countries, the objective is to update baskets yearly. The data and resources required may be too onerous for some countries, so that updates occur at lower frequency. This issue is looked at in more detail in [section D.12.2.2](#) below.

The concept of ‘representative’ goods and services was introduced above at the level of the elementary group. Representative goods and services are selected for the baskets of national consumer and producer price indices. Where price indices are required to be **comparable** internationally, a weaker test is sometimes used to select goods and services than representativeness: their **relevance**. A good or service is relevant if it is commonly available in the usual markets. The characteristics of comparability and representativeness of goods and services are often not fully compatible.

The ideas of **random selection** and of **coverage** are important for analysing the quality of consumer price surveys. For a price survey to be unbiased, the price of any given exchange of goods or services must have an equal probability of being measured than any other. This type of selection is known as **random sampling**. However, prices can vary between different parts of a country and between rural and urban areas. Prices can also be different in various outlet types within the same region. Outlets for the price survey are therefore selected to reflect the value of transactions that are made in each region and each type of outlet. The information on the value of purchases made in each region and each type of outlet should be taken from a household income and expenditure survey, supplemented with other data sources. **Stratified random** sampling requires that the price of any exchange of goods or services has an equal probability of being measured, while allowing for different categories or strata of transaction.

The final concept that needs to be presented is timeliness: the rapid, consistent and predictable dissemination is perhaps more important in the field of price statistics than any other. Not all prices can be collected within the time horizon and estimations that use partial data are often compiled and disseminated. If estimations are used for the main CPI, then a **revision** may be published with the next month’s data, the revised figure being final.

D.12.2.2 THE CONSUMER PRICE INDEX

The international reference ‘[Consumer price index manual: Theory and practice](#)’⁽⁴⁰⁾, defines the CPI as:

“... an index that measures the rate at which the prices of consumption goods and services are changing from month to month (or from quarter to quarter). The prices are collected from shops or other retail outlets. The usual method of calculation is to take an average of the period-to-period price changes for the different products, using as weights the average amounts that households spend on them. CPIs are official statistics that are usually produced by national statistical offices, ministries of labour or central banks. They are published as quickly as possible, typically about ten days after the end of the most recent month or quarter.”

In most countries, the CPI is based on a monthly survey in which price data is collected from points of sale. This data is supplemented by prices collected from service providers, such as electricity, telecommunications and postal services. In developing countries, the almost exclusive method of price collection is that statistical officers physically visit the points of sale. The usual process is that data is collected on paper forms, entered on computer, transmitted to the national centre and checked at various stages. The procedures vary considerably between countries, the logistics often being complicated. The use of hand-held computers or telephones to enter data is not yet common in developing countries but has been pilot tested, at least.⁽⁴¹⁾

The consumer price index is so central to official statistics that it is worth a close look. The main text deals with the main issues from a general perspective. [Box 12.1](#) examines in more detail how a CPI is produced.

⁽⁴⁰⁾ Published 2004 by the International working group on price statistics, consisting of ILO/IMF/OECD/ UNECE/ Eurostat/ World Bank (p xix)

⁽⁴¹⁾ ‘[The Use of Hand-Held Computers for the Collection CPI Price Data](#)’, David Fenwick and Ben Whitestone, *African Statistics Journal*, Vol 8, 2009

The CPI basket of goods and services needs to reflect the detailed structure of all consumption of residents. The source of this information is a detailed national survey such as a household expenditure survey (HES). The Consumer price index manual notes that (pp 22-23):

“An HES is a sample survey of thousands of households that are asked to keep records of their expenditures on different kinds of consumer goods and services over a specified period of time, such as a week or longer. The size of the sample obviously depends on the resources available, but also on the extent to which it is desired to break down the survey results by region or type of household. HESs are costly operations.”

Household expenditure surveys are considered in greater depth in [chapter D.25 Income and Consumption](#). The key issue here is that the HES needs to be designed with the consumer price index in mind. The nomenclature of consumer goods and services adopted in the HES needs to be compatible with the national classification of consumption transactions, normally COICOP. Since updating the CPI is not the primary purpose of the HES, the desired outcome requires the two departments both to appreciate the need for effective coordination and to carry it out. This is not always the case.

In developing countries, HESs are undertaken and the weights recalculated at best every five years. The ‘Consumer Price Index Manual’ notes⁴² that the “2003 ICLS [International Conference of Labour Statisticians] resolution proposes more frequent updates of the weights, such as once every five years, to ensure their relevance. Countries which are experiencing significant economic changes and thus more rapid changes in consumption patterns should update their weights even more frequently, say annually.” Elsewhere, the manual suggests that adding small, targeted consumer surveys to the 5-year cycle can be beneficial.

The Consumer price index manual also discusses the use of independent national accounts data to supplement HESs. However, this is not usually applied in developing countries, due to the capacity constraints in national accounts that were discussed in [chapter D.11 ‘National Accounts, Economic Accounts, Non-Observed Economy’](#). National accounts data is one main source of the basket weighting system used in the HICP.

The CPI should, as we have seen, cover all consumer transactions in goods and services. The price survey should therefore represent the geographical distribution of consumer transactions. However, in some developing countries, only urban areas are covered or even only the major city. Limiting geographical coverage gives the CPI an urban bias, which is detrimental to its accuracy. This is especially the case in countries where prices can change at different rates in different regions.

Box 12.1: Producing a consumer price index

Consumer price indices provide regular measures of changes in consumer prices that need to be unbiased and comparable. There is a standard framework that allows countries to produce a CPI that reflects national needs and the available budget. This framework consists of:

- The classification of goods and services;
- The methods used to define the basket of goods and services and their weights;
- The calculations used to derive unbiased measures of the average price changes

The [Classification of Individual Consumption by Purpose \(COICOP, 1999 version\)](#) is the standard classification or nomenclature used to identify and classify all consumer transactions in goods and services. In the EU, a slightly modified version of COICOP is used for the Harmonised Index of Consumer Prices. These systems are tree-shaped or hierarchical: total consumption is represented by the trunk, sector aggregates of goods or services are represented by large branches and specific goods and services by the smallest branches.

Specific, representative goods and services are selected from a household budget survey to cover a large proportion of household expenditure. Similar goods and services are organised into ‘elementary’ groups, using the classification system. In economic terms, each elementary group is made up of goods and services that are close substitutes for one another.

The index for each elementary group of goods and services is calculated first. **Weights may be calculated or estimated from the household budget survey to represent the proportional expenditure on each item and / or to take into account the amount spent in different types of points of sale.** Weights may not be used at the elementary level if the household budget survey is not extensive enough to give sufficient knowledge about the relative amounts spent on each item.⁴³

The next step is to calculate price indices for higher level groups that cover a wider proportion of consumption. The overall consumer price index is calculated at the top level. At each level, the index is calculated as the weighted average of the changes in its components. The weights for these higher level aggregates are taken from the household budget survey. Regional consumer price indices are aggregated to a national index in much the same way.

At each level, the aggregate index is calculated as the arithmetic or (preferably) the geometric mean of the relative price changes of each of its components. **The method that is usually used for the CPI calculates the (weighted) average price change over time for a price of a basket of goods and services that was fixed in a base period, usually a base year.** This is known as a **Laspeyres price index**.

Although the CPI is often used as a measure of the cost of living, a Laspeyres price index is not a true cost of living index. This is because consumers are likely to buy more of goods and services that become relatively cheaper over time and less of those that become more expensive. As the base year becomes more distant in the past, the upward bias becomes greater. In some developed countries, the weights are now updated every year, a process called ‘chaining’. A true cost of living index can be calculated by using both the current year and the previous year as the base periods.

The CPI is validated, tabulated, analysed and disseminated. As the CPI results can be presented in a quite compact table, dissemination via internet is fairly common. In many developing countries, the CPI is the only statistical dataset regularly updated on an NSI website.

42 chapter 4, para 4.50 page 65

43 Consumer price index manual: Theory and practice paragraphs 1.124 – 1.126, page 15

Clearly, extending the price collection survey to a wider area is costly and may be difficult to organise, especially outside major urban areas. On the other hand, consumption transactions are more concentrated in urban areas. Hence, only a relatively small geographical extension of the survey outside of major urban areas may be necessary. It is possible to analyse whether price changes are significantly different between regions on the basis of a pilot price survey or other data sets.

Another type of restriction on CPI coverage occurs when only certain types of outlets are covered by the price survey: only traditional markets, for example, or only shops or supermarkets. Price levels and changes are often different in different outlet types. Full prices survey coverage therefore requires that all existing types of outlets, such as supermarkets, local or traditional shops, open markets, roadside stalls and itinerant hawkers need to be surveyed. As soon as internet-based sales become significant in developing countries, they also need to be included.

Although the CPI needs to have national coverage, there exists a wide range of policy questions for which measures of price changes are needed that concern parts of a country's economy. The most evident of these are regional price indices, as well as indices that cover only urban or rural expenditure. Where there exists a large disparity in income and wealth between the richest and poorest of the country, the much greater expenditure of the wealthy will dominate the overall CPI. In this situation, one possibility would be to prepare 'sub-indices' based on, for example, the expenditure baskets of the lower quartile, the middle two quartiles and the upper quartile of the population by income. Alternatively, some countries exclude the expenditure of the highest earners⁽⁴⁴⁾. In this case, the resulting index is better at measuring the cost of living as perceived by the majority of the population than it is at measuring overall inflation.

Many goods and services are only available or only widely purchased during part of a year: seasonal fruits and vegetables and clothing are two obvious examples. The problem of 'seasonality' can be addressed, for example, by replacing seasonal goods by those of other seasons. The monthly changes in year-on-year price differences of seasonal goods need to be applied. Chapter 22 of the Consumer Price Index Manual considers the problem at length.

A similar problem is that of quality change. For example, new models of mobile telephones, cars and computers have an improved performance than those they replace, in that consumers prefer the characteristics of the new product to the old ones. This is a particular problem in developing countries: new and improved products are continually introduced to the market and appropriate methods need to be applied.

Statisticians need both training and experience to know how to identify and apply an appropriate solution to these problems. Developing countries can find it difficult to keep these skilled staff within price statistics units that are mostly involved in relatively routine operations.

Compilation of the CPI is usually carried out using a software package based on a database. Some developing countries still use spreadsheets. The CPI software applies the methods used to average price movements. In some developing countries, the CPI compilation software was developed and implemented many years ago by external consultants using then-current databases. Even if the software was correctly documented and programmed, it may no longer be able to be updated and those using it may not understand its calculations. In a (theoretical) worst case situation, the classifications and basket weights may be fixed and the methods used to calculate the price aggregates not appropriate.

D.12.2.3 HARMONISED CONSUMER PRICE INDICES

Any discussion of the CPI needs to be completed by analysis of harmonised Consumer Price Indices. These are used for comparing policy outcomes and are particularly important for monetary policy in monetary unions. The Harmonized Index of Consumer Prices (HICP), which is compiled by the European Statistical System (ESS), is inevitably a point of reference for harmonised CPIs. The Eurostat publication, '[Harmonized Indices of Consumer Prices \(HICPs\) - A Short Guide for Users](#)' (2004) is a very useful source of information, including for this chapter. It is relevant for developing countries.

The EU HICP has a number of differences from some member states' previously existing national CPIs. These are generally due to the HICP's objective of efficiently and correctly informing monetary policy. Some EU Member States, including the UK and Ireland, maintain distinct national consumer cost of living indices. They do so because of existing legislation that links prices of financial assets such as bonds, as well as pension payments, to these indices. There is a cost in maintaining two sets of price indices.

In developing countries, harmonised CPIs are only embarked upon if there is an overwhelming policy need. The West African Economic and Monetary Union (Union Economique et Monétaire Ouest Africaine, UEMOA) requires a harmonised regional price index to inform its monetary policy. The [Indice Harmonisé des Prix à la Consommation \(IHPC\)](#) (English: Harmonised Index of Consumer Prices) has covered the eight UEMOA members since 1997. Data is available monthly on the UEMOA website. Further information is given in [Box 12.2](#).

⁽⁴⁴⁾ One example is the [UK Retail Prices Index \(RPI\)](#), which also excludes pensioner households who are dependent mainly on state benefits. The UK CPI, a component of the European HICP does not exclude these groups.

Box 12.2: West African harmonised index of consumer prices

The West African Economic and Monetary Union (Union Economique et Monétaire Ouest Africaine, UEMOA) operates a harmonised regional consumer price index (Indice Harmonisé des Prix à la Consommation, IHPC) to inform its monetary policy. Eight countries participate. The regional consumer price index, national indices and regional sector sub-indices are published on the UEMOA website monthly, although sometimes with a time lag of up to three months.

IHPC methodology is defined by UEMOA regulation 05/97/CM of 16th December 1997. The IHPC covers the main urban area of each participating country, based on the common West African Consumption Nomenclature (Nomenclature de Consommation Ouest Africaine, NCOA). The consumption weights currently in use date from a 1996 household expenditure survey of 1000 households in each main urban area. A common methodology is required to be used in all eight member states.

The definition of consumption is that of the national accounts. The reference population consists of all resident African households. The consumption basket covers at least 300 items, measured in at least 190 outlets through the urban area. It covers all types of retail outlet: markets, street stalls, shops, supermarkets, public and private service providers and others.

The UEMOA price index is calculated as the weighted average of CPIs of the UEMOA Member States. Each country's weight is equal to the share of its main urban area consumption expenditure in the total household consumption in the urban areas of all member states.

A renewal of IHPC weights, outlets and calculation methods has been planned since 2009, under the coordination of Afristat.

Sources: UEMOA IHPC website; Afristat IHPC website

The Common Market for Eastern and Southern Africa (COMESA) is adopting a Harmonised Consumer Price Index (HCPI-COMESA), based on a harmonised methodological and conceptual approach⁽⁴⁵⁾. The HCPI-COMESA will be used for measuring regional price stability and macroeconomic convergence and for international comparison of inflation. This objective indicator of regional price changes is intended to act as a pointer to the regional market for the investment community.

Regulations relating to key issues of the HCPI-COMESA were adopted in August 2010: product coverage; index formulae; data transmission and publications standards; coverage and sampling of outlet types; treatment of seasonal products and second hand goods; weights, the product sample and item substitution; and the application of the domestic concept. Month on month price changes for an interim HCPI-COMESA have been published on the COMESA website starting in 2011. A second stage HCPI-COMESA is expected in 2013. Technical papers, including a user guide, are available from the [COMESA's COMSTAT website](#).

D.12.2.4 THE PRODUCER PRICE INDEX

Producer prices are used to measure changes in the prices of intermediate goods and services in transactions between companies. The main use of the producer price index (PPI) is as an advance or leading indicator of inflation, although it does not always act as a leading indicator of the CPI. Another use of the PPI is to deflate company revenue streams in order to measure real changes in output. In the national accounts, the PPI is a data source used to deflate output or sales data and capital expenditure and inventory (stocks) data. PPIs and their components are also used to index long-term contracts, such as in materials costs. The PPI is used in current cost accounting. PPIs have supplanted the former Wholesale Price Indices (WPIs).

The reference document for PPIs is the '[Producer Price Index Manual: Theory and Practice](#)'. This was prepared by the Inter-Secretariat Working Group on Price Statistics (IWGPS) and published by the IMF in 2004 on behalf of the group. The Manual defines the PPI (p66) as 'an index designed to measure the average change in the price of goods and services either as they leave the place of production or as they enter the production process.' The relevant prices for a PPI should be the basic prices actually received by the producing establishment for sales within a country.⁽⁴⁶⁾

As with the CPI, the PPI is usually published monthly but in some countries quarterly. PPIs are usually available about two weeks after the end of the reference period. PPIs can be used to measure either output or input prices. As with the CPI, regional sub-indices can be calculated. An important sub-index is that covering the prices of investment goods and construction works, as these are used for the investment component in national accounts.

Producer prices are collected as part of the business survey cycle, which is described in [chapter D.13 Business Statistics](#).

Specific surveys are often carried out for key sectors such as agriculture and mining, for construction and for other regulated sectors. These surveys also provide source data for the PPIs.

The international product classification recommended by the Producer Price Index Manual for PPIs is the [Central Product Classification \(CPC\) version 2](#). (The EU equivalent is the Classification of Products by Activity (CPA)). The CPC Ver. 2 subclasses consist of goods and services that are predominantly produced in one specific class or classes of the ISIC Revision 4 classification of economic activities (see also [chapter D.13 Business statistics](#)).

Statistical issues that the PPI shares with the CPI include seasonality and coverage. Some developing countries restrict coverage to key industries. Coverage issues specific to the PPI include how intra-company transfer prices and capital formation on own account are treated.

⁽⁴⁵⁾ SADC is represented in the preparatory working groups, as is EAC. Tanzania, which is not a COMESA member, is expected to adopt the HCPI-COMESA in 2011.

⁽⁴⁶⁾ Producer Price Index Manual, Chapter 1, paragraph 1.201, page 37.

To the discussion of the business survey in [Chapter D.11](#) can be added that many lower middle income and lower income countries have significant difficulties in this area. Problems arise both in maintaining an up-to-date business register and in obtaining full and correct responses to the business surveys. The difficulties with obtaining responses to business surveys are partly due to a lack of understanding among business people of the need for statistics. They may partly also be due to concerns – justified or not – about misuse of the information provided. **The Guide recommends that plans to support PPI or business survey improvement should be critically reviewed whenever there is reason to suspect that the information could be misused.**

D.12.2.5 IMPORT AND EXPORT PRICES

The main uses of export and import prices are for the national accounts, to measure price changes in trade with the rest of the world, and as a short term indicator of changing prices in the external sector. For example, following a currency devaluation, a key policy issue is to know how quickly prices of imports are responding and affecting prices in the rest of the economy.

The international reference document in this area is the ‘Export and Import Price Index Manual: Theory and Practice’, published by the IMF in 2009 on behalf of the [Inter-Secretariat Working Group on Price Statistics \(IWGPS\)](#). This provides the following definition (Preface, page xiii):

“Export and import price indices (XMPIs) for a country measure the rate of change over time in the prices of exported and imported goods and services. An export price index (XPI) measures the rate of change in the prices of goods and services sold by residents of that country to, and used by, foreign buyers. An import price index (MPI) measures the rate of change in the prices of goods and services purchased by residents of that country from, and supplied by, foreign sellers.”

The Manual draws a key distinction between two methods of collecting prices for exports and imports:

- Export and import unit value indices, based on international merchandise trade statistics;
- Export and import price indices, based on establishment price survey data, as with PPIs.

Unit values are average prices of similar exports or imports that are calculated from price and quantity data.

The Manual recommends (page xiv) that:

“... countries using unit value indices with limited resources undertake a staged progression to price indices primarily based on establishment surveys. The initial stage will be to collect price data from establishments responsible for relatively high proportions of exports and imports, particularly those with a relatively large weight and whose

unit value indices are at first view inadequate measures of price changes... It may be that the progression is much quicker, to prepare for the formation of a customs union and loss of intra-union trade data. If the country compiles a producer price index (PPI), much of the technical skills required, and the basis for data collection, will be in place.” ⁽⁴⁷⁾

This appears to be a very challenging recommendation for many low income and some middle income countries. As explained in [section D.12.2.4](#) on PPIs, many developing countries find it difficult to collect data systematically from all but the largest companies. On the other hand, these major companies often carry out a large proportion of international trade. The strategy described by the Manual is based on starting trade price data collection with these companies.

The remainder of this section is concerned with examining how international trade statistics are used to derive import and export unit value indices. Collecting the prices of imports and exports can also be difficult for many developing countries to implement consistently. Although it is possibly cheaper, the Manual considers that this method does not yield as accurate results as collecting trade price data from trading companies.

Trade volume data (i.e. quantity in net mass or in supplementary quantity) is less widely collected and validated in some developing countries than is data on the money value of imports and exports. This situation could be more pronounced for exports than for imports in some countries because trade statistics systems are based on Customs reporting. Customs services have an inevitably greater interest in imports that attract tariff revenue than in exports. Moreover, since most tariffs are based on value, less attention is paid to volume data.

Problems with collecting the volume data that are needed to calculate import and export unit values can be addressed through improved formalised co-operation with Customs organisations. In common with other trade statistics, unrecorded trade has a detrimental effect on the quality of import and export unit values.

A standard check on developing country trade statistics is the use of [reconciliation or mirror trade statistics](#). These are valued differently from directly measured trade statistics ⁽⁴⁸⁾ and so their use is limited at best for export and import unit value indices.

⁽⁴⁷⁾ A contrary recommendation is made in the Producer Price Index Manual (page 68, paragraph 2.48). However, the ‘Export and Import Price Index Manual’ is more recent.

⁽⁴⁸⁾ cif for exports and fob for imports

D.12.2.6 PRICES IN THE NATIONAL ACCOUNTS

The national accounts and the SNA are covered in chapter D.11. National accounts use appropriate price statistics as 'deflators' to convert current price to constant price data series. Constant price data series are statistics where the effects of price changes between one period and the next have been removed.

Change in GDP, one of the most commonly quoted statistics, is a constant price statistic. Constant price GDP requires the use of a wide range of deflators based on price statistics, including the CPI, PPI, export and import price indices and investment price indices.

In developing countries where the full range of price indices is not available, the tendency is to substitute the CPI for the appropriate price concept. This introduces an inaccuracy into the national accounts and so into the measurement of GDP.

D.12.2.7 PURCHASING POWER PARITIES

Purchasing power parities (PPPs) are indicators of price level differences across countries. They indicate how many currency units a particular quantity of goods and services costs in different countries.

PPPs are primarily used as currency conversion rates in order to convert expenditures expressed in national currencies into an artificial common currency. This eliminates the effect of price level differences across countries and ensuring international comparability. They can also be used to analyse the differences in price levels between countries.

The International Comparison Program (ICP) is a worldwide statistical partnership. It collects comparative price data, compiles detailed expenditure values of gross domestic product (GDP) and estimates purchasing power parities (PPPs). The Eurostat-OECD PPP Programme is a distinct statistical partnership that cooperates closely with the ICP and provides the PPPs for European and OECD countries. Eurostat and OECD have jointly published a [methodological manual on PPPs. Data on comparative price levels and GDP PPPs](#) are published for the countries of the OECD region. PPP data is also available from [EUROBASE, Eurostat's free dissemination database](#).

The ICP is currently being implemented as a global initiative for the second time, with the reference year 2011. It will engage in methodological research and review, survey activities and data processing and analysis. The areas covered are price statistics, national accounts and fields related to estimating the PPPs of the world's principal economies. PPP data from the previous 2005 ICP round, as well as methodological and procedural papers are available from the [World Bank's ICP 2011 website](#).

The Global Office of the International Comparison Program is managed through the World Bank. Data from the 2005 ICP and previous rounds are available from their website. Regional programmes are managed by regional organisations. For example, [ICP-Africa](#) is managed by the African Development Bank (AfDB); ICP in Asia and the Pacific by the Asian Development Bank. ICP-Africa aims, in addition to producing PPPs, to strengthen national statistical capacity and assist countries to implement the 1993 System of National Accounts (SNA93). One application is a PPP-based poverty measurement research study that involves the compilation of a set of PPPs more appropriate for making the MDG USD1-USD 2/day poverty lines more operational.

ICP-Africa implementation is organised through sub-regional organisations: [Afristat](#), COMESA, ECOWAS and SADC. This procedure will enable uniform quality standards to be set, capacity building to be undertaken and the data becoming rapidly available locally for national analyses.

D.12.3. Sources of data and metadata

Data on the CPI is often the only national data series which is published on a developing country's website. The NSI is the usual producer of the CPI and PPI but in some countries these are published by the Central Bank.

The primary global source of price statistics is the [IMF International Financial Statistics publication and database](#). Line 63 covers Producer or Wholesale Prices. Line 64 covers the Consumer Price Index. Export and import unit values (lines 74 and 75) and direct export and import prices (line 76) compiled through the business survey, are included. The IMF is also the main source of metadata on price statistics through the [GDDS](#): specific standards exist for CPIs and PPIs and country methodologies are posted.

[IMF data for CPIs](#) is available via the World Bank.

The [International Comparison Program](#) data and metadata are available from the World Bank website.

On its website, Eurostat provides free data and methodological notes and guidelines on the [Harmonised Indices of Consumer Prices \(HICP\)](#) and [Purchasing Power Parities \(PPPs\)](#). Data and information on the Producer Price Index and the Import Price Index are available in the web section on [Short-Term Business Statistics](#).

The [OECD compiles and publishes consumer price indices, domestic and total producer price indices, and PPPs](#).

D.12.4. Analysing data quality and identifying problems

The quality of data depends on its coverage, the timeliness of the published figures and their compliance with the agreed methodology. For comparisons and analyses, international standards and classifications should be respected.

For each price index or activity, the following analysis should identify any problem areas in:

- Conducting the price survey
- Basket of goods and services and / or weights and / or classification
- Price survey coverage and / or sample
- Processing the price survey
- Tabulation, analysis and / or dissemination
- Metadata documentation

D.12.4.1 THE CONSUMER PRICE INDEX

1. Basic analysis of the Consumer Price Index is fairly straightforward:
 - Does the CPI appear every month at the same time? Does it take less than a month to publish after the end of the reference month ⁽⁴⁹⁾?
 - Is the CPI monthly release readily available, preferably both on paper and via the internet?
 - Does the CPI release give price changes over the last month and the last 12 months for both the CPI as a whole and for its major components?
 - In the CPI release, is there a clear explanation of the major price changes and a contact point for further information?
 - Is the previous month's figure ever revised? Are revisions clearly indicated?
 - Is there an annual publication that provides a long CPI time series?
2. The next analysis looks at the coverage and the relevance of the CPI survey:
 - Is there a methodological or 'sources and methods' document that is available? Is reference made to it in the monthly CPI release and the annual publication?
 - What is the geographical coverage of the price collection survey? Does price collection cover, for example, the largest urban area or areas; selected or all urban areas; or the whole country? Is the coverage clearly indicated in the monthly and annual publications?
 - What is the base year of the CPI weights? Is it more than five years ago?

⁽⁴⁹⁾ The EU legal maximum period for the HICP is 30 days; actual publication is much quicker. The EU example is the only publication period explicitly mentioned in the 'Consumer price index manual' (Chapter 12, Organization and Management, paragraph 12.66).

- What are the weights for the main components of the CPI and for the sub-components? Are these published in the monthly CPI release and/or the annual publication? When were the weights last updated? Are the weights based on a household expenditure survey or similar exercise?
3. A more detailed analysis looks at information that should be available from the methodological document. Failing this, the information should be forthcoming direct from the NSI or other organisation responsible for publishing the price statistics:
 - What legal texts and administrative regulations cover the CPI?
 - What classification is used for the basket of goods and services? Is it COICOP – version 1999 or earlier?
 - Was the source for the weights a household budget survey or other data?
 - What formulae are used for aggregating the price indices?
 - Are all types of sales outlets covered by the price survey? Are they selected randomly within each sales outlet type or purposively? How is the geographical sample constructed?
 - Are there clear rules for replacing seasonal or discontinued goods and for treating quality improvement?
 - Are second hand goods, house rentals and house ownership costs covered by the survey where these are important?
 - What documentation exists that covers data collection, transmission, error correction, data entering/saving and validation procedures?
 - Is the index compilation software used fully documented, especially for the validation procedures and the aggregation formulae?

D.12.4.2 THE PRODUCER PRICE INDEX

This section should be read together with the corresponding section from the business statistics chapter, [section D.11.4](#).

1. The basic analysis of the Producer Price Index is similar to that presented above for the Consumer Price Index.
2. Taking a first look at the coverage and the relevance of the PPI immediately requires a look at the business survey cycle:
 - Are there methodological or 'sources and methods' documents that are available for the business survey and for the PPI?
 - What is the base year of the PPI? Is it more than five years ago?

- What is the source of the weights for the components of the PPI? Was the source a business census? Was this business census carried out in the base year or earlier?
 - What classification is used for the PPI basket of goods and services? Is it CPC version 2, ISIC Revision 4 or another nomenclature?
3. A more detailed analysis inevitably examines the quality of the business survey. Most lower and lower-middle income developing countries have particular difficulties with these surveys. As with the CPI, the information needed should be available from the methodological document. Failing this, the information should be forthcoming direct from the NSI or other organisation responsible for publishing the price statistics:
- How are businesses / establishments organised into strata for business surveys? Does this reflect the structure of establishments / businesses in the country?
 - How is the business register kept up to date in between business censuses? Are the means of updating the register exhaustive or nearly so?
 - How many businesses / establishments are currently on the register in each stratum? Is this a reasonable number?
 - How are businesses sampled in each survey? Is the sample a random stratified one? Can previously sampled businesses be reselected, other than in the largest business stratum? Is the sample size realistic for surveys? How long are the questionnaires? Is the burden of response reasonable?
 - What is the response rate? What means, including sanctions, exist to ensure response?
 - How are small and informal establishments surveyed?
3. Survey processing and price index questions also need to be considered for the PPI:
- What legal texts and administrative regulations cover the PPI?
 - What formulae are used to aggregate the price indices?
 - Are there clear rules for replacing seasonal or discontinued goods and for treating quality improvement?
 - What documentation exists that covers data collection, transmission, error correction, data capture and validation procedures?
 - Is the index compilation software used fully documented, especially for the validation procedures and the aggregation formulae?

D.12.4.3 IMPORT AND EXPORT PRICES

Import and export unit value indices are calculated in some countries by using international trade value and volume data. Before calculating unit value indices, the basic data should be validated to eliminate outliers and errors. The methodology should be documented.

If any price indices have been established in developing countries that measure import and export prices through the business survey cycle, then the analysis for PPIs should be used here.

D.12.4.4 PRICES IN THE NATIONAL ACCOUNTS

Price data are incorporated in national accounts if they are considered to be reliable. Therefore, the exclusion of any price data as a national accounts data source should prompt questions about reliability or, alternatively, coordination.

The most likely price data to be omitted from national accounts is the PPI, which many developing countries substitute with the CPI. In low income countries with no investment goods industry, capital goods prices data can be drawn from import prices, except for construction. The replacement of import and export prices by the CPI would lead to a considerable distortion.

D.12.4.5 PURCHASING POWER PARITIES

The quality of the data for purchasing power parities in developing countries is a function of how the International Comparison Programme (ICP- see [section D.12.2.7](#) above) has been implemented in the country and region in question. The most effective way to collect PPPs is by integrating the process with the regular CPI exercise. This method is only undertaken by the Eurostat-OECD PPP Programme. Elsewhere, information on data quality must be drawn from ICP working papers.

Data quality will be higher with more frequent data collection, which should preferably be at least quarterly throughout the reference year. The products covered should represent most or all of the (2-digit COICOP) product groups. There should also be multiple goods or services measured in each of the product groups. A precise product or service specification is also an indicator that price measurement can be carried out effectively.

D.12.5. Improving sector statistics

An analysis can quickly identify the problem areas for price statistics compilation, processing and dissemination. Support is usually only requested when there is a need to update the goods and services basket and rebase the series.

Issues that may need to be addressed include:

- Are price statistics a priority? Has their modernisation been identified by an NSDS?
- Will updating lead to greater coverage and hence higher recurring costs?
- Do the surveys, logistics, processing, error correction and validation processes and the compilation software need to be updated?
- Do coordination issues exist with the household expenditure survey for CPI and the business survey unit for the PPI?
- Are there any capacity issues that need addressing, such as training or recruiting new skilled staff?

Box 12.3: Example – Improvement of price statistics in South Africa

Statistics South Africa thoroughly revised its CPI in 2009. The changes are extensively documented for statisticians and non-technical users.

The previous basket of goods and services had been used since 2002. CPI renewal started in 2005, when price collection by statistical officers physically visiting the points of sale replaced information provided by the stores (see also [section D.12.2.2](#)). Prices of additional goods and services were collected as a result of this change.

An Income and Expenditure Survey was conducted in 2005/06 over a twelve month period, using a diary questionnaire to record household expenditure. Survey results were published in 2008.

A Statistics South Africa CPI revision web page was used to inform the public about the changes, to obtain feedback and provide transparency. Documents were provided on the website, for example, to ensure contract continuity from old to new measures of inflation.

A draft of the new basket of goods and services was published on the website in September 2007. The basket is based on the COICOP classification (see [section D.12.2.2](#)). The weights for the new basket were published in July 2008.

Coverage is now 'all urban areas', as opposed to the previous coverage of 'historical metropolitan and other urban areas'.

Price collection on both new and old baskets was continued throughout 2008.

Methodological changes included the replacement of the interest rate on mortgage bonds by 'Owners' equivalent rent' as the indicator of housing costs, together with actual rents. 'Owners' equivalent rent' is collected during the quarterly rental survey.

The Ministry of Finance responded to the changes by adopting the CPI for all urban areas as its inflation target. The new index was released in February 2009 and is now used for the year on year rates of change in the CPI.

Source: Statistics South Africa: Consumer Price Index (CPI)

Box 12.4: Consumer price index software

Calculating a CPI is complicated. A database application is needed to calculate the indices. Some developing countries still use spreadsheets.

Current database tools are more flexible and, especially those based on the industry standard SQL, are likely to remain accessible. Many developing countries, especially middle income countries, therefore prefer to update their CPI compilation software with an application tailored to their specific needs. Alternatively, a number of CPI compilation packages are now available.

PIPS

One of these is [Price Index Processor Software \(PIPS\)](#), developed by the IMF but available from UNECE. This is based on the [Consumer Price Index Manual: Theory and Practice \(2004\)](#) and the [COICOP classification](#). PIPS calculates indices as weighted averages of the price changes for a specified basket of consumer products. The application consists of five parts: (1) Data Entry, Editing; (2) Data Diagnosis and Validation; (3) Item Weights Creating, Editing and Distribution; (4) Index Imputation; and (5) Tabulation and Reporting. The application offers alternative formulae for calculating price averages. It can use SQL or Microsoft Access databases.

Phoenix

Phoenix is a software package that has been developed by Afristat at the request of UEMOA and its Member States with the objective of replacing the CHAPO (Calcul Harmonisé des Prix par Ordinateur) software. It is intended to be an implementation of the paper «Guide méthodologique de l'Indice Harmonisé des Prix à la Consommation dans l'Espace UEMOA» but also applicable elsewhere, notably in the CEMAC zone, as well as for national CPIs. It is conceived to produce a stable zonal HICP. Phoenix allows for detailed definitions of the consumption classification structure, outlet identification, data collection questionnaires and management of the data collection schedule. Geographic classifications are specified at four levels. Data quality indicators are to be included at national level and below. A dissemination module is intended to produce configurable semi-automated reports. The application supports multiple languages.

IPC

Statistics Portugal has developed a software application for production of CPI in Portuguese-speaking countries. This application, IPC (Índice de Preços no Consumidor), has been successfully installed in Mozambique and Cap Verde. The IPC software draws on experiences from EU harmonization, with some adaptations to the specific environment of developing countries. Among others, the software covers organisation of field work, data editing, validation, estimation, quality adjustment, computation of special aggregates (core inflation, CPI for services, for goods, etc.). The software allows graphic analysis according to the COICOP classification and export of all results to Excel. It also provides functionalities for automatic production of press releases. More details are available from Statistics Portugal.

To find out more...**Recent and current initiatives and activities**

- [International Comparison Program](#)
- [COMESA Harmonised Consumer Price Indices](#)

Consumer Price Index (CPI)

- Inter-Secretariat Working Group on Price Statistics (IWGPS): [Consumer price index manual: Theory and practice \(2004\)](#)
- [Classification of Individual Consumption by Purpose \(COICOP, 1999 version\)](#)
- [COICOP / Harmonised Index of Consumer Prices](#)
- Eurostat: ['Harmonized Indices of Consumer Prices \(HICPs\) - A Short Guide for Users'](#)

Producer Price Index (PPI)

- IMF: [Producer Price Index Manual: Theory and Practice](#)
- [Central Product Classification \(CPC\) version 2](#)

Import and Export Prices

- IMF: [Export and Import Price Index Manual: Theory and Practice](#)

Purchasing Power Parities (PPPs)

- Eurostat and OECD: [Methodological manual on purchasing power parities \(PPPs\)](#)

Data sources

- CPI data is often available from National Statistical Institute websites.
- IMF: [International Financial Statistics](#)
- OECD: [Prices and Purchasing Power Parities \(PPP\)](#)
- Eurostat: [EUROBASE](#) database, [Metadata](#) and [RAMON metadata server](#)

D.13

Business statistics



D.13. Business statistics

The chapter in brief

Business statistics is a key input to both the quarterly and the annual national accounts, both in developed and in developing countries. They are also vital for analysing the value created and the employment in the different economic sectors, as well as the development of these sectors. New statistical challenges for business statistics are globalisation (e.g. international sourcing), the growing importance of business services and the focus on innovation and entrepreneurship. Although these issues may not be the priority in the lowest income countries, they are of interest and importance in more advanced developing countries. Business statistics are produced for different type of users, from based on data collected, either directly from the statistical units (enterprises) or from administrative sources (e.g. tax data). The two most central sets of business statistics are the structural business statistics (SBS), used mainly for structural analysis, and short-term business statistics (STS), used mainly for trend analysis. These two sets of statistics are distinct but interrelated.

This chapter covers a wide area of general business statistics, but does not go into statistics for specific sectors such as transport (see [chapter D.15.](#)) or agriculture, forestry and fishing (see [chapter D.17.](#)). The chapter starts by identifying the main policy areas for which business statistics are used. It then provides a users' view of the statistics involved, including a description of the different kind of business statistics (annual versus short-term, enterprise versus establishments, etc). The chapter continues by identifying the main sources where the data and information about methods used can be found. Finally, the chapter discusses how to analyse the quality of the statistics and concludes with advice on and examples of how to improve business statistics in developing countries.

D.13.1. Policy applications: what this data is used for

Business statistics are in great demand for economic analysis by a large number of users: international organisations, aid donors, national governments and policy-makers, central banks, financial markets and economic analysts, private sector companies, NGOs, media and the citizens of the country. Among other things, there is an increasing need for data on globalisation (e.g. international sourcing), business services and on innovation and entrepreneurship. Even in low income countries, sourcing of production and services from the globally acting enterprises are of growing importance. In more advanced developing countries, data on business services and innovation and entrepreneurship are also in increasing demand for economic analysis and policy formulation. These are some of the most dynamic areas of developed and more advanced developing economies, especially in terms of their potential for growth and employment creation.

- Business statistics describe the economy through the observation of units engaged in an economic activity. Business statistics may be used to answer such questions as: how much wealth and how many jobs are created in a certain economic sector; is there a shift from the primary

to and from the industrial sector to the services sector; in which specific sectors is this trend most notable; which countries are relatively specialised in the manufacture of which raw materials; what is the average wage of an employee within the energy production sector; how productive is the drink production sector and how does it fare in terms of operating profitability?

- Productivity is a key measure of economic efficiency, showing how effectively economic inputs are converted into output; profitability is a key indicator for measuring enterprise success. There are several business statistics indicators that allow an analysis to be made of productivity and profitability.
- Business demography statistics, via demography of the enterprises, allows analysis of the active population of enterprises, their birth, survival and death. Special attention is paid to the impact of these demographic events on employment levels. These data can be used for example to analyse the dynamics and innovation in different markets: for example, entrepreneurship in terms of the propensity to start a new business, or the contribution of newly born enterprises to the creation of jobs.
- **Business services** are a driver of the modern economy. Their labour-intensive nature has also attracted interest in their potential as providers of new jobs. Globalisation and the increasing outsourcing of basic production and business services to low-cost (low wage) developing countries are increasing the need for business statistics. Technological progress and the Internet are also important factors that have provided new production possibilities and new modes of supply.
- Business statistics include many of the key short-term indicators that are vital for analysis of recent and current economic developments and the development of monetary and economic policy, both in the developing countries themselves and in the global context.
- The profile and use of short-term business statistics is expanding rapidly. Information flows have become global, and the latest news release for an indicator may have significant effects on markets or decisions taken by central banks and business leaders. Indicators provided in the form of indices allow rapid assessment of the economic climate within an economy.

D.13.2. Concepts and definitions

Business statistics cover economic statistics across different sectors, statistics on economic activities of enterprises, business demography, business investment, business services, demand for services, industrial performance, enterprises by size class, industrial production, commodities, structure of sales and services, outputs of the service industries, non-profit institutions, etc.

The core indicators of business statistics are:

- **Outputs:** turnover, production value, value added
- **Inputs:** purchases of goods and services (incl. energy costs), personnel cost
- **Employment:** number of employees and other persons employed, number of worked hours
- **Investments:** gross investments in tangible goods.

The decision of whether business statistics should be prioritised over the development of other statistics critically depends on the situation of the country and on the state of the national statistical system (see [chapter C.5](#)). The priorities should be clearly defined and set within the frame of the national development strategy and the National Strategy for the Development of Statistics (NSDS) or similar (see [section C.6.1](#)).

D.13.2.1. THE MAIN TYPES OF BUSINESS STATISTICS

D.13.2.1.1. Structural (annual) business statistics (SBS)

Structural business statistics describe the structure, conduct and performance of economic activities, down to a detailed activity level. In most developing countries, the economic activities are defined according to the UN's [International Standard Industrial Classification of All Economic Activities \(ISIC\)](#) (Rev. 3.1 or 3.0 in most developing countries) or a national adaptation of this. Structural business statistics normally cover the 'business economy', which includes industry, construction and services. In most developing countries, the [non-registered \(or non-observed\) economy](#) plays a large role in the economy and should be addressed.

The purpose of structural business statistics is to analyse:

- The structure and evolution of business enterprises' activities;
- Production factors and other elements influencing business activity, competitiveness and performance;
- The regional, national and international development of businesses and markets;
- Business conduct;
- Small and medium-sized enterprises; and
- Specific characteristics of enterprises related to particular breakdown of activities.

In the EU, a harmonised system of [Structural \(annual\) Business Statistics \(SBS\)](#) has been developed. The SBS methodology is a valuable source of well-defined concepts and definitions, as well as of methodological approaches producing internationally harmonised quality business statistics. Subsets of the European SBS variables are available with a breakdown according to the size of the enterprise ([small and medium-sized enterprises \(SMEs\)](#)) and by region ([regional structural business statistics](#)). For further information on regional statistics, see [chapter D.18](#).

D.13.2.1.2. Short-term business statistics (STS)

Short-term business statistics include key short-term indicators that are vital for analysis of the current state of the economy and of economic trends. Amongst other, STS is a key information source for monetary and economic policy. Overall, the use of short-term business statistics is increasing rapidly and is widening to new areas of analysis and policy-making. Information flows have become global and the latest news release for an indicator may have significant effects on markets and on decisions taken by central banks, policy-makers and business leaders. Short-term indicators allow the rapid assessment of the economic climate within an economy. As an example, European [Short-term business statistics \(STS\)](#) provides eight of the nineteen [Principal European Economic Indicators \(PEEIs\)](#) (infra-annual macroeconomic indicators for the euro area and the EU).

D.13.2.1.3. Manufactured products statistics

Worldwide *statistics on manufactured products*, the [Industrial Commodity Statistics](#), are compiled by the United Nations based on national data. The statistics are classified according to the UN's [List of Industrial Products](#), which, as far as possible, is based on the definitions of the [Central Product Classification \(CPC\)](#) and the [Harmonized System \(HS\)](#). An important issue is that *national or regional product classifications should be compatible with international product classifications*, and in particular with the classifications used for trade statistics (e.g. HS, SITC). This makes it possible to combine production data with trade data for analysis of product markets. In the EU, the [Prodcom](#) statistics on products from mining, quarrying and manufacturing activities are based on the [Prodcom product list](#).

D.13.2.1.4. Other business statistics

The objective of statistics on the structure and activity of foreign affiliates (FATS) is to provide a basis for the assessment of the impact of foreign-controlled enterprises on the national economy. In developing countries, such enterprises can have a large influence on the economy. It is therefore of great interest to analyse the structure and ownership of such enterprises, as well as their activities within the country. A foreign affiliate is defined as an enterprise in a country which is under the control of an 'institutional unit' not resident

in the country. The FATS data also facilitates monitoring the effectiveness of regional common markets and the integration of economies within the context of globalisation. Examples of FATS statistics and the methodologies applied can be found in the [EU foreign controlled enterprises \(FATS\) statistics](#).

A globalisation trend that has received a great deal of political and media attention is the increase in outsourcing of production and services from developed countries to low-cost developing countries. This is closely related with the industrial restructuring which has been one of the main economic developments in Europe and other developed countries in recent decades. This is seen both in the context of deindustrialisation and concerns regarding social and environmental standards. Statistics on international sourcing provide policy makers at national and international level with information on the reasons for, the extent of, and the consequences of, international sourcing. [The EU statistics on international sourcing](#) presents this from a European view; in developing countries, such an approach must be adapted to their reality and their dependence on international sourcing.

Outsourcing, subcontracting and globalisation of the production have seen the [demand for services](#) increase. Enterprises use service providers both for non-core activities (e.g. transport, marketing services) and for parts of their core activities to increase flexibility (e.g. labour recruitment services, international sourcing to low-cost countries). Other reasons include technological developments, which allow services to be delivered directly to customers anywhere in the world (e.g. internet sales, call centres, helpdesks, software development, billing services, etc.). These activities are very dynamic, and their labour-intensive nature has also attracted interest in their potential as providers of new jobs. [Business services statistics](#) provide information on service providers, types of service purchased, the location of the main service provider, barriers to purchasing services and so forth, as well as information on service related investments in intangibles (such as tradable rights, ICT, R&D, marketing and sales). [EU business services statistics](#) provide an example of how such statistics can be set up.

While [business demography statistics](#) provide data on enterprise births, survivals, deaths and related changes in employment, the purpose of [factors of business success statistics](#) is to shed more light on factors that support or hamper the success of newly born enterprises. Such statistics provide information on the motivations for starting up a business, barriers and risks encountered during the first years of existence, the current situation of the enterprise, and business plans for future development. This information is relevant for better targeted policy-making to boost entrepreneurship.

D.13.2.2. THE FRAMEWORK FOR BUSINESS STATISTICS

[Statistical units](#) are an essential component of the integrated framework of business statistics. With the use of common definitions of statistical units, integrated statistical information can be provided. The general practice is to use [the enterprise](#) as the statistical unit (observation unit). An enterprise may carry out one or more economic activities at one or more locations.

A [classification of economic activities](#) is designed to categorise data for the 'units of activity'. A unit of activity can be an individual factory or a group of factories comprising an economic entity (such as an enterprise or a division within a larger enterprise). The international reference classification of economic activity is the UN's [International Standard Industrial Classification of All Economic Activities \(ISIC\)](#). ISIC is currently available in Revision 4, but most developing countries use ISIC Rev. 3.1 or Rev 3.0 or a national adaptation of one of these. ISIC presents a coherent and consistent classification structure of economic activities, based on internationally agreed concepts, definitions, principles and classification rules. It establishes a comprehensive framework for collecting and reporting economic data, in a format designed for economic analysis, decision-taking and policy-making. Some regional variants of ISIC are also established, such as the [EU's Statistical Classification of Economic Activities in the European Community \(NACE\)](#) and the [North American Industry Classification System \(NAICS\)](#).

The availability of business registers is vital to the compilation of both short-term and structural business statistics. Business registers is a key tool for the preparation and co-ordination of surveys, and for grossing up survey results. The [Wiesbaden Group on Business Registers](#) is an international expert group under the umbrella of the UN Statistical Commission. It is engaged in further development of business registers, survey frames and associated topics. One of the major topics for the group's current work is the challenges for business registers resulting from globalisation. In particular, the Wiesbaden Group is currently focusing on business registers and business statistics in developing countries. The European Statistical System has a leading role in the development of [business registers](#) and can serve as inspiration and basis. In particular, the Eurostat [Business Registers Recommendations Manual](#) provides a comprehensive overview of good practices in all key areas of statistical business register development.

D.13.3. Sources of data

D.13.3.1. COLLECTING AND COMPILING BUSINESS STATISTICS

The most common way of collecting data on businesses is for the NSI to carry out a (stratified) survey amongst registered enterprises. Samples for business surveys are drawn from a *sampling frame* such as a business register, ideally a register established and maintained specifically for statistical purposes. However, in many developing countries the 'informal sector' is of importance for the economy as a whole. The NSI should develop a strategy for covering value created and the employment of the 'informal' economy and include this in their national statistical strategy. When no business statistics are published by the NSI, there may be other sources for data on businesses:

Box 13.1: Alternative sources for data on enterprises

- The NSI: Data may not be published when the quality is not acceptable or the confidentiality of information of individual business must be protected. Information originally collected for other purposes can sometimes also be of interest;
- Tax authorities: Quite detailed data on businesses are often held by the tax authorities and are normally a secure long-term source of business data. However, it will only cover registered businesses, and the definition of variables may differ from the ones required for statistics. There may also be quality issues, as businesses will seek to minimize taxable income. Tax data provides NSIs with information for complementing survey information, for quality checking and for grossing up;
- Line ministries and other administrations: Within the scope of their responsibilities, line ministries and other administrations often hold data on enterprises in specific sectors. The coverage, definition and reliability issues are similar to those of tax data. Data on publicly owned enterprises are often held by the responsible ministry or administration;
- Business federations: These often hold information on their members. However, such information does not cover non-members, and sector federations only hold data on business in their own business sector;
- Annual reports and public accounts of enterprises: Such accounts can be required by law or by stock exchange rules (for enterprises listed on the stock exchange). Such information is generally standardised (although simplified for small enterprises), and can be used to complement, verify and aggregate survey information;
- Credit information providers: These hold vast amounts of enterprise data drawn from public sources, quality assured and analysed. However, such data may be quite costly to acquire.

Small and medium-sized enterprises (SMEs) are central to economic development and employment in most countries. Small enterprises are widespread in the informal economy, and these are not covered by surveys based on business registers. Even registered SMEs are commonly exempt from reporting obligations or report according to simplified rules, and are often represented by only a minor proportion in stratified business surveys. Given the diverse and often incomplete and deficient state of SME statistics, careful analysis of the raw data is important before attempting to draw policy conclusions. SME statistics are a sub-set of business statistics for the whole economy and should not be seen in isolation.

For business statistics, huge gains in efficiency and data quality can normally be realised through the use of administrative data, either as data source, as basis for estimations or as benchmark for validation. A close cooperation and coordination between the NSI and other administrations that collect enterprise data, in particular the tax authorities, is therefore highly recommended. The advantages and prerequisites of the different data collection modes and sources are discussed in detail in [section B.2.2.1](#).

The annual *Structural Business Statistics* are mainly based on data obtained directly from the enterprises via statistical surveys, or data coming from administrative sources (e.g. taxation data (incl. VAT data), data from business registers, etc.).

No matter what the source is, *Structural Business Statistics* describe the economy through the observation of units engaged in an economic activity. An enterprise carries out one or more activities at one or more locations and may comprise one or more legal units. Enterprises that are active in more than one economic activity are classified under the activity class (ISIC or national classification) that corresponds to their main activity, normally the one that generates the largest amount of value added.

Main indicators of the *Structural Business Statistics* are: Number of enterprises, persons employed and employees; Turnover, production value, value added at factor cost and gross operating surplus; Purchases of goods and services; Change in stocks of goods and services; Personnel costs; Gross investments and sales of tangible investment goods.

Most of the *Structural Business Statistics* is broken-down by sectors (industry, construction, trade and services), by region (according to the location of the enterprises) and by size class (according to the number of the employed personnel). Structural business statistics are used as one of the key inputs for the compilation of production-related annual *National Accounts* statistics.

Short-Term Statistics indicators are tools for formulating and monitoring the economic and monetary policy. They generally have a monthly frequency and measure recent developments in each country. STS data are in great demand for economic analysis by national policy makers and central banks, international organisations and donors, private companies, financial markets, the media and other analysts.

STS indicators provide information on how prices or turnover have risen or fallen in the previous month, the previous quarter, or the previous 12 months. These indicators are provided in the form of indices, which allow the rapid assessment of the economic climate within an economy. STS indices cover four major domains: industry, construction, retail trade and other services. These activities are defined in relation to a classification of activities, i.e. ISIC or national classification. Main indicators covered by STS are, dependent on the major domain: Production and/or turnover; Number of persons employed; Hours worked and gross wages and salaries (industry and construction); Prices. For the industry domain, new orders and turnover are broken down by domestic and non-domestic. For construction, production

is broken down by production of buildings and civil engineering. In addition, construction costs and construction permits data are collected.

Basically, STS data are derived from business surveys. However, also administrative data such as VAT data (which are normally collected with monthly, bi-monthly or quarterly frequency) or other sources outside the national statistical systems are used, either as data source or basis for estimation, or for complementing or validating the survey data.

Box 13.2: Indexes

An index measures trends in a time-series. In the case of short-term business statistics, the indices represent the movements in an indicator between a base year or month and the current period.

The index average is 100 for the base period; an index of 105 means that there has been a 5 % increase since the base period while an index of 97 means that there has been a 3 % decrease compared with the base period.

Many economic activities are influenced by regular variation due to seasons or social conventions (e.g. weather effects for construction). Data should be adjusted to make them comparable from one month to another. A seasonally adjusted series is a time-series from which the effects of regular seasonal influences have been removed. In general, the seasonally adjusted series are smoother than the gross series and this further facilitates month-to-month comparisons. For some economic activities, the number of weekdays has a significant impact on the level of a series. For example, monthly activity in retail trade depends on the number of Saturdays during the reference month. Series are working-day adjusted when the effects linked to the number of days of different types in the reference month are removed from the series.

Most STS indicators are adjusted for working days and/or seasonally adjusted by using **TRAMO (Time series Regression with ARIMA noise, Missing values and Outliers)** and **SEATS (Signal Extraction in ARIMA Time Series)** software, once the influence of working days or seasonal variations has been detected.

Statistics on industrial products generally covers the products from mining, quarrying and manufacturing activities, in some countries also covering recycling products or utility products. The purpose of the statistics is to report, for each product, how much has been produced in the reporting country during the reference period. This means that the product statistics relate to products (not to activities), and they are therefore not directly comparable with activity-based statistics such as Structural Business Statistics. Product statistics differ from external trade statistics in that the latter can be thought of as event-based: each time a product crosses a border it is registered as a 'trade', and if the same product crosses borders several times it is recorded as several trades.

The product statistics are normally annual, but may for specific industries or products be more frequent. Products are classified according to a standard classification, e.g. an international classification such as the **Harmonized System (HS) or the Standard International Trade Classification (SITC)**, or (most frequently) a national adaptation of such international classifications. These classifications normally are either a classification for international trade (such as the HS and SITC) or have a close connection to these, so that production data can be combined with import and export data for analysis of product markets. The product statistics are normally based on surveys of producing enterprises, requesting data on the physical volume of production and the value of production.

Business demography statistics present data on the active population of enterprises, their birth, survival and death. Special attention is paid to the impact of these demographic events on employment levels. This data can be used to analyse the dynamics and innovation of different markets: for example, entrepreneurship in terms of the propensity to start a new business, or the contribution of newly-born enterprises to the creation of jobs.

D.13.3.2. INTERNATIONAL SOURCES FOR BUSINESS STATISTICS

In cooperation with the OECD, the statistics branch of the **United Nations Industrial Development Organization (UNIDO)** compiles detailed key industrial statistics with worldwide coverage. UNIDO's Statistics Unit also provides technical assistance to developing countries in strengthening their capacity for conducting industrial surveys, maintaining business registers and short-term statistical indicators and carrying out data analysis of industrial performance. UNIDO also designed the special National Industrial Statistics Programme (NISP) package for developing systems to collect basic industrial statistics on priority data items.

UNIDO maintains the worldwide industrial statistical databases **INDSTAT4**, **INDSTAT2** and **IDSB** and produces Statistical Country Briefs, all available on the **UNIDO statistics website**. The key statistical publication is the **International Yearbook of Industrial Statistics**. UNIDO strongly emphasises the quality of the statistics, in terms of international comparability, concepts and definitions, classification and coverage.

The **INDSTAT4** database contains data by country, year and ISIC at the 3- and 4-digit levels of ISIC (Revision 3), from 1990 on. The **INDSTAT2** database covers, for 161 countries, historical time series data from 1963 to 2007 for the manufacturing sector at 2-digit level of ISIC Revision 3. The **IDSB** database contains data broken down by country, year and industry at 4-digit level of ISIC: one dataset according to ISIC Revision 2 and one dataset according to ISIC Revision 3. The data come from output data reported by NSIs, together with UNIDO estimates for ISIC-based international trade from the **UN Commodity Trade Database (COMTRADE)**.

The [United Nations Statistics Division \(UNSD\)](#) produced the structural industrial statistics before these were taken over by UNIDO; UNSD continues to maintain general industrial statistics information for mining activities and utilities activities (i.e. production and distribution of electricity, gas and water). UNSD is also the main source for worldwide statistics on manufactured products, the [Industrial Commodity Statistics](#). The statistics cover physical quantities of major industrial products, classified according to the UN's [List of Industrial Products](#). Furthermore, the UNSD produces monthly, quarterly and yearly indices of industrial production, collected through a questionnaire sent to NSIs. The indices are compiled according to the 2-digit level categories of ISIC Revision 4 (for countries that do not yet use ISIC Revision 4, data are still collected according to ISIC Revision 3).

Eurostat is also an important source of business statistics. Within the frame of the accession process, Eurostat has a close cooperation with the [Candidate and Potential Candidate Countries](#). With the support of Eurostat and the European Statistical System (ESS), these countries are working to bring their business statistics systems in line with the *acquis* in this field and ESS standards. Furthermore, through the European Neighbourhood Policy (ENP) Eurostat is also supporting and cooperating with the NSIs in the [ENP East](#) countries and the [ENP South](#) countries in developing their statistical systems.

D.13.4. Analysing data quality and identifying problems

D.13.4.1. SPECIFIC QUALITY ISSUES FOR BUSINESS STATISTICS

Much of the discussion on the reliability of statistics focuses on issues of "data quality". Without going into too much detail, it is sufficient to say that it covers a number of dimensions, including accuracy, timeliness, relevance, accessibility and comparability (this is discussed in detail in [section C.5.3](#)).

User relevance of business statistics

A central question concerning the quality of statistics is whether they are 'fit for purpose'. In other words, are the statistics meeting the information needs of users (and potential users)? This can only be answered through consultations with users of the statistics concerned, be it through user surveys, direct consultations or permanent advisory groups of users. Key users of business statistics are national accountants and policy-makers and administrators involved in economic development policies. As economic development is seen as one of the central pillars of overall development, e.g. in the fight against poverty, donors, international organisations and NGOs also have a keen interest. Furthermore, business statistics is a key information source for economic analysis, involving businesses themselves, financial analysts, researchers, media and interested citizens.

Timeliness and punctuality of dissemination

For business statistics in general and short-term statistics in particular, the issue of timeliness and punctuality of publishing statistics is of great importance. Short-term statistics are used to analyse the business cycle and current economic trends, and the publication of new statistics can have rapid and significant impact on markets. The users' demand for up-to-date figures that are published frequently and on time at pre-established dates can best be met by establishing a release calendar for the statistics. A challenge in many developing countries is to set up and follow a release calendar for official statistics, both for business and other economic statistics and for other statistical areas. This is closely related with the issue of dissemination: it is not sufficient to have "good business statistics" stored somewhere inside the statistical office; they must be available in an appropriate form to all potential users. A good practice example is the [Eurostat free dissemination database](#), which is the main repository of business statistics in Europe.

The importance of the statistical unit for business statistics

Statistics for a given characteristic have the greatest usefulness when they enable reliable comparisons across countries and over time. Both are sometimes limited by methodological differences between countries and changes in methodology from one year to another. A main issue on business statistics is related to the definition of statistical units, the variables and terminology. The recommended [statistical unit](#) is the enterprise; however, for some purposes data is collected and disseminated by establishment or local unit. When data are made available to users, it should be clearly stated to what the data refers to. The enterprise is often defined as the Legal Unit (i.e. the legal entity), even in developed countries, as this makes the enterprises easy to identify and handle across different registers and sources. However, this should be done with caution, as changes in economic circumstances and legislation (especially tax legislation) can lead to split and/or mergers of legal units without any changes in the real production structure.

The problem of varying terminology

Terminology used in business accounting may vary greatly from one country to another. For example, while the word "turnover" means total sales in the UK and many European countries, for OECD "turnover" means the sum of gross sales plus some other incomes but excluding revenues from rental of real estate, contributions and gifts, etc. In the [Generally Accepted Accounting Principles \(GAAP\)](#) of the United States, "turnover" is the number of times an asset is replaced during a financial period, often used in the context of inventory turnover or accounts receivable turnover. In securities, for either a portfolio or exchange, "turnover" is the number of shares traded for a period as a percentage of the total shares.

The effects of accounting rules

Business accounting principles may be the same in many countries, but actual accounting rules vary from one country to another. These rules affect the adjustment required for data collected from business accounts in order to use them for economic statistics. For example:

- A. Some countries require accountants to expense expenditures on software while others countries allow capitalization. In countries where capitalisation is not allowed, the expenses need to be imputed as output, which is then treated as gross capital formation.
- B. In business accounting, net assets are mostly valued as the sum of the historical value of gross capital formation less depreciation (based on historical value). One cannot derive gross capital formation by deducting values of assets in two adjacent periods, as assets in business statistics should be valued at replacement costs.

A particular issue is the time period covered by business statistics versus the accounting periods. Annual business statistics generally follow the calendar year. However, some countries prescribe (or at least permit) accounting years different from the calendar year, e.g. from 1 May to 30 April of the following year. This causes problems for using tax and business accounts data as a basis for business statistics.

Box 13.3: Example on solving inconsistency and missing data

The following example gives an indication how the inconsistency of data can be solved and the missing data can be estimated.

Inconsistency

We have data about the total Value Added Tax (VAT) for ISIC Rev. 3.1 class 5010 'Sale of motor vehicles' and data on turnover is available for a given period of time. Knowing the level of taxation for that specific type of retail trade we can compare the VAT to Turnover ratio and detect the possible inconsistency:

- The VAT value is 200 and the Turnover value is 2000: VAT/Turnover = 10%;
- However, the VAT level for this economic activity is 5%

The data should be checked using any supplementary information available, such as turnover data from public financial reports or turnover per employee ratio. Such ratios are constructed using information for similar businesses for which both variables are available and considered reliable. The average turnover per head ratios are then calculated based on economic activity and size. Turnover per person ratios can also be used to estimate the missing variables. In this specific case of motor vehicles, also data from national vehicle registration authorities can be a valuable information source for checking and completing the statistics.

Using different surveys and sources to improve the business statistics

In spite of all efforts to reduce the response burden on businesses, it is inevitable that some businesses will have to respond to more than one business survey. Especially the largest enterprises with an important impact on the national economy will be included in most business surveys. In addition, incorporated businesses are normally obliged to publish their key economic data. As long as it is possible to identify individual businesses, e.g. through specific identification numbers (VAT number, tax number), NSIs should utilise all available information on a business. By cross-checking surveys and other sources for validating data and impute missing values, significant gains in quality can be made. Some advanced NSIs have constructed integrated databases where all sources for data on businesses are directly available for cross-checking. However, gains in quality can be achieved by simply giving the staff responsible for a specific survey access to the paper questionnaires for the same business in other surveys and/or to the business' annual report.

D.13.4.2. THE INFORMAL ECONOMY

An important issue is the **informal sector**, which in some developing countries can record a substantial share in the total economy and engage a large proportion of the workforce. Generally, the informal sector activities provide goods and services whose production and distribution are perfectly legal. In some countries, a large part of informal sector enterprises are actually registered in some way, or pay taxes, even though they may not be in a position to comply with the full range of legal and administrative requirements.

According to the 15th International Conference of Labour Statisticians (ICLS), informal sector enterprises are characterised by small size in terms of employment, non-registration of enterprises and non-registration of employees. Only enterprises without any of its employees registered should be counted to the informal sector.

The **UN Expert Group on Informal Sector Statistics (Delhi Group)** has endeavoured to harmonise national definitions of the informal sector on the basis of the framework set by the international definition. The Delhi Group has recognised that there are limits to harmonisation; nevertheless, on the basis of the largest common denominator, the Group was able to identify a subset of the informal sector that could be defined uniformly and for which countries could make internationally comparable data available. Accordingly, the Delhi Group concludes that:

“Since the informal sector manifests itself in different ways in different countries, national definitions of the informal sector cannot be fully harmonised at present. International agencies should disseminate informal sector data according to the national definitions used. In order to enhance the international comparability of informal sector statistics, they should also disseminate data for the subset of the informal sector, which can be defined uniformly”

D.13.5. Improving sector statistics

This section focuses on actions to reduce costs and the burden on respondents, the NSIs and other statistics producers. All new statistical requirements increase the burden on data providers (i.e. enterprises) and on the producers of statistics (NSIs). Given these pressures at national and international level, this must be tackled by each country and the most suitable solutions in the national context sought.

Use of administrative data

Businesses usually have an understanding of the reasons for supplying data for registration and taxation purposes, even if they do not like doing so. However, they often see statistical data requests as an extra, less necessary, burden. There is consensus that one of the best solutions is to use already existing data as far as possible, in particular administrative data. However, the information contained in administrative sources is not primarily collected for statistical purposes. Administrative data sources of special interest to business statistics are:

- Value Added Tax data;
- Business/Profit Taxation data;
- Register of Chamber of Commerce and National Business Registration Authorities;
- Central Bank records;
- Social Security data, etc.

The use of administrative data to produce statistics has both benefits and limitations. One of the main benefits is that data already exists and is (relatively) complete for the business population covered. The use of administrative sources also eliminates survey errors, removes (or significantly reduces) non-response, and provides more accurate and detailed estimates for various sub-populations.

Because the administrative data are collected according to administrative concepts and definitions, there are normally differences between these and the statistical concepts. Therefore, the issue of matching and calibrating data is very important and resource consuming. The classification systems used within administrative sources may be different to those used in the statistical world, and these sources may not cover the whole population of interest (e.g. enterprises exempt from VAT are not covered by the VAT data). For *Short-Term Statistics*, the administrative data may be available too late in order to produce fresh data.

To resolve such conflicts it is necessary to establish priority rules, by deciding which source is most reliable for a particular variable. Once a priority order of sources has been determined for a variable, it should be possible to ensure that data from a high priority source are not overwritten from a lower priority source. This process is made much easier if source codes are stored alongside variables for which several sources are available.

Another important issue is the problem of missing data, which is not unique to administrative sources. It can also be due to full or partial non-response to statistical surveys, or even to the removal of data values during the editing process. However, with administrative sources, the issues can sometimes be different, particularly as the problem of missing data can often be more systematic.

Often, problems concerning incomplete coverage of the statistical population or missing information on certain issues can be addressed through mixed mode data collection. This means that the administrative data is used as far as possible, but that information which is not available in the administrative data is collected by survey.

Business registers

To identify the businesses to be included in a survey, a consistent and reliable 'survey frame' is needed. This is normally a business register of some sort, ideally established or adapted for statistical purposes. However, in developing countries such a well-maintained and updated statistical register is normally not available. In this case, one should in the short term make use of any business registers available and seek to combine and harmonise them as far as possible. However, registers do not cover the informal economy. In the longer term, a business register for statistical surveys should be established. Critical is the sustainability of the register, i.e. that proper maintenance and update procedures and the associated resources are in place.

The informal economy

In many developing countries the 'informal sector' is of vital importance for employment and for the value created in the economy. However, the very nature of the informal economy makes it difficult to capture. The NSI needs to develop both a short term and a longer term strategy for capturing the activities of the 'informal' economy. This strategy should be integrated in the national statistical strategy. Box 11.5 presents best practices for collecting data on the informal economy. However, the approach should be adapted according to national priorities and the resources available.

Box 13.4: How to collect information on the 'informal' economy?

The best way to measure the informal sector critically depends on the aims of the measurement. The OECD handbook [Measuring the Non-Observed Economy](#) provides valuable guidance on how to collect information on the 'informal' (non-observed) economy, dependent on what the information should be used for.

If the aim simply is to monitor the informal sector employment in number as well as the characteristics and conditions of the work, the OECD Handbook recommends to:

- Add a few questions to the Labour Force Survey or similar household survey to identify informal sector work. (However, informal sector employment is often the second job of the interviewed person, e.g. farming for the own family's needs. The interviewers should follow up on such issues in the interviews.)

If the aim is to collect detailed structural information (e.g. number and characteristics of enterprises, production, employment, income, capital, etc.), a dedicated informal sector survey should be carried out:

The OECD Handbook recommends a mixed household-enterprise survey as the most suitable approach to collect comprehensive data about the informal sector. In a mixed household-enterprise survey, a sample of households is selected and each household is asked whether any of its members is an *entrepreneur*, i.e., the sole proprietor of, or a partner in, an unincorporated enterprise. Data for the enterprises identified (or for a sub-sample) are then collected.

Such a survey might be an independent survey, a module attached to a household survey or an Integrated survey. The design of the survey is multi-stage:

- Select a sample of geographical areas;
- List or interview all households in these sample areas and identify the owners of informal enterprises;
- Select the households with owners of informal sector enterprises;
- Carry out main interviews of these households and enterprise owners.

An alternative to the mixed household-enterprise survey is an enterprise survey. However, this requires a 'sampling frame', i.e. a business register comprising also the informal enterprises or a recent census of the informal economic units.

Box 13.5: Method for measuring the informal sector: 1-2-3 surveys

The economic activity of the informal sector is not recorded through standard business surveys. Measurement of the informal sector has to consider and solve two main problems:

- The ambiguity and unclear delineation of the informal sector;
- The difficulty in capturing quantitative data for the informal sector.

1-2-3 surveys provide a precise definition and a way to measure the informal sector. They are 'modular mixed surveys', combining surveys on individuals, households and enterprises. This approach is considered the most appropriate as it collects more exhaustive information than a simple household or enterprise survey. The 1-2-3 survey is considered as a robust and proven method for the measurement and data collection on the informal sector and on informal employment. It is flexible and can be adapted to national circumstances. The method consists of three phases:

- **Phase 1 (Labour Force Survey):** Survey collecting data on the economic activities of individuals and households concerning the supply of employment (employment / unemployment) and the integration of individuals into the job market and workplaces (working conditions). This survey provides information on the functioning of the labour market, especially on employment in the informal sector and on informal employment in the formal sector. The information collected is also used as a filter for the selection of the sample for phase 2.
- **Phase 2 (Survey of the Informal Sector; also called Informal Production Unit Survey):** Survey on informal production units (IPU), from a supply-side perspective. This survey is based on a stratified sample according to the sector of activity and status of the leader of the informal production unit. The sample of production units is selected from households participating in Phase 1. Principal economic and activity characteristics can be measured (e.g. value added, financing, sector and place of activity).
- **Phase 3 ("Mixed Survey"):** Combination of a household consumption survey and a survey on demand (i.e. survey from the demand-side perspective) in the formal and informal sector. The sample is taken as a subsample of households from Phase 1 and aims at results on consumption, formal / informal demand and poverty. This survey provides information for the estimation of household income and the scarcity of money of households which are necessary for the estimation of the living standard and poverty levels of households.

There is extensive experience with the [1-2-3 survey methodology in Africa](#). The French DIAL Development Economics research centre has developed the [KIT 1-2-3 software and documentation database solution for 1-2-3 surveys](#) in developing countries.

Box 13.6: Example: Improving the statistics on the informal sector in Cameroon

Cameroon's National Strategy for the Development of Statistics for the years 2009 to 2012 expresses a strong need to improve the quality, reliability and timeliness of data from the national statistical system. A large part of the economic value in Cameroon is created in the informal sector, which accounted for more than 90 per cent of total employment in 2005. The NSDS's economic statistics programme is focused on providing robust economic indicators, especially concerning population and households, national accounts, environment, poverty and the informal economy.

In order to provide reliable data on population, households and the informal sector (in particular in terms of value added and employment), Cameroon was one of the first developing countries designing and implementing a '1-2-3 survey' for the collection of data on the informal sector. It also uses some elements of the '1-2-3 survey' for other statistics and for the calculation of the weight of the informal sector in national accounts. The informal sector in Cameroon is defined as "the entirety of production units of goods and services without tax liability and / or without written accountancy in the sense of a standard form of accounts".

Cameroon has carried out the 1-2-3 survey four times: in the Yaoundé urban area in 1993 (phases 1-2-3) and 1994 (only phase 1), and at national level in 2005 (phases 1-2) and 2007 (only phase 1). The data collected in phase 2 of the survey are most relevant to business statistics and national accounts, as the informal production units (IPUs) are the surveyed entities in this phase. The characteristics for each survey phase are as follows:

- **Phase 1 (1993, 1994, 2005 and 2007):** Household survey on labour supply and the integration of individuals into the labour market (e.g. information on activity and unemployment rates, salaries, education and qualifications of employees, mobility and occupational safety). Households were selected according to socio-economic strata, obtained from the population census, in two steps: selection of a clustered household sample of which a certain number of households was selected.
- **Phase 2 (1993 and 2005):** Survey of informal production units (IPUs), providing complementary information for the national accounts through the establishment of production accounts and the fragmentation / division of the informal sector. This survey phase also provides information to analyse the behaviour of persons working in the informal sector and the integration of the informal sector in the national production system. The sample was drawn from the sample used in phase 1, of entities identified as informal production units. For the survey in 2005, the sample was stratified so that the number of IPUs was proportional to the number of households in urban (with emphasis on a representative sample in Douala and Yaoundé), semi-urban and rural areas.
- **Phase 3 (1993):** Household budget survey including questions on the consumption behaviour of households, i.e. origin of bought products (formal or informal sector) and on the main motivation for households to buy products at certain places. The survey sample is selected from the entirety of households but stratified according to the gender of the head of the household and the household's income.

Cameroon notes that for the collection of reliable, high quality data, the execution of all phases of the survey at regular intervals and at national level as well as the selection of a consistent sample seem to be indispensable.

Source: National Statistical Institute of Cameroon: [The informal sector and its coverage in the national accounts: Cameroon's experience](#) (presented at the Conference on International Outreach and Coordination in National Accounts for Sustainable Growth and Development, Luxembourg, May 2008)

Box 13.7: Example: Improving the business statistics of Sierra Leone

Sierra Leone is one of the poorest countries in the world. Its most pressing need is to reduce poverty and to progress towards the MDGs. Thus, the core priority of [Sierra Leone's National Strategy for the Development of Statistics](#) (see also [section C.6.1.2](#) on NSDS) for the years 2008 to 2012 is to improve the quality, reliability and timeliness of data from the national statistical system especially with respect to these priorities.

The three main sectors of the economy are agriculture, mining and trade. A large part of the value is created in the informal sector, which is providing employment to more than 70 per cent of the population. The NSDS's economic statistics programme is focused on providing robust economic indicators for development planning and the government's Poverty Reduction Strategy. Sound and transparent economic statistics are required on such issues as fiscal deficit, real sector growth, monetary stability and external sector performance. These statistics must also meet the data requirements of international and multilateral organisations (IMF, World Bank, UNSD, ECOWAS and others). In addition to improved national accounts and related statistics, the NSDS outlines the following key areas and actions for improving the business statistics:

- An improved and enhanced business register to provide a sound basis for improved sample surveys of businesses. The register will be updated by a combination of administrative sources (e.g. from the National Social Security and Insurance Trust and the National Revenue Authority), feedback from survey staff in the districts and special 'proving' surveys. Small enterprises with less than 10 employees tend to be missing from the administrative sources. To counter this, a census of establishment is foreseen every 5 years, in order to capture also these enterprises;
- Annual data on employment and wages by industry in the formal sector, based on tax data (Pay-As-You-Earn ; PAYE) from the national revenue authority (NRA);
- Expanded agricultural statistics, as agriculture is the mainstay of the national economy;
- An informal sector business survey and report, as this is an important element of economic activity not recorded through the standard business surveys. The 'Non Observed Economy' comprises informal sector production and production of households for their own use, as well as underground and illegal production. Due to its size and importance to the economy, informal sector statistics are needed for the national accounts and to monitor the small-scale business sector and devise development policies for the small and medium-sized enterprises. Information gathered should cover the informal sector's main actors and activities, its size in terms of employment and value added, key factors influencing this sector, etc.

The response rate to the surveys is a problem. Statistics Sierra Leone (SSL) aims to improve these through a mixture of education, promotion, persistence and penalties for businesses that refuse to cooperate. A key message to the businesses is that the confidentiality of data is guaranteed by the Statistics Law and that neither the government nor the tax authorities have access to the statistical data.

To find out more...**Quality and methodology**

- UN Statistical Division: [The Development of an Integrated Approach to Business Statistics at United Nations Statistics Division](#)
- UN Statistical Division: [International Recommendations for Industrial Statistics 2008](#)
- [OECD Quality Measurement Framework](#)
- Eurostat: [Quality measures for economic indicators](#)
- [Eurostat-OECD Manual on Business Demography Statistics](#)
- UN Statistical Division: [Knowledgebase on Economic Statistics - Methods and Country Practices](#)
- OECD: [Completion of changes to the Main Economic Indicators paper](#)
- UN Statistical Division: [International Recommendations for the Index of Industrial Production 2009 \(IRIIP 2009\)](#)
- Eurostat: [Business Registers Recommendations Manual](#)

Classifications

- UN Statistical Division's [Classifications registry, including National classifications](#)
- Eurostat's [Metadata Server RAMON](#)

Business statistics and data sources

- United Nations Industrial Development Organization (UNIDO): [Statistical databases](#)
- UN Statistical Division: [Industry Statistics](#)
- Eurostat's [Structural Business Statistics \(SBS\)](#), [Short-Term Statistics \(STS\)](#) and [PRODCOM statistics on manufactured goods](#)
- OECD: [Industry statistics and Services statistics](#)

The informal sector

- OECD: [Measuring the Non-Observed Economy - A Handbook](#)
- Eurostat: ['Essential SNA: Building the Basics' – chapter VI 'The Informal Sector'](#)
- The [UN Expert Group on Informal Sector Statistics \(Delhi Group\)](#)
- African Statistical Journal (volume 9, November 2009): [Measuring the informal sector and informal employment: the experience drawn from 1-2-3 surveys in African countries \(Mireille Razafindrakoto, François Roubaud and Constance Torelli\)](#)
- DIAL: [KIT 1-2-3 \(FR\)](#)

D.14

Environmental statistics



D.14. Environmental statistics

The chapter in brief

This chapter covers statistics and indicators relevant to the European Commission development cooperation in the field of the environment and sustainable management of natural resources.

The present chapter on environmental indicators starts by listing the main contributions of environmental indicators to environmental and economic policies. It continues by identifying several key indicators used for the environmental issues or topics:

- Air – statistics on emissions to air and ozone depleting substances
- Air quality indicators
- Water – statistics on emissions to water and water resources
- Water quality indicators
- Waste statistics
- Statistics on biodiversity – protected areas
- Land use and land cover statistics

For each indicator mentioned, a brief definition is provided; the environmental issues and relevance for environmental policy are highlighted; the main international agreements and targets are also indicated.

Environmental statistics are continuously being developed and improved according to new needs, findings and new requirements. This is reflected in the current chapter. To be informed of the most recent developments in this statistics domain, it is recommended to follow the references given throughout the chapter.

Environmental indicators contribute to:

- Identifying key factors that cause pressure on the environment;
- Measuring environmental performance with respect to environmental quality and environmental goals; they help set priorities and quantitative targets;
- Assessing compliance with national legislation, international agreements and other commitments;
- Integrating environmental concerns in economic and sectoral policies; they help update policies in environmentally significant economic sectors;
- Monitoring progress towards environmentally sustainable development, including decoupling of environmental pressure from economic growth;
- Measuring material flows and resource productivity;
- Informing the public about major environmental trends and conditions: providing information on driving forces, impacts and policy responses is also a common strategy to strengthen public support for policy measures.

Like other indicators they have to be interpreted in context and be complemented with country specific information to acquire their full meaning.

Air and water quality indicators calculated and obtained from monitoring data describe the state of these two media (see [Box 14.1](#)). They are key indicators as they allow evaluation of the importance of the pressures exerted on air and water (pressure indicators), as well as evaluation of impacts on the environment and human health (impacts indicators). This in turn will allow develop and implement remedial actions (response indicators); the DPSIR approach is detailed in [Box 14.2](#).

D.14.1. Policy applications: what this data is used for

Environmental indicators should be statistics that are scientifically credible and representative of an environment issue. They should be key, powerful and cost-effective tools for environment assessment. Appropriately chosen indicators based on sufficient time series data can show key trends and help describe causes and effects of environmental conditions. They make it possible to track implementation of environmental policies and to assess their efficiency. Environmental indicators can be measured and reported at different scales.

National governments use environmental indicators to show status and trends with respect to environmental issues of importance to develop or adapt their environmental policies and to inform their citizens. For example, a town may monitor air quality to estimate health impact on the population, degradation of buildings, etc., or track air quality along with water quality and count the number of rare species to estimate the health of the environment in their area.

Box 14.1: Monitoring as a part of environmental management

Environmental monitoring can be described to be repeated measurements, with certain intervals, of relevant characteristics with comparable (standardized) methods to follow changes and trends in nature and the environment due to anthropogenic activities over a period of time.

The overall objective of monitoring is not to produce data but to create relevant information. Therefore it is essential to identify information needs and the users as well as to quantify the use of environment information for environmental management. Different information needs may require different monitoring objectives e.g. to assess average state in order to adjust management, to check compliance with standards or limit values and/or to detect and assess impacts (e.g. from point sources of pollution, etc.) etc. Regarding the decision makers, the information would in principle be used to detect problem areas where changes in environmental management are needed and to identify and prioritise efforts to be undertaken.

The responsible public bodies, such as the Ministry of the Environment or an environmental agency, prepare tailor-made strategies for the implementation of monitoring activities between different authorities, institutes and other stakeholders. The strategies are based on information needs and encompass responsibilities and business rules between participating institutes, as well as setting monitoring priorities. Such strategies have to be revised on a regular basis (e.g. every 5–10 years).

Keeping in mind that practical solutions should always be preferred, the basic rules for a successful environmental monitoring and assessment programme, as well as for the establishment of a useful monitoring network can be condensed to some key considerations:

- Information needs must be defined prior to the elaboration of the monitoring programme itself.
- Adequate financial support must be secured.
- Step-by-step approach can be used in implementing the programme
- Technical details (e.g. pollutants to be monitored, sampling frequency, measurement methods etc.) must be clearly defined in the programme.
- The programme must be evaluated periodically.
- Background and other monitoring data (like meteorological and statistical data) are nearly always necessary especially in the assessment and reporting phases.

In addition, environmental indicators are intended to help:

- Improve environmental reporting at both national and international levels;
- Make their national environmental assessments comparable with other countries;
- Facilitate data gathering for future regional / national environmental reports.

Several international organisations have activities to develop frameworks and indicator sets for environmental issues, environment-sector integration and sustainable development

issues. A list of these can be found in the 'To find out more' box at the end of this chapter.

Criteria used in selecting environmental indicators are:

- Relevance to national environmental priorities;**
- Relation to international environmental policy;**
- Role as a means of communication for public awareness;**
- Measurability;**
- Availability of time series;**
- Predictive ability: capacity to track the effectiveness of pursued environmental policy.**

Box 14.2: The DPSIR framework

At present, most indicator reports compile sets of physical, biological or chemical indicators. They generally reflect a systems analysis view of the relations between the environmental system and the human system.

According to this systems analysis view, social and economic developments are (i) **Driving forces** that exert (ii) **Pressure** on the environment and, as a consequence, the (iii) **State** of the environment changes, such as the provision of adequate conditions for health, resources availability and biodiversity. Finally, this leads to (iv) **Impacts** on human health, ecosystems and materials that may elicit a societal (v) **Response** that feeds back on the (i) Driving forces or on the state or impacts directly, through adaptation or curative action. This causal chain is the so-called "DPSIR approach".

From the policy point of view, there is a need for clear and specific information on these five elements. This is achieved by using environmental indicators reflecting the links between human activities and their ultimate environmental impacts as well as the societal responses to these impacts.

Most sets of indicators presently used by national and international bodies are based on the DPSIR-framework or a subset of it.

D.14.2. Air – statistics on emissions to air and ozone depleting substances

D.14.2.1. CONCEPTS AND DEFINITIONS

Key environmental indicators in this environmental sector are (*UNECE classification*):

- Emissions of pollutants into the atmospheric air**
- Greenhouse gas emissions**
- Ambient air quality in urban areas**
- Consumption of ozone-depleting substances**

Indicators related to [air emissions](#) concern pollutants causing harm to human health and/or to ecosystems. They also cover substances contributing to the greenhouse effect and to climate change. The main substances covered are: sulphur dioxide sulphur dioxide (SO₂), nitrogen oxides (NO_x), ammonia (NH₃), particulate matter, carbon monoxide (CO), carbon dioxide (CO₂), non-methane volatile organic compounds (NMVOCs), persistent organic pollutants (POPs, including polychlorinated biphenyls (PCBs), dioxins/furans and polycyclic aromatic hydrocarbons (PAHs)) and heavy metals (cadmium, lead and mercury) emitted into the ambient air.

An emission inventory is an account of the amount of pollutants set free into the atmosphere. It usually contains the total emissions for one or more air pollutants, stemming from all types of emission sources in a certain geographical area and within a specified time span, usually a certain year. The statistics used are the total emission volumes and the volumes broken down by economic activities. In this context, the economic activities are defined by the [International Standard Industrial Classification of All Economic Activities \(ISIC\)](#) or by the [Selected Nomenclature for Sources of Air Pollution \(SNAP\)](#). SNAP considers 11 relevant sectors: (1) combustion in the energy transformation industry, (2) non-industrial combustion plants, (3) combustion in the manufacturing industry, (4) production processes, (5) extraction and distribution of fossil fuels, (6) solvent and other product use, (7) road transport, (8) other mobile sources and machinery, (9) waste treatment and disposal, (10) agriculture and (11) other sources and sinks.

The emission values are generally expressed in thousands of tonnes (Kt) or million of grams (Mg) per year, as appropriate for a particular pollutant. For cross-country comparisons, emissions may also be presented per km² of the country's territory, per capita or per unit of gross domestic product (GDP). These emission inventories give a measure of existing and expected pressure on the environment in terms of emissions of harmful substances into the atmospheric air and "distance to target" (if any).

The main source for many pollutants is the burning of fuels, above all petroleum products. In some countries, agriculture and burning of savannas are also important contributors. However, it is difficult to estimate these emissions and data are often not available.

The key question to be answered is what progress is being made in reducing emissions of pollutants across the country/region? The indicators on emissions to air are important for following manmade emissions that substantially increase the atmospheric concentrations of greenhouse gases. They are also vital for assessing the pressure on atmospheric air quality in the country as a whole. These indicators also allow identifying pressure from sectors such as energy, transport, industrial processes, agriculture and waste management.

Indicators on greenhouse gases emissions fall within the scope of the Kyoto Protocol. The Kyoto Protocol is a protocol to the [United Nations Framework Convention on Climate](#)

[Change \(UNFCCC\)](#). It aims at fighting global warming and achieving the *"stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system"*.

Information on pollutant emissions is also needed for the assessment of trans-boundary air pollution and for international cooperation to address this problem. This aspect is addressed in the UNECE [Convention on Long-range Transboundary Air Pollution \(CLRTAP\)](#): it requires implementation of measures to prevent, control and reduce emissions of air pollutants and to exchange information on them.

At European level, the [IPPC Directive](#) on 'Integrated Pollution Prevention and Control' sets out the main principles for permitting and controlling installations based on an integrated approach and the application of best available techniques (BAT). 'Best Available Techniques' are the most effective techniques to achieve a high level of environmental protection, taking into account the costs and benefits. Also, the [NEC directive](#) on 'National Emission Ceilings' for certain pollutants sets upper limits for each Member State for the total emissions of the four pollutants responsible for acidification, eutrophication and ground-level ozone pollution.

Other important indicators concern [the production and use of substances which deplete stratospheric ozone \(ODS\)](#): total amount produced, sold or consumed in a country. The question is whether and to what extent the emissions of ozone-depleting substances are reduced according to the schedule agreed at the international level. This schedule is laid down in the [Vienna Convention for the Protection of the Ozone Layer \(1985\)](#), its [Montreal Protocol on Substances that Deplete the Ozone Layer \(1987\)](#) and the latter amendments of London, Copenhagen, Montreal and Beijing. The Montreal Protocol sets a target to eliminate the production and use of ODS.

D.14.2.2. SOURCES OF DATA

About [emission inventories](#), CLRTAP and its eight protocols cover the methodology of data collection on emissions of pollutants into the air. Internationally agreed methodology and standards for estimating air emissions are included in the UNECE Emission Inventory Guidebook developed jointly by [EMEP](#)⁽⁵⁰⁾. EMEP acts under the CLRTAP and the European Environment Agency's 'CORE Inventory of AIR emissions' (EEA CORINAIR). These methods are also linked with the revised 1996 Guidelines of the [Intergovernmental Panel for Climate Change \(IPCC\)](#), which are the basis for reporting to the [United Nations Framework Convention for Climate Change \(UNFCCC\)](#). The guidebook and the IPCC guidelines are not only used as a reference by EU countries, but also by e.g. ENP East countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine), Kazakhstan and Kyrgyzstan.

⁽⁵⁰⁾ "European Monitoring and Evaluation Programme": Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe

In practice, two basic methods for emission inventories are applied in the EMEP guidebook. The first, detailed method is based on direct measurements of emissions. The second method is an estimation based on technological calculations, through the use of proxy statistics like data on production volumes, fuel and raw materials consumption. In this last case, the proxy values are multiplied by an emission factor specific to each pollutant and each type of emission source.

Input data and statistics are usually collected at city and regional levels before being aggregated at national level by government bodies in charge of environment, industry, agriculture and transport. They are also collated by the national statistical agencies.

An essential source of data is:

- Information submitted by companies for obtaining environmental exploitation permits ;
- Monitoring data on emissions, measured by the companies themselves (self-monitoring) or by the institutions in charge of verifying companies' respect of national emission limits.

As for [ozone depleting substances](#), data collection should cover substances in annexes A–C and E of the Montreal Protocol, whether these exist alone or in a mixture. Data on production, imports and exports of ODS are generally collected annually by national statistical agencies or by national focal points for reporting under the Montreal Protocol.

The [UNEP Ozone Secretariat](#) has developed forms for reporting data under the Montreal Protocol. These cover imports, exports, production, amounts destroyed and imports from / exports to countries who are not parties to the Convention. Consumption is calculated as production plus imports minus exports, destroyed quantities, and feedstock uses of a controlled substance. These data are reported in metric tonnes. Data are collected using a variety of methods, including registries or other collections from known producers and consumers, use of estimates and surveys, collecting information through (or from) customs. National figures are used directly, without adjustment.

Within the frame of its [Open Data Initiative](#), the World Bank's [Open Data Resources for Climate Change](#) provides freely available climate and climate-related data.

Climate change is an important issue for official statistics. In 2008, the UNSD together with Eurostat and Statistics Norway arranged a [Conference on Climate Change and Official Statistics](#) in Oslo. Later the same year, this was followed up by a [Conference on Climate Change, Development and Official Statistics in the Asia-Pacific Region](#), held in Seoul.

To find out more...

- [DG Environment: Air and the Commissions Air Quality Policy Package](#)
- [European Monitoring and Evaluation Programme \(EMEP\) for long-range transmission of air pollutants in Europe](#)
- [EEA: European Topic Centre on Air and Climate Change \(ETC ACC\)](#)
- [EMEP: Centre on Emission Inventories and Projections \(CEIP\)](#)
- [United Nations Environment Programme\(UNEP\): Ozone secretariat](#)
- [UN Framework Convention on Climate Change \(UNFCCC\)](#)
- [UNECE: "Guidelines for Estimating and Reporting Emission Data under the Convention on Long Range Transboundary Air Pollution" \(Air Pollution Studies No. 15, UN 2003\)](#)
- [EMEP/CORINAIR: Emission Inventory Guidebook \(2007\)](#)
- [EMEP/EEA: Air pollutant emission inventory guidebook \(2009\)](#)
- [UNSD: Climate Change and Official Statistics website](#)

D.14.3. Air quality indicators

D.14.3.1. CONCEPTS AND DEFINITIONS

A clean air supply is essential to our own health and that of the environment. But since the industrial revolution, the quality of the air we breathe has deteriorated considerably - mainly as a result of human activities. Rising industrial and energy production, the burning of fossil fuels and the dramatic rise in traffic on our roads all contribute to air pollution in our towns and cities which, in turn, can lead to serious health problems. For example, air pollution is increasingly being cited as the main cause of lung conditions such as asthma - twice as many people suffer from asthma today compared to 20 years ago.

Major concerns relate to the effects of air pollution on human health, ecosystems, and buildings, and to their economic and social consequences. Human exposure is particularly high in urban areas where economic activities and road traffic are concentrated. It also happens around industrial zones.

An important source of pollution in many urban areas is fuel combustion in motor vehicles. Further pollution sources are industry and household combustion of fuel (including wood). Generated pollutants include nitrogen oxides (NO_x), carbon monoxide (CO), sulphur dioxide (SO₂), volatile organic compounds (VOCs), particulate matter (PM10 and PM2.5 depending on their size) and heavy metals such as lead. On warm summer days the strong sunlight leads to a build-up of ground-level (or tropospheric) ozone (O₃). Ozone is formed through the reaction between other pollutants (oxidation of volatile organic compounds (VOCs) such as benzene in the presence of nitrogen oxides). However, due to the special atmospheric chemistry of ground-level ozone, levels are very often lower in urban areas than in the countryside.

Nowadays a major challenge in many urban zones is to further reduce emissions of local and regional air pollutants in order to achieve stronger decoupling of emissions from GDP and to limit the exposure of the population to air pollution. This implies implementing appropriate pollution control policies, technological progress, energy savings and environmentally sustainable transport policies.

The key indicators in this domain are related to ambient air quality in urban areas, i.e. the concentration of the above mentioned air pollutants. The main pollutants monitored are ground-level ozone, particulate matter (PM₁₀ and PM_{2.5}), sulphur dioxide, nitrogen dioxide and lead. Carbon monoxide, volatile organic compounds including benzene (VOCs) can also be considered. [Box 14.3](#) details the key aspects of monitoring data and indicators.

Box 14.3: Monitoring data and indicators

The collection and analysis of environmental data is necessary to provide objective, reliable and comparable information that shall enable actions needed to protect the environment and to ensure transparency in relation to the public.

Primary data are data obtained from monitoring activities. Environmental monitoring generates huge amount of these primary data. An example is the hourly measured concentrations of pollutants in the air: measuring one pollutant on an hourly basis at one station over one year generates 8.760 data. As such, these data have very limited or “neutral” information value: one isolated data just tells what was the concentration of one pollutant at a certain time and at a certain location. In order to get more information, these primary data must be processed, aggregated and analysed in order to produce statistics and indicators. An indicator may simply be a selected statistic (like percentiles or mean values) or an aggregation of several statistics: for example, an air quality index.

While primary data have relatively low information content, indicators are not “neutral”: they are linked to defined environmental management issues and allow to evaluate or assess the situation. Using for this assessment the DPSIR framework used by the EEA ensures that issues are handled in a comprehensive way and that all important aspects are covered.

Unit of measurement is $\mu\text{g}/\text{m}^3$, ppm or ppb, as appropriate. Knowing the concentrations of pollutants allows verification of whether limit values fixed to protect human health and/or ecosystems are exceeded, as well as estimation of the exposure of ecosystems to acidification, eutrophication and ozone. The number of exceedances of limit values and exposure assessment are additional indicators included in the EEA Core Set of Indicators (see [Box 14.11](#)).

The indicators on ambient air quality in urban areas are also closely linked to other indicators which relate to causes and sources of pollutants, effects (e.g. on health) and societal responses. These include, for example, the indicators on population growth rate, rate of growth of urban population, percent of population in urban areas, annual energy consumption per capita, emissions of sulphur oxides and nitrogen oxides, life expectancy at birth, share of consumption of renewable energy resources.

At European level, the environmental quality of ambient air and monitoring falls mainly under the [Ambient Air Quality Framework or CAFE Directive \(2008/50/EC\)](#), which requires air quality monitoring and the achievement of air quality objectives.

[World Health Organization \(WHO\) air quality guidelines](#) exist for all the pollutants mentioned above. Many countries have established their own air quality standards for many of these pollutants.

Box 14.4: Establishing an Integrated Ambient Air Quality Monitoring Framework (IAAQMF) and Developing an Air Quality Index (AQI) for Mauritius (2010)

With the continually sustained economic growth in Mauritius, the Ministry of the Environment & NDU (National Development Unit) has registered an increase in number of complaints with regards to air pollution. Moreover with the advent of waste-to-energy power plants projects in the energy sector, baseline data for other important air pollutants such as Dioxin and Furans need to be established.

The data obtained will be an essential tool for the Government in policy decision making.

The Department of Environment needs to monitor the air quality around the island over a 24 hrs basis with the use of an Integrated Ambient Air Quality Monitoring Framework (IAAQMF) comprising of fixed and mobile stations linked through a central network system. Two mobile ambient air monitoring stations have been acquired in 2009 for measurement of Particulate Matter (PM 10, PM 2.5 and Total Suspended Particles) and gaseous contaminants (Sulphur Dioxide, Oxides of Nitrogen and Carbon Monoxide).

The IAAQMF will enable the Department of Environment to develop an Air Quality Index (AQI) for Mauritius which will inform the public about the air quality and the level of pollution, including the associated health hazards.

With the introduction of an Air Quality Index (AQI), the citizens of Mauritius will thus be better informed about the quality of air they are breathing. The latter applies also to the tourism sector (i.e. Eco-tourism or Sustainable tourism) as well as the Integrated Resort Scheme (IRS), which could lead to higher direct investment inflow.

The following specific actions will be achieved:

- To carry out an analysis of the existing ambient air monitoring system;
- To develop an Air Quality Index for Mauritius;
- To establish a data management system for the AQI.
- To propose a mechanism for the implementation of the IAAQMF;
- To develop a 5-year strategic plan, including financial, technical, human resource requirements, policy and structural reforms with time schedules

By establishing an Integrated Ambient Air Quality Monitoring Framework (IAAQMF), the Ministry is in a better position to effectively execute its roles and functions as Enforcing Agency for Air Quality, as Mauritius seeks to be recognized internationally as a country where the ambient air quality is good and safe for living.

Source: Mauritius, the Ministry of Environment & NDU

D.14.3.2. SOURCES OF DATA

In many countries, data on ambient air pollution concentrations is routinely collected by national or local monitoring networks which include several monitoring stations where samplings (and measurements in case of automatic stations) are made. Most of the time, these networks are managed by public authorities at the national, regional or municipal levels. At the national level, monitoring of air quality and its management falls under the responsibility of the Ministry of the Environment or the Ministry for Health and their agencies. Data can also be collected for research purposes by universities and research institutes. In addition, industries can be obliged to monitor air quality in their surrounding area in accordance with the obligations specified in the environmental permit granted by the competent authorities.

Monitoring stations can be classified according to the main sources of pollution affecting air quality in their surroundings (mainly industrial, traffic or background oriented stations). They can be located in urban, suburban or rural zones. Monitoring data must be representative both in terms of time representativeness (i.e. covering a representative time period) and of spatial representativeness (i.e. representing a significant area and/or population exposure).

Indicators aggregating the monitoring data may be designed and constructed in a number of ways. Examples of statistics used for air quality indicators are: the annual mean and percentiles values, the number of days or hours with concentration exceeding a certain value, etc. Where monitoring data are unavailable, estimates of pollution levels may be made using air pollution models or other methods (e.g. monitoring campaigns with diffusion tubes, bio-indicators etc.).

Air quality data and statistics from the EU-27 Member States and from other associated countries are compiled in [Airbase](#), a database maintained by the EEA with the assistance of the thematic centre on air and climate change (ETCACC).

To find out more...

- European Commission, DG Environment: [Air policy](#)
- European Environment Agency: [Air Pollution](#)
- European Topic Centre for Air Pollution and Climate Change Mitigation (ETC/ACM)
- EEA/EIONET: [AirBase - European official air quality data](#)
- United Nations Environment Programme: [Urban Air Quality Management Toolkit](#)

D.14.4. Water – statistics on emissions to water and water resources

D.14.4.1. CONCEPTS AND DEFINITIONS

Major key environmental indicators in this environmental sector are:

- A. Renewable freshwater resources**
- B. Freshwater abstraction**
- C. Household water use per capita**
- D. Water losses**
- E. Reuse and recycling of freshwater**
- F. Polluted (non-treated) wastewaters**
- G. Water quality in urban areas (covered in a separate chapter)**

Renewable fresh water resources are defined as the total volume of river run-off and groundwater generated under natural conditions, exclusively by precipitation within the country, and the actual flow of rivers and groundwater coming from neighbouring countries. The measurement units are million cubic metres (m³) per year.

The development of this indicator provides a measure of the state of renewable freshwater resources in a country.

The total volume of surface and ground freshwater abstracted annually is another indicator: total, by economic activity (in accordance with ISIC) and as a percentage of renewable freshwater resources (the country's water exploitation index, or WEI). The indicator provides, in relation to total resources available for abstraction, a measure of the pressure on the environment in terms of abstraction of freshwater resources. It can reflect the extent of water resource scarcity and the distribution of abstracted water among different economic activities.

Since water quality is often linked to water quantity - e.g. flow or volume affects quality by influencing concentration of pollutants - the relation of freshwater abstraction to renewal of stocks is a central issue in sustainable freshwater resource management. The indicator can show to what extent freshwater resources are already used and any need to adjust supply and demand management policy. Changes in the WEI help to analyse how changes in abstraction affect freshwater resources by increasing pressure on them or making them more sustainable. The WEI threshold that distinguishes non-stressed regions from stressed ones is around 20%. Severe water stress can occur where the WEI exceeds 40%.

Main concerns relate to the inefficient use of water and to its environmental and socio-economic consequences: low river flows, water shortages, salinisation of freshwater bodies in coastal areas, human health problems, loss of wetlands, desertification and reduced food production. Pressures on freshwater resources are exerted by overexploitation and by degradation of environmental quality.

Household water use per capita is the quantity of water used to cover the household and related utility needs of the population. The unit is cubic metres per year and per capita (or litres/day per capita). This indicator provides a measure of the pressure on the environment in terms of water abstraction from different water sources. The indicator – to be considered in relation with available resources – is one of the major ones defining the level of development of water economy services and the degree of water accessibility to cover all household needs of the population. This indicator helps identify trends in rational water use in a particular location.

Water losses are defined as the quantity and percentage of freshwater lost during transport (owing to leakage and evaporation) between a point of abstraction and a point of use. The amount of water lost during transport to users is an indicator of the efficiency of a water management system, including technical conditions affecting water supply pipelines.

The share of reused or recycled water in the total volume of water used to cover production needs defines the percentage of water saved by applying recycling and reused water supply systems as a national total and broken down by economic activities.

At the international level, the [Convention on the Protection and Use of Transboundary Watercourses and International Lakes](#) requires that the parties introduce sustainable water management, including an ecosystem approach and the rational and fair use of transboundary waters. In the European Union, the [Water Framework Directive](#) obliges the Member States to promote sustainable use based on long-term protection of available water resources and to ensure a balance between abstraction and recharge of groundwater, with the aim of achieving “good groundwater status” by 2015.

D.14.4.2. SOURCE OF DATA

Renewable freshwater (surface and groundwater) resources are replenished by precipitation (less evapo-transpiration) falling on a country's territory that ends up as runoff to rivers and recharge to aquifers (internal flow), and by surface waters and groundwater flowing in from other countries (inflow). Climatic, ecological, economic and other limitations on the availability of these resources for abstraction are reflected in the variable “regular freshwater resources 95 per cent of the time”. Data on renewable freshwater resources are usually collected at selected hydrological stations both at the national level and at the levels of main river basins. The values are calculated on the basis of long-term measurements of levels, flow rates and inflows/outflows carried out on rivers

and lakes as well as groundwater horizons and countrywide precipitation. The indicator is the major one used to define the water balance of a country.

Water is abstracted by public or private bodies whose main function is to provide water for various uses (the “public water supply”). It can also be directly abstracted from rivers, lakes, wells or springs by industries, farmers, households and others for their own use (self-supply). The indicator incorporates data on abstraction of freshwater, broken down according to the main activity of the water abstractor as defined by ISIC/NACE. The water abstraction indicator calculations are based on the data on quantity of abstracted water reported by water users to the relevant authorities. The quantity of water abstracted is either measured or calculated on the basis of energy consumption for pumps. In some cases it is necessary to apply a calculation method using models for some water users (household and agriculture).

The WEI (Water Exploitation Index) is the ratio of annual total water abstraction to long-term annual average renewable freshwater resources, expressed as a percentage. The WEI provides a good national-level overview of the pressures on resources in an easily understandable format, and it shows trends over time. Data and information concerning the use of WEI in African countries are available in the [IPCC's Assessment Reports on Climate Change](#).

Household water use per capita can be determined based on the measured volume supplied mainly through the public water supply systems. The use of water by the population that is not supplied by public water supply systems needs to be calculated. Households' water use per capita is calculated by dividing total water consumption in the community by the respective number of inhabitants. The indicator is based on data submitted by associations, enterprises and organizations supplying households with water and by local public administration bodies.

In many countries around the world, data on household water use are still collected by the government branch dealing with housing and municipal services. WHO and UNICEF collect [estimates of national average figures](#) from governments as part of its Joint Monitoring Programme (JMP) for water supply and sanitation. The JMP indicators feed into the SDG indicators framework, informing Sustainable Development Goal 6 ‘[Ensure Availability and Sustainable Management of Water and Sanitation for All](#)’ (see also [section B.1.1](#) and [section B.4.1](#)).

When working with water losses, the most important issue is to have data on the quantities of freshwater lost from water supply systems between a point of abstraction and a point of use due to leakage or evaporation. The indicator is estimated and defined as the absolute and relative difference between the amount of water abstracted and the amount delivered to users (households; agriculture, forestry and fishing; manufacturing, the electricity industry and other economic activities).

Data on reuse and recycled water are collected from state statistical reporting by enterprises and other organizations. Data on waste water treatment can also be obtained from municipalities.

In general, data quality can be considered to be fairly good.

Guidance can be found at the international level in the [WMO Guide on Hydrological Practice](#) and in the [EEA/Eurowater Quantity - technical guidance for implementation](#). Additional information can also be found in the [UNSD/UNEP Questionnaire on Environment Statistics](#), coordinated with relevant [OECD and Eurostat questionnaires](#). The OECD/Eurostat [Data collection Manual](#) provides guidance, best practice and standards, estimating and compiling data for the Joint Questionnaire on Inland Waters.

The [Living Standards Measurement Study - Integrated Surveys on Agriculture \(LSMS-ISA\)](#) has issued a guidance note called '[Improving Household Survey Instruments for Understanding Agricultural Household Adaptation to Climate Change: Water Stress and Variability](#)'. This note focuses on improving household survey instruments for understanding how agricultural households adapt to weather variability, caused by global climate change. It also outlines instruments for measuring local water resources, including rainfall, surface water, and groundwater.

To find out more...

- DG Environment: [Water](#)
- EEA European Topic Centre on water (ETC – water)
- Food and Agriculture Organization (FAO): [AQUASTAT database](#)
- [UNSD/UNEP Questionnaire 2006 on Environment Statistics \(waste and water\)](#)
- [OECD Environmental Data Compendium - Inland Waters section](#)
- [World Meteorological Organization: 'Guidelines on Hydrological Practices' \(2008\)](#)
- [LSMS-ISA: 'Improving Household Survey Instruments for Understanding Agricultural Household Adaptation to Climate Change: Water Stress and Variability' \(2011\)](#)

D.14.5. Water quality indicators

D.14.5.1. CONCEPTS AND DEFINITIONS

Water quality is about what is in water and how quality affects its usefulness.

It is a precondition for human, animal and plant life as well as an indispensable resource for the economy. Water also plays a fundamental role in the climate regulation cycle.

Rivers have often been treated unwisely as a convenient way of transporting waste to the sea, affecting the biodiversity of thousands of kilometres of waterways, harming human health, and in the end polluting coastal and marine waters. Protection of water resources, of fresh and salt water ecosystems and of the water we drink and bathe in is therefore one of the cornerstones of environmental protection. The stakes are high and the issues transcend national boundaries and concerted action between countries is very often necessary to ensure an effective protection of water basins.

Key water quality indicators are:

- Indicators related to drinking water quality**
- BOD (biochemical oxygen demand) and concentration of ammonium in rivers**
- Nutrients in freshwater**
- Nutrients in coastal seawaters**

[Water for drinking](#) should be free of disease-causing microorganisms, harmful chemicals, objectionable taste and odour problems, and excessive levels of colour and suspended material.

Since many water supplies receive no treatment, it is important that the indicator reflects the effectiveness of management of the whole water supply system including the water catchment, storage and distribution system.

The indicator provides a measure of the risk of negative impacts of poor drinking water quality on human health and shows the extent to which the drinking water supply conforms to sanitary requirements and standards. The [EU Drinking Water Directive \(98/83/EC\)](#) sets standards for the 48 most common parameters, based on the WHO guidelines, including selected microbiological and chemical quality parameters are measured.

Commonly measured parameters of water quality are: total coliforms, thermo-tolerant coliforms, nitrate, trihalomethanes, heavy metals, pesticides, acidity (pH), aluminium, colour, turbidity, total dissolved salts, hardness, iron, manganese. For each parameter, the proportion of drinking water samples analysed that fail to comply with the relevant standards is calculated.

BOD and concentrations of ammonium in rivers provide a measure of the state of rivers in terms of biodegradable organic load and ammonium (NH_4^+). BOD is a key indicator, expressing the amount of oxygen consumed by organisms in water and sediment to break down organic matter present in the water. Ammonium concentration also exerts a demand on oxygen in water as it is transformed to oxidised forms of nitrogen. It is toxic to aquatic life at certain concentrations (in relation to water temperature, salinity and pH). High BOD and ammonium concentrations are usually a result of organic pollution, caused by direct discharge of wastewater, discharges from wastewater treatment plants, industrial effluents and agricultural run-off.

In most European countries, the BOD5 test is used (oxygen consumption is measured after 5 days incubation under controlled conditions). In other countries, the BOD7 test is used (samples are incubated for 7 days). Annual average BOD is expressed in mg O_2 consumption per litre and annual average total ammonium concentrations in micrograms of nitrogen per litre. Information on the quality of surface waters in terms of substances which cannot be degraded biologically (or chemical oxygen demand - COD) could be considered as well.

Nutrients in freshwater provides a measure of state of freshwater (rivers, lakes and groundwater) in terms of nutrient concentration (phosphates and nitrates). Large inputs of nutrients to freshwater bodies from urban areas, industry and agricultural areas can lead to eutrophication of water bodies with subsequent oxygen depletion. As for high BOD and ammonium concentrations, this causes ecological changes that can result in a loss of plant and animal species and have negative impacts on the use of water for human consumption and other purposes. Concentrations of nitrates are expressed as mg of nitrates/litre, and concentrations of phosphate and phosphorus as mg of phosphorus/litre

Nutrients in coastal seawater provide a measure of the state of coastal seawaters in terms of nutrient concentrations. Nitrogen and phosphorus enrichment can result in a chain of undesirable effects, starting with excessive growth of plankton algae, which increases the amount of organic matter settling to the bottom. The consequent increase in oxygen consumption can lead to oxygen depletion, changes in community structure and death of the benthic fauna. Eutrophication can also increase the risk of algal blooms, some of them consisting of harmful species. Concentrations of major biogenic substances are expressed in mg/litre .

At European level the environmental quality of surface waters with respect to organic pollution reflected by the BOD and ammonium as well as the reduction of the loads and impacts of these pollutants are objectives of several directives including: the **Drinking Water Directive** (98/83/EC) which sets standards for BOD and ammonium content of drinking water, the **Nitrates Directive** (91/676/EEC) aimed at reducing nitrate and organic matter pollution from agricultural land, the **Urban Waste Water Treatment Directive** (91/271/EEC) aimed at reducing pollution from direct discharge of

untreated or insufficiently treated wastewater, from sewage treatment works and certain industries, the **Industrial Emissions Directive (IED)** (96/61/EEC and 2008/1/EC) aimed at controlling and preventing the pollution of water by industry, and the **Water Framework Directive** (2000/60/EC) which requires the achievement of good ecological status or good ecological potential of rivers across the EU by 2015.

Box 14.5: The Limpopo River Basin – Monitoring of water quality

The Limpopo River Basin is shared by four SADC Member States; Botswana, South Africa, Zimbabwe and Mozambique. The basin covers different climatic and topographic zones and land use types, including protected areas. The four countries co-operate in managing their water resources through the Limpopo Water Course Commission (LIMCOM). An on-line tool, the Limpopo River Awareness Kit, has been designed to support capacity development in LIMCOM and raise awareness for trans-boundary water issues in southern Africa.

As the river basin passes through various geographical regions and biomes and supports a wide array of water demands, there is a great need for Integrated Water Resources Management (IWRM). IWRM is challenging, even more so in a trans-boundary setting. At a basin or sub-basin scale, the priority is often on monitoring and management of water quantity. However, the monitoring and management of water quality is equally important.

Maintaining water quality is critical for communities throughout the Limpopo River basin. Protection of water quality in the river system directly or indirectly contributes to the achievement of several Millennium Development Goals (MDGs) and their associated targets:

- Eradicate extreme poverty and hunger;
- Reduce child mortality;
- Combat disease, including HIV/AIDS, malaria, and waterborne diseases;
- Ensure environmental sustainability: halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.

Monitoring plays a crucial role in determining sustainable abstraction volumes, the feasibility of developments, and strategy for efficient overall resource management. Meteorological and hydrological data collection is done at the national level, primarily for use at the national level. One recommendation is to develop a trans-boundary monitoring network, including a comprehensive surface water and groundwater monitoring program consistent in quality.

A key issue is freshwater quality: While there is often a focus on water quantity (maintaining dam volumes, stream flow, water supply, etc.), less attention has been paid to water quality, especially to policy instruments to protect and manage this critical aspect of freshwater. River runoff comprises the most essential data for water resources management.

The overall water quality situation in the Limpopo River basin is described as impacted, but not severe. Land use management and developments within this basin have altered water quality when compared with the baseline/un-impacted conditions. Water resources in most of the sub-catchments in the Limpopo River basin are impacted by the following (Ashton *et al*, 2001):

- Mining and minerals processing. As the Limpopo River basin includes numerous mines, active and abandoned, the environment is under significant threat from acid mine drainage; the metals and chemicals typically found in acid mine drainage can cause serious illnesses in humans and animals;
- Non-point impact from commercial or subsistence agriculture, irrigation and redistribution of river waters;
- Erosion. Soil erosion, resulting from poor tillage and land use management can result in an increased sediment load in rivers, as soils and sediments wash away during heavy or sustained rainfall events;
- Uncontrolled and wild landfills and solid waste disposal sites;
- Disposal of liquid and effluent, fuel loss and litter on roadways;
- Non-point domestic effluent via soak-aways in rural areas.

Another issue is groundwater quality: The impacts of changes in surface water quality can often be seen directly and the causal chain is often clear. It is not always evident where impacts on groundwater quality originate. However, it is equally important as it is often used for drinking water and domestic consumption. One of the primary sources of human-caused groundwater pollution in urban areas is leakage from pit-latrines in areas with poor sanitation. Agriculture (irrigated cultivation and livestock) is another important source of groundwater contamination because of the pesticides, herbicides and fertilizers used.

Source: Limpopo River awareness kit (water quality).

D.14.5.2. SOURCES OF DATA

Data on water quality is often routinely collected by national or local monitoring networks at several sites where sampling is made. Chemical analyses are carried out in laboratory.

In most countries, the agency responsible for the surveillance of drinking-water supply services is the Ministry of Health (or a public health Agency) and its regional or departmental offices. In some countries, it may be an environmental protection agency. Local environmental health authorities also often play an important role in managing water resources and drinking-water supplies.

Besides drinking water, water quality monitoring is usually under the responsibility of the Ministry of the Environment or the Ministry in charge of water management and their agencies. In practice implementation is done by several institutions.

Monitoring data must be representative both in terms of time representativeness (i.e. adequate sampling frequency) and of spatial representativeness (i.e. representing average conditions). Monitoring must also reflect the hydrological importance of particular rivers, lakes and groundwater zones.

Data are aggregated and generally presented in the form of tables which include the annual average concentrations of BOD and ammonia, of nitrates, phosphates, total phosphorus and total nitrogen, compared with national water quality standards or international water quality targets (relevant sea-related conventions or national targets).

Data on drinking water quality are usually presented in the form of a table which consists of selected microbiological and chemical quality parameters measured, the total number of samples, the number of non-compliant samples and the percentage of non-compliant samples in each category.

The UNSD International Environment Statistics Database provides some data transmitted by national statistical agencies.

International Recommendations for Water Statistics (IRWS) were developed to assist countries establish and strengthen information systems for water which in turn support the design and evaluation of better water policies for Integrated Water Resources Management (IWRM). Among others, these recommendations provide the necessary information for deriving coherent and consistent indicators, enabling comparisons over time and between countries from an agreed list of data items.

The data received from countries, together with data from other sources, feed into UNSD's evolving environment statistics database.

At the European level, the **Water Information System for Europe** – or more commonly known as WISE – is the European gateway to information on European water issues. It compiles a number of data and information collected at EU level by various institutions and bodies.

To find out more...

- European Commission, DG Environment: [Water Policy](#)
- European Environment Agency (EEA): [Water quality](#)
- EEA: [European Topic Centre on Water; Oxygen consuming substances in rivers](#)
- World Health Organization (WHO): [Guidelines for drinking-water quality; Water quality monitoring](#)
- UNEP/UNECE: [Environmental indicators and indicators-based assessment reports - Eastern Europe; Caucasus Region; Central Asia \(EECCA\)](#)
- United Nations Statistics Division: [Environment Statistics Section](#)
- Sustainable Development Goal 6 'Ensure availability and sustainable management of water and sanitation for all' and its indicators in the [Global SDG Indicators Database](#) (indicators 6.1.1 to 6.b.1)
- FAO: [Aquastat – FAO's information system on water and agriculture](#)
- International Organisation for Standardization (ISO) [water quality standards](#)
- UNEP: [Water Quality Index for Biodiversity \(WQIB\)](#)

D.14.6. Waste – statistics on waste generation, movements of hazardous wastes, recycling and disposal

D.14.6.1. CONCEPTS AND DEFINITIONS

Key environmental indicators in this environmental sector are (*UNECE classification*):

- Waste generation**
- Transboundary movements of hazardous wastes**
- Waste reuse and recycling**
- Final waste disposal**

Waste generation is the amount of waste generated in a country – in total, per unit of GDP, by sector (industrial and municipal solid waste) and by negative impact (hazardous waste). It is expressed in million metric tonnes per year. Total waste intensity should be presented in kilograms per unit of GDP at constant prices, and municipal waste intensity should be expressed in kg per capita or in m³ per capita. It can also be presented in terms of waste (kg) generated per unit of production (tonne, kWh, etc.)

The waste intensity represents a driving force indicator and shows response to anthropogenic activities. Waste generated per unit of GDP (total waste intensity) shows whether there has been any decoupling of waste generation from economic growth. Municipal waste generation per capita allows comparisons of countries. For each indicator, the two time series should be shown together (i.e. on total waste generation and on development of GDP, on municipal waste generation and on the number of population) to get the full benefit of the indicator.

Transboundary movements of hazardous wastes relates to the total amount of hazardous waste, expressed in metric tonnes per year, exported and imported by a country. Trends in a country's export of hazardous waste show its response to the need to minimize the generation of hazardous waste and to reuse or recycle it domestically. Toxic, explosive, oxidizing, corrosive, flammable, irritant, teratogenic, mutagenic, carcinogenic, ecotoxic and infectious waste are recognized as hazardous waste.

Box 14.6: Evaluation of composition of waste and routine data collection

Pilot Study implemented by the EU CARDS project 'Development of a National Environmental Monitoring System for Bosnia and Herzegovina (RANSMO)' (2005)

The amount of waste generated within a municipality in Bosnia and Herzegovina is established by estimation. The best method of establishing waste density is by the use of a weighbridge. However, very few municipalities have a mechanism for bulk weighing, let alone a weighbridge at the dump site. In addition, density does not give you total volume – which is necessary for evaluation of the long-term capacity of the landfill site.

Each municipality has its own methodology for estimating waste volumes. The three most common methods used, which each have significant limitations, are:

- **Number of containers collected x size of container = volume**

Compaction is rarely performed at the container level, so a container could be filled by a very small amount of waste (i.e. empty boxes). This would give an inaccurate result of total volume of waste produced.

- **Number of truck collections performed x size of collection vehicles = volume**

Compaction is rarely performed at the truck level, so a truck could be filled by a very small amount of waste (i.e. empty boxes). This would give an inaccurate result of total volume of waste produced.

- **Estimated volume x estimated density for generic (household or industrial) waste = tonnes**

The density of waste varies greatly dependent on what it is (e.g. plastic is lighter (less dense) than sawdust). Using a single figure to calculate waste density without knowing the type of waste present would give an inaccurate total density of waste produced.

A pilot study was undertaken to evaluate different methods of assessing household waste generation by Communal Enterprises as well as looking at the different types of waste arising from different generators (households, schools and institutions). The approach was based on the need to provide better information on the composition of waste, to allow a more accurate calculation of volume and density, and to establish better mechanisms for treatment, recycling and compliance to legislative requirements.

Three methods for the evaluation of composition were therefore used:

- ”Ω Simple questionnaires completed by the driver/ collectors of waste
- ”Ω Separation of waste at source in a “controlled” (i.e. school or hospital) environment
- ”Ω Physical sorting exercises performed on collected wastes at the landfill.

The pilot study was implemented in 14 municipalities. They were chosen to be representative of the overall socio-cultural context. This ensures that the results can be interpolated to the whole country. Each study was performed twice, to cover the winter and summer periods, as seasonal influences are perceived by municipality staff to be very pronounced.

The specific methodologies implemented for assessment of wastes from each of the different producers (households, schools and medical facilities) were designed to gather data on:

- ”Ω **Composition of wastes** from a given source
- ”Ω **Volume** of each waste type
- ”Ω **Weight** of each waste type
- ”Ω **Density conversion factor** of volume to weight for a given waste type. This is particularly useful for estimation of Municipal Solid Wastes (domestic type wastes) as the lack of compaction vehicles yields a MSW density different to those in countries that have many compaction vehicles.

Data collected: N° of population / households, volumes of waste (kg and m³/capita/day)

Waste reused or recycled as a share of the total waste in a country – in total, by sector (industrial and municipal solid waste) and by negative impact (hazardous waste) is another indicator. Waste reuse and recycling is an important component of sustainable use of resources in general and sustainable solid waste management in particular.

Final waste disposal is the share of the total amount of waste generated – in total, broken down by sector and broken down by negative impact – that is finally disposed of by incineration (without energy recovery or use as a fuel) or land filling on a controlled site. The indicator provides a measure of the pressure on the environment and the response to the efficiency of the waste management system.

In the EU, the [waste framework directive](#) provides for increased efforts to prevent and reduce waste generation, recover wastes and develop new techniques for final disposal of waste. The European Union's approach to waste management is based on three principles: waste prevention; recycling and reuse; improving final disposal and monitoring.

D.14.6.2. SOURCE OF DATA

The precise definition of what constitutes waste varies. According to the [Basel Convention](#), whose framework agreements were also signed by several developing countries (e.g. Senegal, Nigeria, Indonesia, Trinidad and Tobago), wastes are substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law. Principally, waste is materials that are not primary products (i.e. produced for the market), for which the generator has no further use, and discards, or intends to or is required to discard. Waste statistics should group waste according to main economic activities (ISIC).

Industrial waste covers waste generated by mining and quarrying, manufacturing industries, energy production and construction. Waste from industrial activities that is removed by municipal waste collection should be reported under the respective sector of generation.

Municipal solid waste includes all municipal waste collected plus the estimated amount of municipal waste from areas not served by a municipal waste collection service.

The amount reported under "total waste generation" should be equal to the sum of the waste amounts reported as industrial waste, waste generated by other economic activities (e.g. agriculture and forestry) and municipal solid waste.

Hazardous waste includes those of the above-mentioned categories which should be controlled according to the Basel Convention.

Data on the generation of industrial waste are usually collected by authorities responsible for the environment or by NSIs, while data on municipal waste generation are collected by NSIs. Countries report data on internationally agreed types of hazardous waste to the Secretariat of the Basel Convention

and waste generation data to UNSD in their response to the [UNSD/UNEP Questionnaire on Environment Statistics](#).

Data on municipal waste collected are usually gathered through surveys of municipalities or from transport companies that collect waste and transport it to a disposal site. Such surveys deliver fairly reliable data. However, amounts of waste will vary, depending on the extent that municipal waste collection covers small industries and the services sector. Waste collected by the informal sector, waste generated in areas not covered by the municipal waste collection system or illegally dumped waste, are not included. Caution is therefore advised when comparing countries.

Data on [transboundary movement of hazardous wastes](#) are collected by customs offices and by environmental protection authorities in frontier areas. The most reliable and complete information can be obtained from Basel Convention focal points or competent authorities, which are responsible for reporting to the Convention secretariat. Some horizontal information, also for a number of developing countries, is available on the Internet site of the [United Nations Statistics Division](#).

Reuse and recycling is defined as any reprocessing of waste material in a production process that diverts it from the waste stream, except reuse as fuel (energy recovery). Assessment of reused and recycled waste requires precise assessment of total waste and the specific category of waste (industrial, municipal or hazardous). The indicator of waste reuse and recycling is derived by dividing the quantity of waste reused and recycled by the total quantity of waste and specific-category waste generated. For municipal waste, the proportion of reused and recycled waste may be presented as a percentage of reused and recycled components, such as metals, plastic, paper, glass, textiles or organic materials. Data on reuse and recycling of waste are usually collected by ministries responsible for urban affairs and the environment and by NSIs.

To measure the proportion of waste disposed of by different methods, a combination of several methods can be used. Data on final disposal of waste are collected by ministries responsible for urban affairs and environment and by NSIs. Data on generation and disposal of industrial waste are usually collected by the authorities responsible for the environment, while data on municipal waste generation and disposal are collected by NSIs.

The [UNSD/UNEP Questionnaire on Environment Statistics](#) provides a methodology for calculating waste generation by sector, for calculating waste reuse and recycling as well as for calculating final disposal. The Basel Convention has established an internationally agreed methodology for calculating the amount of hazardous waste generated.

To find out more...

- [EC - DG Environment – Waste](#)
- [EEA \(waste indicators\)](#)
- [Basel Convention](#)
- [ETC SCP \(EEA European Topic Centre on Sustainable Consumption and Production\)](#)
- [Eurostat \(Environmental Data Centre on Waste\)](#)
- [UNSD/UNEP Questionnaire on Environment Statistics \(waste and water\)](#)
- [“Guidance Manual on Environmentally Sound Management of Waste”. OECD 2007](#)
- [“A study on methodologies relevant to the OECD approach on sustainable materials management”. OECD 2008](#)

D.14.7. Biodiversity and protected areas

D.14.7.1. CONCEPTS AND DEFINITIONS

Indicators on biodiversity and protected areas are a vital part of environmental statistics. The protected areas indicator shows the areas of land, water surfaces and adjacent air layer protected in compliance with national legislation. It includes the area of highly protected territories and their share in the total area of the country. Additional indicators can be developed for the categories of natural territories which have a special [World Conservation Union \(IUCN\)](#) status and for the national categories of protected areas to demonstrate their respective extent and share in the total area of the country. The indicator is expressed as total area in km² and as a percentage of the total country territory as well as by IUCN category.

The indicator provides a measure of the response to the degradation of ecosystems and the loss of biodiversity in a country. It demonstrates the extent to which areas important for conserving biodiversity, cultural heritage, scientific research (including baseline monitoring of processes in the ecosystems), recreation, natural resource maintenance and other environmental values are protected from incompatible uses.

Sustainable development depends on a sound environment, which in turn depends on ecosystem diversity. Protected areas, especially the full range of IUCN Protected Area Categories, are essential for conserving biodiversity and contributing to sustainable development.

Measures to conserve or restore biodiversity are taken at different geographical and policy levels (international, European and national). These measures may have different criteria and objectives but can be complementary. Thus the indicator concentrates on the trends of designated areas according to these different policy instruments and how effective they are in reaching objectives (sufficiency index).

At the international level, the United Nations [Convention on Biological Diversity \(CBD\)](#) aims at the establishment and

maintenance of comprehensive, effectively managed and ecologically representative national and regional systems of protected areas. Recommendation 16 of the Fourth World Congress on National Parks and Protected Areas establishes a target of 10% protected areas for each biome (major ecosystem type).

The [Biodiversity Indicators Partnership \(BIP\)](#) supports the development and use of indicators on biodiversity. It is actively supporting the implementation of the [Strategic Plan for Biodiversity 2011-2020](#). In 2011, the UN declared [2011-2020 UN Decade on Biodiversity](#), in support of the Strategic Plan. The Biodiversity Indicators Partnership coordinates and supports the development of [biodiversity indicators](#) at global, regional and national scales and for indicators to monitor progress towards the [Aichi Targets](#). The Biodiversity Indicators Partnership and the Secretariat of the Convention on Biological Diversity work closely together to ensure that the BIP is fully integrated into CBD processes, including providing capacity building for indicator development at national level.

The pan-European initiative [Streamlining European Biodiversity Indicators \(SEBI\)](#) was launched in January 2005 to develop appropriate indicators to assess achievement of the biodiversity targets towards 2010 at European level. The SEBI initiative is continued towards 2020, aiming at transparently [measuring progress towards the new European and global 2020 biodiversity targets](#). The ambition of these targets is to stop the loss of biodiversity and degradation of ecosystem services in the EU by 2020 and to upgrade the EU contribution to averting global biodiversity loss.

Over the last 25 years, a vast network of has been built up, covering nearly 26.000 protected areas in the EU Member States and a total area of more than 850.000 km², representing approximately 18% of total EU terrestrial area. This vast array of sites is known as the [Natura 2000 network](#) - the largest coherent network of protected areas in the world. The legal basis for the Natura 2000 network comes from the [Birds Directive](#), which dates back to 1979, and the [Habitats Directive](#) from 1992. Together with the Communication from the Commission [Halting the loss of biodiversity by 2010 — and beyond](#), these Directives constitute the backbone of the EU's internal policy on biodiversity protection.

D.14.7.2. SOURCE OF DATA

It is necessary to have maps of designated areas and inventories of all protected areas of the country showing their location, size, date of establishment and protection regime in accordance with national legislation and relevant international requirements. For inter-country comparisons, protected areas could also be grouped by the IUCN categories. Monitoring is done on an annual basis.

The size of the protected area (its “extent”) is the officially documented total area provided by the national authority or as listed by the [World Database on Protected Areas](#) and may be generated from spatial (GIS) boundary data. In the EU, the Natura 2000 network contains an overview over special protected areas (birds sites, habitat sites and marine

environment) according to **biogeographical regions** (Atlantic, Alpine, Boreal, Continental, Mediterranean and Macaronesian).

IUCN defines six management categories of protected area falling into two groups. **Totally protected areas** are maintained in a natural state and are closed to extractive uses. **Partially protected areas** are managed for specific uses (e.g. recreation) or to provide optimal conditions for certain species or communities. This methodology is increasingly used for land ecosystems, less so for marine ecosystems, and least for inland water ecosystems. Inland water ecosystems are usually lumped with land in a terrestrial classification. The methodology for this indicator has not been standardized.

In cooperation with the **UNEP World Conservation Monitoring Centre**, IUCN's World Commission on Protected Areas compiles the UN List of Protected Areas, which provides the name, IUCN category, location, size and year of establishment of all protected areas meeting the IUCN definition, regardless of size and whether or not they have been assigned an IUCN category for all countries. This information is also included in the **World Database on Protected Areas**.

The World Database on Protected Areas (WDPA) is compiled from multiple sources and is the most comprehensive global dataset on marine and terrestrial protected areas available. It is a joint project of UNEP-WCMC and the IUCN World Commission on Protected Areas working with governments and collaborating non-governmental organizations (NGOs).

To find out more...

United Nations and world

- United Nations [Convention on Biological Diversity \(CBD\)](#)
- [2011-2020 UN Decade on Biodiversity](#)
- [Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets](#)
- [Biodiversity Indicators Partnership \(BIP\) and its biodiversity indicators](#)
- United Nations Environment Programme: [World Conservation Monitoring Centre](#)
- [UN Division for Sustainable Development](#)
- [UNSD: Environmental indicators – section 'Biodiversity'](#)
- [International Union for Conservation of Nature \(IUCN\)](#)
- [World Database on Protected Areas \(WDPA\)](#)
- [OECD: Statistics on biodiversity-related aid](#)

European level

- [DG Environment: Nature and Biodiversity, the Natura 2000 network, EU Biodiversity Indicators and the Biodiversity Information System for Europe \(BISE\) web portal](#)
- [EEA: European Topic Centre on Biological Diversity \(ETC biodiversity\) and EUNIS diversity database](#)
- [Interactive presentation of the EU biodiversity strategy - Mid-term review](#)
- [Streamlining European Biodiversity Indicators \(SEBI\)](#)
- [Eurostat: Biodiversity statistics \(online article\) and biodiversity datasets](#)
- [Biodiversity Indicators Partnership \(BIP\)](#)
- [European legislation: Birds Directive, Habitats Directive and the European Union's Biodiversity Action Plan -Halting the loss of biodiversity by 2010 — and beyond](#)
- [Pan-European Common Bird Monitoring Scheme \(PECBMS\)](#)

D.14.8. Land cover and land use statistics

D.14.8.1. CONCEPTS AND DEFINITIONS

Land Cover/Land Use (LC/LU) information is basic information needed in many statistical fields: in agriculture statistics (covering Utilised Agricultural Area) to provide information on production areas and to estimate agricultural production, in forestry statistics (covering wood production areas) to estimate timber production (with forest inventory data) (see chapter D.17. on agricultural, forestry and fishing statistics), in urban statistics to calculate population density (see chapter D.18. on regional and small areas statistics), in environment statistics to inform agri-environmental indicators, biodiversity, landscape diversity, water quality, soil quality and soil erosion, etc. Further fields of application are spatial planning, urban and rural development, climate change, damage assessment in case of natural or man-made hazards, etc. (see chapter D.26. on sustainable development indicators).

LC/LU data is required at various spatial and administrative levels, i.e. local, regional, national and global. Depending on the application, the level of detail of the LC/LU classification varies from rough classifications (e.g. about 10 classes defined by the UNFCCC for reporting on Land down to more than 80 LC/LU types for biotope/habitat mapping (e.g. System for European countries).

Land

For land cover, the reference area is above the surface. This is not so obvious for land use, e.g. in view of complex multi-purpose use of buildings (parking areas, shops, offices and apartments on different floors of the same building) or of mine deposits (is the complete underground oil field the reference area or only the dwell?).

Another important aspect is the consideration of inland waters within the "land" definition. Eurostat excluded the inland water from the **statistical definition of the "land area" within the Demographic Statistic domain** due to the impact of inland water areas on indicators such as population density (e.g. 17% of the territory of the Netherlands is inland water).

Eurostat recommends including inland waters and tidal flats in **Land Cover/Land Use information**. In general, the definition of the reference area ("land") needs to be taken into account when using LC/LU data from multiple different sources. Although the LU/LC methodology has been developed in a European context, it builds on general concepts and approaches. Thus, this methodology and its basic principles may be applied in any developing country. In particular, the issue of inland waters and tidal flats is relevant in many developing countries.

Land cover and land use

Most of the existing information on LC/LU is mixing *land cover* and *land use*. Natural and semi-natural vegetation are described in terms of land cover, while agricultural and urban areas are described in terms of land use (see the [CORINE Land Cover classification](#)).

However, these are two different issues: distinction between land *cover* and land *use* is fundamental, though often ignored or forgotten. Confusion and ambiguity between these two terms lead to practical problems, particularly when data from the two different dimensions need to be matched, compared and/or combined. An example of a clear separation in land cover and land use is represented by the LUCAS nomenclature.

The Eurostat “[Manual of Concepts on Land Cover and Land Use Information Systems](#)” defines these terms as follows:

- **Land cover** corresponds to a physical description of space, the observed (bio-) physical cover of the earth’s surface. This description enables various biophysical categories to be distinguished - basically, areas of vegetation (trees, bushes, fields, lawns), bare soil (even if this is a lack of cover), hard surfaces (rocks, buildings) and wet areas and bodies of water (sheets of water and watercourses, wetlands). Land Cover is “observed”, meaning that observation can be made from various “sources of observation” at different distances between the source and the earth’s surface.
- **Land Use** corresponds to the description of areas in terms of their socio-economic purpose: areas used for residential, industrial or commercial purposes, for farming or forestry, for recreational or conservation purposes, etc. Links with land cover are possible; it may be possible to infer land use from land cover and conversely. But situations are often complicated and the link is not so evident. Contrary to land cover, land use is difficult to “observe”. For example, it is difficult to decide if grasslands are “natural” (or semi-natural), so not used, or if they are used for agricultural purposes. The information coming from the source of the observation may be sufficient, e.g. indications on the presence or absence of cattle, or may require additional information, for example from the land owner or the farmer.

The LUCAS manual has been designed for the European level, but its overall methodology could be applied in any other region/country of the world. The definitions of “land cover” and “land use” may need to be adapted in response to the particular situation in individual countries.

D.14.8.2. SOURCE OF DATA

There are two main approaches for collection of land cover / land use data:

1. **The mapping approach: land cover/use of the ‘Area of Interest’ is exhaustively (“wall-to-wall”) mapped on the basis of topographic or cadastral maps or aerial photographs or satellite images such as GLOBCOVER (covers countries worldwide, e.g. China, Mexico, Argentina, Democratic Republic of Congo, Burkina Faso and other African countries) and CORINE Land Cover;**
2. **The statistical (sampling) approach: sample of units are observed and the land cover/use estimated. These units can be selected from a list of administrative or socio-economic entities (list frame surveys) or can be represented by a portion of land – polygons, lines (transect), points (area frame surveys). An example of a list frame survey on LC/LU in EU is the Farm Structure Survey. AGRIT in Italy, ESYRCE in Spain, Countryside Survey in the UK, TerUti in France, Eurostat’s Land Use / Cover Area frame statistical Survey - LUCAS are examples of area frame surveys in individual countries in Europe.**

Exhaustive mapping of land cover/use is required when spatially explicit information is needed, for example in regional/physical planning or calculation of indicators on spatial patterns of a landscape (e.g. fragmentation). Land use/cover mapping can be time and cost intensive, depending on the size of the area to be covered and the level of detail in terms of land use/cover types and geometry, i.e. the scale of the resulting map.

A detailed biotope mapping of a small natural conservation area is best carried out by field survey, for example by botanists going on the ground and map the areas occupied by specified plant societies in the dedicated area. Such a field survey is time consuming and cost intensive. If there are a number of similar biotopes within a country, surveying a representative statistical sample of such areas allows estimating the areas covered by the same type of biotope at the level of the country.

An additional method to collect spatially explicit LU/LC data is remote sensing. Energy reflected or emitted from the earth’s surface is recorded by cameras or digital sensors (CCDs) mounted on airplanes, helicopters, balloons or satellite platforms, recording the energy in a multitude of bands of the electromagnetic spectrum. Satellite images cover large areas with a stable geometry, yielding easier handling of the data for geo-referencing (projecting the image onto map coordinates). Satellites fly regularly over the same area with the same specifications, making data processing a routine task and monitoring of changes much easier. The dependency of optical sensors of the weather is overcome through RADAR sensors, which can “see” through clouds. The geometric resolution of airborne digital images allows a larger mapping scale than space borne data, but the difference in resolution is decreasing. The remote sensing approach requires ground-truth data for calibration.

List and area frame surveys represent a common approach to gather land cover and land use data. In contrast to mapping techniques, they provide quantitative statistical results with precision indicators attached to them. Based on the visual observation of a sample of units, estimates of the extent of land cover/use classes are computed. The list frame surveys are mainly used when the scope of the analysis is a specific domain (i.e. agricultural areas). If the scope is extended to all the dimensions of LC/LU, usually the area frame approach is chosen.

The implementation of an area frame survey can go through different steps. For example, in the case of the [LUCAS EU survey](#), first a hypothetical grid is laid over the EU territory. The grid nodes are super-imposed over aerial photos and satellite images, with the land cover on these points photo-interpreted and pre-classified (stratification phase) with a very broad aggregation. For receiving the necessary detailed classification and avoiding errors due to photo-interpretation, a sample of these points is physically surveyed on the ground. The results, which the surveyors report to the office, are combined with the outcomes of the stratification, for calculating area estimates on the land cover and land use classes all over Europe.

The Eurostat "[Manual of Concepts on Land Cover and Land Use Information Systems](#)" ⁽⁵¹⁾ is a reference for further reading on land information methodologies, data collection approaches and survey methods.

Box 14.7: Examples of Land Information Systems

[GlobCover](#) was an ESA initiative in partnership with JRC, EEA, FAO, UNEP, GOCF-GOLD and IGBP. The GlobCover project developed a service capable of delivering global composite and land cover maps, using as input observations from the ENVISAT satellite mission. GlobCover provided satellite data and land cover products at global and regional level according to the FAO "[Land Cover Classification System \(LCCS\)](#)".

The [US Geological Survey \(USGS\)](#), together with the US National Aeronautics and Space Administration (NASA), provides global coverage of digital satellite images from the US Landsat satellites. Based on this data, historic monitoring of land cover/use can be carried out.

The Environmental Data Explorer is the authoritative source for data used by the UNEP Global Environment Outlook (GEO) and other integrated environment assessments. Its online database holds more than 500 different variables, as national, sub-regional, regional and global statistics or as geospatial data sets (maps), covering themes like Freshwater, Population, Forests, Emissions, Climate, Disasters, Health and GDP.

The Africover Project established a digital geo-referenced database on land cover and a geographic referential for the whole of Africa, including geodetical homogeneous referential, toponymy, roads and hydrography, in the Multipurpose Africover Database for the Environmental Resources (MADE). The core strategy of Africover was to reinforce national and sub-regional capacities for establishing, updating and using geographic referential and land cover maps and spatial data bases. This methodology has been adopted to ensure an operational approach and the sustainability of the initiative. Africover was the basis for the establishment of the [Global Land Cover Network \(GLCN\)](#).

The European Environment Agency coordinates the "[CORINE Land Cover](#)" project, covering about 32 European countries. The data is photo-interpreted on the base of satellite imagery. There are currently 3 data sets available (1990, 2000 and 2006).

Eurostat collects information via its "[Land Use / Cover Area frame statistical Survey - LUCAS](#)". LUCAS is a field survey, carried out on sample points spread over the entire territory of the Member States. Data on land cover and land use is collected and landscape photographs are taken, enabling detection of changes in LC/LU and in European landscapes. There are currently 2 datasets available (2006, 2009).

To find out more...

- European Environment Agency: [CORINE Land Cover and Indicator reporting on the integration of environmental concerns into agricultural policy \(IRENA\)](#)
- Eurostat: [Manual of Concepts on Land Cover and Land Use Information Systems and the Land Use / Cover Area frame statistical Survey \(LUCAS\)](#)
- FAO: [Land Cover Classification System \(LCCS\)](#)
- The [Africover Project with the Multipurpose Africover Database for the Environmental Resources \(MADE\)](#)

⁽⁵¹⁾ Currently under revision

D.14.9. Analysing data quality and identifying problems

Environment problematic is a horizontal issue in the sense that all human activities are concerned to some extent. Developing environmental indicators thus requires information related to a wide range of activity sectors.

Like all indicators, the quality of environmental indicators and statistics relies on the quality of data and statistics used as input (see [section C.5.3](#) for a more detailed discussion of statistical quality). Generally, more than one institution or body is involved in gathering data and information necessary to establish environmental indicators; each of them is responsible for compiling information on specific activities, potential emission sources, monitoring environmental parameters etc. All these institutions, at all levels from local to national, have or should follow harmonised procedures to ensure quality and inter-comparability of the data they are collecting as well as of the statistics they are producing.

Good quality and reliable indicators should meet some basic and inter-related criteria:

- Reliability of sampling and measurement: sampling and measurement should follow standardised international procedures like ISO/CEN standards. It is an asset to use certified and trained personnel for sampling, especially when samples for laboratory analysis are being obtained. Ideally there should be one reference laboratory at the national level accredited ISO 14025, the main standard used by testing and calibration laboratories.
- Representativeness and completeness: the indicator integrates all input data needed in terms of e.g. spatial and time coverage. (For example, emission inventories will cover all SNAP sectors.) Collecting adequate and precise information on the sampling/monitoring location is therefore of utmost importance in order to evaluate results.
- Consistency and coherence: the environmental indicator should be meaningful and should not be in contradiction with other related indicators or statistics. For example, the water losses indicator should be consistent with those on a freshwater abstraction and on water usage, and the ambient air concentration for one pollutant should be consistent with the corresponding emission indicator.

- Comparability: this is ensured by using similar and harmonised definitions and methodologies at the national level but also in line with international standards in order to allow comparison between countries. The use of standardized methods as far as feasible (depending on costs and complexity) ensures not only data quality as explained above, but also comparability of results both within a country and internationally. For example, national definitions of hazardous waste may change over time, as national legislation is revised. Therefore, the definition of hazardous waste varies greatly from one country to another, and sometimes also over time.
- Traceability: reliable and full documentation is of utmost importance when updating or repeating an exercise, e.g. for another year in order to allow trend analysis. Lacking traceability and documentation may limit data quality and comparability.

To this end, quality control procedures covering the different aspects related to these different criteria should be developed and implemented at the different levels of the data chain, from sampling and data acquisition to the final compilation. Cross-checking, expert judgment and quantification of uncertainties are important tools in order to evaluate fulfilment of the above criteria but also to identify possible data and knowledge gaps.

This is illustrated in [Box 14.8](#) where data quality requirements for the [European Air Quality monitoring network \(EuroAirnet\)](#) are defined. In [Box 14.9](#), uncertainties associated to emission inventories are presented. This example concerns the emissions of green house gases, but this also applies to the emission inventories described in [section D.14.2](#).

Box 14.8: Data quality requirements for EUROAIRNET

Precision. The closeness of agreement between independent test results obtained under stipulated test conditions.

Notes:

- Precision depends only on the distribution of random errors and does not relate to the true value or the specified value.
- The measure of precision is usually expressed in terms of imprecision and computed as a standard deviation of the test results. Less precision is reflected by a large standard deviation.
- “Independent test results” means results obtained in a matter not influenced by a previous result on the same or similar test object. Quantitative measures of precision depend critically on the stipulated conditions.
- Repeatability and reproducibility conditions are particular sets of extreme conditions (ISO 5725-1, 1994).
- *Repeatability*: Precision under repeatability conditions (ISO 5725-1, 1994).
- *Repeatability conditions*: Conditions where independent test results are obtained with the same method on identical test items in the same laboratory, by the same operator, using the same equipment within short intervals of time (ISO 5725-1, 1994).
- *Reproducibility*: Precision under reproducibility conditions (ISO 5725-1, 1994).
- *Reproducibility conditions*: Conditions where independent test results are obtained with the same method on identical test items in different laboratories, with different operators, using different equipment (ISO 5725-1, 1994).

Accuracy. The closeness of agreement between a (one) test result and an accepted reference value.

Note :

The term accuracy, when applied to a set of test results, involves a combination of random components and a common systematic error or bias component (ISO 5725-1, 1994).

Correctness. The closeness of agreement between the average value obtained from a large series of test results and an accepted reference value.

Notes:

The measure of correctness is usually expressed in terms of bias. It was referred to as “accuracy of the mean” which is not recommended (ISO 5725-1, 1994).

Representativeness. This parameter expresses the degree to which the air pollution measurement data are adequately representative, both of the location in which monitoring is taking place, and of the time period to be covered. The location (spatial) part can be quantified by the area of representativeness: the area in which the concentration does not differ from the concentration measured at the station by more than a specified amount. The temporal part is covered by the data capture and time coverage indicators below.

Data capture. The percentage of measurements made which are judged to be valid measurements.

Time coverage. The percentage of time covered by the operational time of the measuring device.

Comparability. This is a qualitative parameter expressing the confidence with which one set of air pollution measurement data can be compared with another. Data representative of air pollution levels of a location should be possible to compare with measurement data of another similar location. It should be noticed that data of known precision and accuracy and with a high degree of representativeness and completeness can be compared with confidence.

Source: [Criteria for EUROAIRNET - The EEA Air Quality Monitoring and Information Network](#)

Box 14.9: Identifying uncertainties in emission inventories

In inventories of emissions, it is important to consider the estimated uncertainty of emissions from individual sources (e.g. power plants, motor vehicles, dairy cattle). This may depend on the way emission data are measured; how data are fitted with other information and how often measurement is carried out. More often, the uncertainty comes from a combination of the uncertainties in the factors affecting the emissions from a source and the activity of that source (e.g. the production at a power plant, the kilometres driven by motor vehicles). The uncertainties in the emission factors and in the data on activity should be described using so-called 'probability density functions'. A detailed overview of this issue which is also applicable in developing countries is given in 'Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories' published by the IPCC Task Force on this topic.

Uncertainties affecting emission inventories may be associated with:

- Continuous monitoring of emissions, which is usually consistent with good practice for the specific type of emission source.
- Direct determination of emission factors. In some cases, emission measurements may be available at a site. If these measurements can be linked to activity data, it is possible to determine a site-specific emission factor. This can be a complex task, as emissions may be dependent on e.g. start-up and shut-down as well as load.
- Emission factors from published references. When site-specific data are unavailable, good practice will usually be to use emission factors drawn from scientific literature. However, there are uncertainties both associated with the original measurements and whether these fit to the actual site.
- Activity data, which are closely linked to economic activity and are normally well defined, e.g. through tax and accounting rules. Activity data therefore tend to have lower uncertainties. Activity data are usually collected regularly by NSIs.
- Expert judgement, which should be used when empirical data are lacking.

D.14.10. Improving sector statistics

As mentioned earlier, more than one institution is possibly involved throughout the monitoring and in generating indicators. In many countries, however, there is no or not a fully developed structure to manage environmental information. A first step would then be to set up a structure responsible for collating and compiling environmental information.

The structure must comprise for each environmental sector (air, water, waste ...) all institutions or bodies in charge of:

- generating the necessary information and data (including those carrying out monitoring of environmental parameters);
- collating and compiling information and data.

The responsibilities must be clearly identified in terms of area(s) of competence (including international commitments) and duties. These bodies may not have experience in working together and/or authority of sharing information. So coordination and connection channels will be established if necessary in order to ensure effective data and information sharing. This may require the development of memoranda of understanding and even in some cases the amendment of legal instruments ruling the functioning of public services.

Box 14.10: DG EuropeAid: Environmental Integration Handbook for European Commission Development Co-operation

DG EuropeAid's "Environmental Integration Handbook for EC Development Co-operation" provides an introduction to the rationale and concepts for environmental integration. It outlines an operational framework covering the three main aid delivery modalities. To enhance the efficiency of development activities, it is crucial to consider environmental issues already in preparation of the Country Strategy Paper (CSP) and National Indicative Programme (NIP) has to address this topic.

In order to adequately inform this process, the key tool is the **Country Environmental Profile (CEP)**. The CEP is a report that contains a description and broad assessment of a country's environmental situation, policy and regulatory framework, institutional capacities and environmental co-operation. The CEP is primarily meant to facilitate the integration of the environmental dimension in the country analysis, response strategies and multi-annual programming. The CEP should also be used to underpin policy dialogue.

The Handbook provides an example of Terms of Reference for developing a CEP (Annex 2). However, whereas the Handbook defines the key areas that should be covered by the CEP, it does not define specific indicators. In this process, existing indicators and methodologies should be applied as far as possible. The EEA core set of environmental indicators, presented in [Box 14.11](#) below, could be used as reference and basis.

Another critical issue is to identify the indicators which need to be generated. There are hundreds of environmental indicators in use over the world. In practice it is not realistic or even necessary to generate all of them. The competent authorities must decide on priority indicators, taking into account:

- the national geographical context;
- main environmental issues at stake in the country;
- data and information readily available and those that are envisaged for the near future;
- available human and financial resources and constraints.

A comprehensive set of environmental indicators that can be used as a reference is the EEA core set of indicators. This set of indicators is made up of groups of indicators by theme/sector, informing both generic and more specific policy questions. The EEA core indicators were established in 2004 and revised in 2014. The choice of themes and sectors

reflects policy priorities, EEA investments over the past decade and the diversity of EEA indicators. This approach enables indicator-based assessments of progress against key environmental policy priorities. The EEA core set of indicators comprises the indicators regularly produced by the EEA. However, the indicator set does not comprehensively cover all environmental issues. The revised EEA core set of indicators is given in Box 14.11. [Box 14.11](#).

Box 14.11: EEA core set of indicators

A. Air pollution, transport and noise

- Air pollution
 - Emissions of main air pollutants
 - Exceedance of air quality limit values in urban areas
 - Exposure of ecosystems to acidification, eutrophication and ozone
- Transport
 - Passenger and freight transport demand
 - Use of cleaner and alternative fuels
- Industry
 - Pollutant releases to air, water and waste from industrial facilities (new indicator under development)
- Noise
 - Population exceeding ambient noise limit values (for road traffic), (new indicator under development)

B. Climate change and energy

- Climate change mitigation
 - EU and national total greenhouse gas emission trends and projections, (new indicator under development, based on merging indicators 'greenhouse gas emission trends' and 'progress to greenhouse gas emission targets')
 - Atmospheric greenhouse gas concentrations
 - Production, consumption and emissions of fluorinated gases, (new indicator under development)
- Climate change impacts
 - Global and European temperature
 - Cryosphere trends for European glaciers and sea ice, (new indicator under development, based on indicators 'glaciers', 'Greenland ice sheet' and 'Arctic and Baltic sea ice')
- Energy
 - Overview of European energy system, (new CSI indicator is introduced and three indicators ('primary energy consumption by fuel', 'renewable primary energy consumption' and 'renewable electricity consumption') moved to the outer core)
 - Share of renewable energy in final energy consumption, (new CSI indicator previously published by EEA)

C. Freshwater resources

- Water resources/ water scarcity and drought
 - Use of freshwater resources
- Freshwater ecosystems
 - Trends in ecological status (new indicator under development)
- Water pollution and quality
 - Oxygen consuming substances in rivers
 - Nutrients in freshwater
- Water and health
 - Bathing water quality
- Climate change impacts on water

- Climate change impacts on water (new indicator under development, based on indicators 'river floods' and 'damages from weather and climate-related events')

• Pressures on water

- Pressures on water

D. Marine and maritime

- Transitional, coastal and marine water quality
 - Nutrients in transitional, coastal and marine waters
 - Chlorophyll in transitional, coastal and marine waters
 - Hazardous substances in marine organisms (new CSI indicator previously published by EEA)
- Fisheries
 - Status of marine fish stocks
 - Fishing fleet capacity
- Climate change
 - Sea surface temperature (new CSI indicator previously published by EEA)
 - Global and European sea level rise (new CSI indicator under development, based on merging indicators 'global and European temperature' and 'storm surges')

E. Biodiversity and ecosystems

- Status and trends of the components of biological diversity
 - Species and habitats of European interest (new indicator under development, based on indicators 'species of European interest' and 'habitats of European interest' with additional information from Birds Directive reporting)
 - Designated areas Indicator
 - Abundance and distribution of selected species (new CSI indicator previously published by EEA)
- Threats to biodiversity: Habitat loss and degradation
 - Land take
 - Fragmentation of habitats and ecosystems (new indicator under development)
- Sectors – agriculture and forests
 - Agricultural areas under Natura 2000 (new indicator under development.
 - Forest: growing stock, increment and fellings and deadwood (new indicator under development, based on indicators 'forest: growing stock and deadwood' and 'forest: deadwood')

F. Waste and resources

- Waste generation
 - Waste generation (new indicator under development and 'municipal waste generation' retained until new indicator is published)
- Waste recycling
 - Waste recycling (new indicator under development)
- Waste diversion from landfill/ disposal
 - Diversion of waste from landfill (new indicator under development)
- Household consumption
 - Household environmental pressure intensity (new CSI indicator previously published by EEA)
- Energy efficiency
 - Total primary energy intensity
- Decoupling of environmental pressures
 - Decoupling of resource use from environmental pressures (new indicator under development)
- Decoupling of environmental impacts
 - Decoupling of resource use from environmental impacts (new indicator under development)

Box 14.12: Environmental accounting

The environment has an important impact on every economy and has to be considered in the context of globalisation. Environmental accounting is an indispensable tool to measure the role played by the natural environment in the economy. It should highlight both the contribution of natural resources to economic well-being and the costs of pollution and resource degradation. Environmental accounts are designed as “satellite accounts” to accompany the System of National Accounts (SNA). However, they show results in monetary terms only in a few cases. In general, environmental accounts are divided into the following sections:

- Economic environmental accounts;
- Physical environmental accounts;
- Environmental asset accounts;
- Production and consumption structures.

At EU level, environmental accounting has been endorsed into the [Statistical Programme](#) in 2003 and has its legal basis in [Regulation \(EU\) No 691/2011 on European environmental economic accounts](#). An expansion of environmental accounts statistics with high quality, reliability and timeliness is also required in the [conclusions on the Europe 2020 strategy](#) by the European Council.

Methodologies for all sections mentioned above need to be developed. Eurostat has data on [environmental accounts](#), which are divided into “monetary flow accounts” and “physical flow and hybrid accounts”. Both datasets are still being improved and enhanced. Data availability is slowly improving. Although environmental accounts provide a wealth of detailed statistics, data availability is not yet sufficient to deliver headline indicators. Beside the already existing indicators, Eurostat, the European Environment Agency, the OECD, the WWF and the Club of Rome are involved in [additional environmental accounting projects](#) on land cover accounts, ecosystem capital accounts, water accounts as well as sustainable consumption and production analysis.

Methods on environmental accounting statistics are not yet agreed internationally or are still under development. However, due to the strong links between the environment and the economy in many developing countries, they should keep the data needed for environmental accounts in mind when designing their statistical strategies.

A condition for the collection of these statistics is a sound methodology for the collection of national accounts data and the availability of the main datasets for national accounts. Based on these data, developing countries may follow the European Union’s approach and prepare data for the indicators which can be derived from the national accounts system. These are environmental (protection) expenditure and investment by the public and by economic sectors, as well as environmental tax revenues.

Some developing countries, for example Chile, Ecuador, India, the Philippines, Botswana, Namibia, South Africa and Zimbabwe have already some experience in environmental accounting. Information on the work and results achieved by these and further developing countries is provided by the [United Nations Statistics Division](#).

To find out more...about environmental accounting

- Eurostat: [Environmental accounts](#)
- European Environment Agency (EEA): [An experimental framework for ecosystem capital accounting in Europe](#)
- International Union for Conservation of Nature (IUCN) - [scientific background and information on country approaches](#)
- United Nations: [Handbook of National Accounting: Integrated Environmental and Economic Accounting \(2003\)](#)
- London Group on Environmental Accounting
- “GDP & beyond”

To find out more...

European Commission

- DG EuropeAid: [Environmental Integration Handbook for EC Development Co-operation](#)
- European Environment Agency (EEA), its [Core Set of Indicators \(CSI\)](#) and ‘[Environmental indicators: Typology and overview](#)’ (1999)
- [European Environment Information and Observation Network \(EIONET\)](#)
- Eurostat: [Environmental statistics and accounts and Sustainable Development Indicators \(SDI\)](#)
- [DG Environment](#)

United Nations

- United Nations Economic Commission for Europe (UNECE): [Environmental monitoring and assessment, environmental indicators, ‘Environment for Europe’ process and ‘Online Guidelines for the Application of Environmental Indicators’ \(2007\)](#)
- [UN Division for Sustainable Development and Sustainable Development Knowledge Platform](#)
- UN Statistics Division (UNSD): [Environmental indicators and the Sustainable Development Goals indicators database](#)
- [United Nations Environment Programme \(UNEP\)](#)
- World Health Organization (WHO): [Environment and health information system \(ENHIS\)](#)

Other sources

- Organisation for Economic Co-operation and Development (OECD): [Environmental statistics, data and indicators](#) and ‘[Environment at a Glance](#)’ (2015)
- [Convention on Biological Diversity \(CBD\)](#)

D.15

Transport statistics



D.15. Transport statistics

The chapter in brief

Transport infrastructure and networks play an important role in economic and social cohesion. Transport networks are important for trade and economic development by bringing goods and services to customers and by bringing passengers to work, schools, etc. Transport is also a key dimension of external trade (see [chapter D.10.](#)).

This chapter covers a wide area of transport statistics, such as infrastructure, equipment, enterprises, traffic flows, passengers and freight, accidents, etc. It starts by identifying the main policy areas for which these statistics are used (see also [section B.1.5.1](#) on the European Consensus on Development and [section B.4.3](#) on the relationship between policy areas and statistics fields). The chapter provides an overview over the different transport statistics collected and information about the most important definitions and methods. The main sources of data are presented, followed by advice on how to analyse the quality of transport statistics. Most importantly, the chapter concludes with advice on how to build or to improve transport statistics in developing countries.

D.15.1. Policy applications: what transport data is used for

Transport statistics have a wide variety of uses and allow monitoring of a wide range of areas:

- Transport plays a crucial role in the economy, bringing goods and services to customers: mobility of goods is necessary to facilitate trade and economic growth. The ability to move goods safely, quickly and cost-efficiently to markets is important for international trade, national distributive trades, and economic development. Strains on infrastructure, demonstrated by congestion and delays, as well as the constraints of disparate standards, technical barriers, poor interoperability and governance could all impact on economic development. All dimensions of sustainability - environmental, economic and social - are strongly impacted by transport activity.
- Transport is also necessary to take passengers to work or school (but also to shops or leisure activities). Within cities, transport infrastructure, norm setting, congestion and traffic management, public transport services, infrastructure charging, urban planning, safety and security have to be managed and improved. In addition, inter-urban passenger travel by rail, road or airplane, can also be strengthened by improvements to the infrastructure.
- Transport infrastructure and networks play an important role in economic and social cohesion, by linking island, landlocked and peripheral regions with more central regions, through interconnecting and interoperable national networks by land, air, sea and inland waterways. Better integration of national networks fosters regional cooperation and integration between neighbouring

countries. From a regional perspective, an extensive network of roads, motorways and railway links is a prerequisite for economic development and interregional competitiveness.

- Growing mobility has an undesirable impact on safety, on congestion and on the environment. Thus transport statistics are also needed to address the underlying issues and make it easier to model them. In particular, the transport sector is the fastest growing consumer of energy and producer of greenhouse gases.
- Improvements in safety and security in transport is a very important question and statistics are needed to monitor it.
- Intermodal freight transport policy supports the efficient 'door to door' movement of goods, using two or more modes of transport, in a highly integrated transport chain. Each mode of transport has its own advantages either in terms of potential capacity, levels of safety, flexibility, energy consumption, or environmental impact. As such, this intermodal transport allows each mode to play its role in building transport chains which overall are more efficient, cost effective and sustainable.

Box 15.1: Links between transport and Millennium Development Goals

The 2005 African Union Summit recognised the important role of transport infrastructure and services in meeting the Millennium Development Goals (MDGs). A number of targets were set for the transport sector, covering each of the eight MDGs. (See [section B.1.1.](#) and [section B.4.1.](#) for more information on the MDGs.) These targets, to be reached by 2015, include:

- Have the proportion of rural population living beyond 2 km of an all-season mode of transport, in order to improve access to inputs and markets and generation of employment opportunities;
- Narrow down the difference in average transport cost within Africa by 50 percent as compared to Asia;
- Reduce rate of accident fatalities arising from road and other means of transport by half;
- Have the number of urban and rural residents for whom mobility problems severely constrain access to employment and essential services;
- Promote environmental sustainability in all transport operations and development programs;
- Phase out the production and use of leaded petrol;
- Dismantle all physical and non-physical transport barriers that increase journey time, customs clearance and border delays and impede the flow of goods and services;
- Take into consideration the phenomenon of desertification and sand movement in the transport policies and programs.

D.15.2. Concepts and definitions

The statistics covered in this section are defined by section 2.4.4 'Transport' of the new UNECE Classification of International Statistics Activities, which was introduced in section B.4.3. This area covers statistics on all modes of transport – air, rail, road, inland waterways, sea - and includes topics like transport infrastructure, equipment, traffic flows, personal mobility, safety, energy consumption, transport enterprises, passengers and freight transport, transport sector trends, road traffic accidents. It excludes transport prices.

Transport statistics collect information on traffic (in vehicle-kilometres), transport measurement (number of passengers and tonnes) and transport performance (passenger-kilometres or tonne-kilometres) by the individual modes: road, rail, inland waterway, sea and air. Aggregated statistics are also available on enterprises, employment, infrastructure and means of transport. The aim is to measure the transport activity either on the territory of an individual country or across a multi-country region or sub-region.

A [multilingual glossary of transport statistics](#) is maintained and developed by Eurostat in collaboration with two international partners, the [United Nations Economic Commission for Europe \(UNECE\)](#) and the [International Transport Forum \(ITF\)](#), in order to promote common definitions and concepts for transport statistics. This glossary provides reference definitions for transport statistics for all modes and meets the need to harmonise transport statistics at the international level.

Numerous statistical indicators are collected in order to give a complete overview of transport activity in a country. The main ones are:

- **Infrastructure:** length of railway lines operated, length of motorways and other roads, length of navigable inland waterways, length of pipelines operated;
- **Transport equipment:** number of road vehicles (motorcycles, passenger cars, motor coaches and buses, lorries and road tractors), number of locomotives and wagons, number of self-propelled vessels, tugs and pushers, and dumb and pushed vessels; new registrations of vehicles during the year;
- **Transport enterprises:** number of enterprises, number of employees;
- **Traffic:** vehicle-kilometres;
- **Transport measurement:** number of passengers and tonnes carried, passenger-kilometres, tonne-kilometres.

Several classifications are needed for transport statistics. In particular, it is necessary to know the type of goods carried. The [NST 2007 \(Nomenclature uniforme des marchandises pour les statistiques des transports\)](#) is the commodity classification used for the European Union statistics on transport. NST 2007 takes account of the economic activity

from which the goods originate. This means that each of its items is strongly interrelated with an item of the European [CPA \(Classification of Products by Activity\)](#) and [NACE \(statistical classification of economic activities\)](#), which are themselves consistent with [CPC](#) and [ISIC](#), their counterparts at UN level. In addition, specific classifications – [ADN](#) (for inland waterways) and [ARN](#) (for road transport) - have been introduced for dangerous goods.

In transport statistics, the place of loading/unloading of the goods or the place of embarkation/disembarkation of passengers plays also an important role. This coding should be done according to the lists of administrative regions of each country. Member States of the European Union use the NUTS (Nomenclature of Territorial Units for Statistics).

It can also be useful to have information on the type of cargo. For this purpose, the classification of cargo types and the ["Codes for types of cargo, packages and packing materials, Recommendation 21"](#) were adopted by the United Nations Economic Commission for Europe.

Box 15.2: Data collections for transport statistics in the EU

Main legal acts on transport statistics

- Council Regulation (EC) N° 1172/98 on statistical returns in respect of carriage of goods by road;
- European Parliament and Council Regulation (EC) N° 91/2003 on rail transport statistics;
- European Parliament and Council Regulation (EC) N° 437/2003 on statistical returns in respect of carriage of passengers, freight and mail by air;
- Council Directive N° 95/64/EC on statistical returns in respect of carriage of goods and passengers by sea;
- European Parliament and Council Regulation (EC) N° 1365/2006 on statistics of goods transport by inland waterways.

Data collection on a voluntary basis

- Eurostat-ITF-UNECE Common Questionnaire;
- Eurostat REG Web questionnaire on regional transport.

D.15.3. Sources of data

Transport statistics are obtained from various sources. Information related to infrastructure and means of transport are available from administrative sources (road administration, vehicle registers, etc.) Data on enterprises are obtained from structural business statistics and data on employment from the labour force survey.

Traffic, transport measurement and transport performance are obtained through specific data collections that need to be implemented by the competent national authorities. The following data providers have the source information that allows producing statistics on transport measurement for the different modes of transport:

- Road freight transport statistics: road transport enterprises;
- Rail transport: railways undertakings;
- Air: airports;
- Sea: maritime ports authorities;
- Inland waterways: inland waterways ports authorities.

For the collection of road passenger transport, traffic and transport performed are produced using a combination of different sources: household survey, passenger mobility survey, census on road traffic (traffic counts), odometer readings, energy statistics on fuel consumption.

Box 15.3: Creation of new statistical data collections

Developing countries might need to implement new data collections. The success of a new data collection is linked to a good collaboration with data providers. With this aim, the following actions can be taken:

- Involve all stakeholders: ministries, transport associations and enterprises, port and airport authorities
- Sign service level agreements for data exchange or memorandum of understanding with data providers
- Obtain access to administrative registers to get administrative data needed for transport statistics
- Organise workshops with all partners to define the statistics to be produced and organise the data collection
- Collaborate with managers of other surveys – household, LFS – to obtain information to be used to produce transport statistics (possibly new questions needed for transport statistics could be added to these surveys questionnaires)

A new data collection can be implemented according to the following steps:

- Institutional building
 - Achieve agreements with data providers
 - Implement tools to ensure access to data needed
- Development of methodologies for the production of requested statistics
 - Collection of documentation on best practices
 - Adaptation to the national specificities

Regarding the dissemination of transport statistics, various international organisations publish transport statistics for their member countries.

The [International Transport Forum \(ITF\)](#), an inter-governmental organisation within the OECD, publishes annual reports on transport statistics and provides free access to its database on transport statistics. Key indicators are available for 52 countries on: freight transport by rail, road, inland waterways and oil pipelines; passenger transport by rail and road; road accidents; infrastructure investments and maintenance.

The [International Road Federation \(IRF\)](#) publishes the annual “World Road Statistics”. This publication includes road and transport statistics for more than 185 countries, compiled from a large number of sources (including Eurostat). It comprises statistics on road networks, traffic, multimodal traffic comparisons, vehicles, accidents and road expenditures. In addition, it covers production, imports, first registrations and exports of motor vehicles as well as energy in connection with road traffic.

The [United Nations Economic Commission for Europe \(UNECE\)](#) disseminates transport statistics for 57 countries. Several indicators are available for the following domains: road traffic accidents; road traffic; road vehicle fleet; railways traffic; railway vehicles; railway employment; inland waterways traffic; inland waterways vessels; oil pipeline transport; transport infrastructure.

[Eurostat](#) publishes EU Member States transport statistics for rail, road, inland waterways, oil pipeline, maritime and air in its free dissemination database. For each of these domains, an exhaustive list of indicators is published: infrastructure; equipment; enterprises, economic performances and employment; traffic; transport measurement for goods and passengers; accidents.

NSI publish also on their website transport data for their country. For example, the [Bureau of Transportation Statistics \(BTS\)](#) provides very complete information on transport in the United States.

Box 15.4: Sources for African transport data**Sub-Saharan Africa Transport Policy Program**

The [Sub-Saharan Africa Transport Policy Program \(SSATP\)](#) is a partnership of African countries, regional economic communities, African institutions, national and regional organizations as well as international development partners. These partners are all dedicated to ensuring that transport plays its full part in achieving poverty reduction, pro-poor growth, and regional integration in Sub-Saharan Africa.

One serious obstacle to the development of effective policy is the lack of reliable and accurate data on the transport sector. SSATP has addressed the lack of reliable transport data in the region and has supported the development of a common set of transport indicators. Since the launch in 2004, SSATP has been involved in 3 cycles of data collection, covering up to 21 countries. This initiative has helped countries build capacity in data collation, analysis and management in order to improve performance monitoring of the sector. Through the exercise, it has been possible to develop and agree on a minimum requirement for indicators for the transport sector. The indicators are accompanied by standard definitions and methodology for collection. Based on these experiences, SSATP develop guidelines for the establishment of efficient and sustainable Transport Sector Data Management Systems (TSDMS).

SSATP current work and priorities are described in the [SSATP Second Development Plan](#).

Africa Infrastructure Country Diagnostic

The Africa Infrastructure Country Diagnostic (AICD) project expands the knowledge of the physical infrastructure in Africa. It provides a baseline against which future improvements in infrastructures can be measured, making it possible to monitor the results achieved from donor support. It also provides a better empirical foundation for prioritizing investments and designing policy reforms in Africa's infrastructure sectors.

AICD collected detailed economic and technical data on infrastructure in 24 African countries. The project has produced a series of reports on public expenditure, spending needs, and sector performance in each of the main infrastructure sectors: energy, information and communication technologies, irrigation, transport, and water and sanitation. The main findings are summarised in the AICD flagship report [Africa's Infrastructure—A Time for Transformation](#), published by the World Bank in November 2009; the transport sectors (transport; roads; railways; ports and shipping; airports and air transport) are summarised in chapters 9 to 13.

The [AICD database](#) can be accessed online. It provides cross-country data on network infrastructure for, amongst others, air transport, ports, railways and roads. The database covers 24 countries (status as of November 2009). Phase 2 of AICD, which is underway, will cover most of the remaining countries; the data collected will be incorporated into the database.

The data gathered as part of AICD is being transferred to the African Development Bank (AfDB) for the development of an infrastructure database. This is in line with the efforts to merge all continental initiatives on infrastructure into the [Africa Infrastructure Knowledge Program \(AIKP\)](#) (2010).

D.15.4. Analysing data quality and identifying problems

The quality of transport statistics depends on the data coverage, the harmonisation of the definitions and methodologies across the countries of a given region or sub-region, as well as their compliance with international recommendations and classifications. For example, in the EU, the adoption of legal acts for the provision of transport statistics was an important factor for the improvement of data quality in terms of data availability and comparability across Europe.

One way to identify problems is to look at asymmetries in transport reported by two reporting units (e.g. multi-country regions or sub-regions, individual countries, ports, airports, sub-national territorial units, etc.), one being the place of loading of the goods or embarkation of passengers and the other one the place of unloading of goods or disembarkation of passengers. This is in particular the case for maritime and air transport statistics where data for incoming and outgoing transport are available for each port / airport with the information of the origin and destination port / airport. Thus a country's transport can be examined through 'mirror' checking, which aims to identify the main discrepancies between the two sets of data, the reasons for their existence and to propose measures to reduce or eliminate these problems.

The short-term objective of mirror checks is to explain and assess the causes of discrepancies in transport statistics and hence to obtain datasets of better quality. Longer-term objectives may include harmonising the conceptual framework of two sets of statistics, which could lead to the use of new procedures in data compilation.

Box 15.5: Example: Mirror checks for air passenger transport statistics

In theory, the number of passengers arriving in a country's airports is the mirror image of the number of passengers leaving the airports of the countries of origin – the airport of origin can also be located in the same country as the airport of destination, it is then referred to as national transport. The same theory applies for the number of passengers leaving a country. In practice, there are often discrepancies between the two. Thus mirror checks are a systematic method of identifying problems in air transport data reported by a country. This can be applied to check the statistics produced by any country or multi-national region/sub-region.

The check is run both for national and international transport at airport level. The following formula is used for the calculation of the deviation for a given airport-to-airport route (for example transport between airport A located in country A and airport B located in country B):

$$\text{Deviation Mirror} = \frac{\left| \text{Pax country A} - \text{Pax Country B} \right|}{\left(\frac{\text{Pax country A} + \text{Pax Country B}}{2} \right)} \times 100$$

Pax country A = number of passengers arriving and leaving airport A to/from airport B, as reported by country A

Pax country B = number of passengers arriving and leaving airport A to/from airport B, as reported by country B

Studies have allowed defining thresholds for the detection of the abnormal deviation according to the size of the flow.

National transport of passengers

Data range	Thresholds over which data are suspicious
>= 2000 passengers	< 5000 passengers 100%
>= 5000 passengers	< 35000 passengers 10%
>= 35000 passengers	< 160000 passengers 2.5%
>= 160000 passengers	1.5%

International transport of passengers

Data range	Thresholds over which data are suspicious
>= 2000 passengers	< 5000 passengers 100%
>= 5000 passengers	< 15000 passengers 40%
>= 15000 passengers	< 65000 passengers 15%
>= 65000 passengers	5%

Time series analysis consists in the comparison of data collected over different time periods. If the comparison leads to significant variations between the time periods considered, the data under consideration could be considered as suspicious. Usually, the analysis of variation of yearly or quarterly data for consecutive years allows detecting the main problems in the transport data studied.

In the case of quarterly data, different types of analysis can be envisaged, for example checking the growth rate of road data between the following time periods:

- Variation of yearly data for two consecutive years;
- Variation of quarterly data (same quarter) for two consecutive years, for example Q1 2009 with Q1 2008;
- Variation of quarterly data between the four quarters of a year.

In order to implement a time series analysis, it is necessary to determine the threshold above which the variation in the compared data should be considered suspicious. Usual statistical methods can be used for the calculation of thresholds to be applied. The absolute variation between two time periods ($|(V2-V1)| / V1$) is then calculated for and the variations above the threshold are then considered as suspicious.

D.15.5. Improving sector statistics

NSIs collect transport statistics from various sources. Thus it is very important to establish a good collaboration with data providers in order to obtain source data with good quality. This is typically the case for sea and air transport, where a good cooperation with airports and port authorities is necessary to get data for the transport occurring in airports and ports.

A formal service-level agreement or memorandum of understanding between the organisations involved is often necessary to align the interests of the two services. It could also be useful to organise workshops with the data providers in order to explain the statistical needs and the data to be provided. These meetings can be used to define an action plan, set up timetables and prepare recommendations on methodologies to be implemented.

Some of the transport data are obtained from administrative sources; in these cases it is also very important for the NSI to have a good cooperation or agreement with these institutions.

Employment data are obtained from labour force surveys; in this case it is necessary to have contacts with the persons responsible for the questionnaire in order to ensure that the questions will allow derivation of the data needed for transport statistics. This is also the case for the collection of road traffic data that might require adding specific question to the labour force surveys questionnaire.

For the creation of a new data collection, the following actions might be necessary: identification of sources; institutional building and development of methodology to compile the statistics to be produced.

It is also very important that the NSI implements basic credibility and consistency checks during the collection and preparation of transport statistics. This is a vital factor in the improvement of quality of transport statistics.

First, basic validation checks need to be implemented. They are used to check the format of a dataset, as well as codes of indicators, to ensure that values are positive, etc. Such tools are very useful to detect basic errors in the data, in particular coding mistakes and can be integrated in countries' IT systems used for data production. For example, Eurostat has developed such a tool, GENEDI, for the data validation.

Then consistency checks have to be implemented in countries' IT systems in order to check:

- Totals for breakdowns in each table (validation of data within a dataset);
- Coherence between different datasets: for example, variables appearing in different tables should have the same value;
- Plausibility of values: for example, distances need to be positive; weight of goods is linked to the load capacity of a lorry, etc.

Credibility and consistency checks allow detecting errors in the calculation procedures and help in assessing the coherence of data.

Box 15.6: Example: terms of reference for a collection of road traffic statistics

Detailed description of the action

In order to collect comparable and relevant road traffic statistics in vehicle-kilometres (Vkm) the following tasks are planned to be conducted in the framework of this project:

- Documentary work related to the data collection methods utilised by other countries in the region: data sources, frequency and methods of estimation and evaluation of the results
- Identification of data sources for road traffic variables
- Identification of appropriate statistical instruments in order to compile Vkm variables, according to the recommended methods, e.g. households surveys, odometer reading, fuel consumption, etc and definition of calculation methods
- Design of statistical survey
- Co-operation with the National Road company for compiling statistical data using the traffic counts
- Co-operation with administrative sources, e.g. Ministries for compiling data on vehicles' fleet
- Appropriate activities for corroborating statistical data collected from administrative sources, traffic counts and different statistical surveys in order to estimate trends and evaluate results

Expected results of the action

- Assessed and developed process for the collection of variables on road traffic statistics
- Appropriate data sources identified and mobilised for the production of Vkm indicators
- Co-operation with national organisations for development of actual data sources and procedures of compiling road traffic statistics;
- Statistical data collected and disseminated in national publications
- Statistical data provided to international organisations, according to the recommended methodology

Box 15.7: Example: Surveys of road freight transport

Statistics on road freight transport are obtained via sample surveys (in space and in time), collecting information from transport firms. As the total number of units in most countries is very large, sample surveys are carried out to collect information from a representative selection (sample) of this population. In this way, the desired attributes of a population can be estimated to a known precision according to standard statistical theory. EU Member States carry out quarterly sample surveys and record the road goods transport undertaken by vehicles registered in their country. Thus each reporting country reports all activities of a road motor vehicle inside and outside its national territory. Micro-data are obtained through questionnaires sent out by each reporting country to a sample of hauliers for vehicles registered in their country. These micro-data concern the vehicles themselves, their journeys and the goods that were transported. This section presents guidelines for the implementation of such surveys.

Sampling register used for the survey

Register: Register of road vehicles if available, else such a register needs to be created.

Organisation maintaining the register: Ministry of Transport, Ministry of Interior, Road administration, etc.

Frequency of access to draw the samples: The NSI needs to have an agreement with the organisation maintaining the register for its access. Access is needed at least once a quarter.

Arrangements for accessing the register: A replication of the statistical version of the register of road vehicles can be made for the NSI at least each quarter, in compliance with the agreement between the NSI and the organisation maintaining the register. Before each quarterly sampling, the register of motor vehicles can be matched with the Business Register to obtain information on activity and address for owners and users of vehicles – if this information is not available in the road vehicles register.

Information obtained from registers:

Register of Motor Vehicles: identifier of the owner/user, type of ownership, registration number, type of vehicle, body type, load capacity, maximum permissible laden weight, number of axles, date of first registration, date of first registration in the country, type of fuel used, etc.
Business Register: Main activity of the operator, name of the owner/user, address of the owner/user.

Example of procedure for reminders:

First reminder – 4 weeks after the surveyed week

Second reminder – 7 weeks after the surveyed week, with a new copy of the questionnaire sent out

Third reminder - telephone call to key respondents 1 week after the second reminder.

Penalties procedures might be launched.

Sampling methodology

Statistical unit: Goods road transport vehicle or the transport enterprise.

Special types of units can be excluded: Agricultural, military and public service vehicles and special purposes vehicles. Vehicles with load capacity below 3.5 tonnes or maximum permissible laden weight below 6 tonnes might be excluded from the survey: light vehicles represent a high proportion of vehicles, but represent a very small share of tonnes carried. Therefore, excluding them from the survey reduces the costs of the survey without losing much information.

Time unit: at least half a week; 1 week is recommended

Stratification: Many variables can be used to stratify the survey. The most efficient ones are: Load capacity; country's regions; type of transport (own account or hire or reward); type of body; year of first registration or age of vehicle; type of ownership; type of licence; etc.

Calculation of weighting factors:

In the cases of a survey carried out over 1 week and for all 13 weeks of a quarter, :

$$\text{Weighting factor} = 13 * \frac{N}{S}$$

N = Number of vehicles in the register (in a stratum)

S = Number of questionnaires used in analysis

Quality aspects

Several indicators are used to measure the quality of road freight surveys: register quality; non-response rate, standard error. These indicators allow to identify the weaknesses of the survey and thus to take actions for the improvement of their quality.

To find out more...

Data sources

- Eurostat's free dissemination database – Transport statistics
- International Transport Forum (ITF)
- Africa Infrastructure Country Diagnostic (AICD) database
- Sub-Saharan Africa Transport Policy Program (SSATP)
- United Nations Economic Commission for Europe (UNECE)
- DG Energy and Transport (TREN)
- International Road Federation (IRF)
- US Bureau of Transportation Statistics (BTS)

Metadata

- Glossary of transport statistics
- Eurostat website – transport page
- United Nations Economic Commission for Europe (UNECE)

Classifications registries

- Eurostat RAMON metadata server
- UN Classifications registry

D.16

Human settlements and housing statistics



D.16. Human settlements and housing statistics

The chapter in brief

Human settlements and housing statistics measure the improvement of the quality of the social, economic, environmental and living conditions for all the population. This chapter covers these statistics as defined by section 1.7 of the UNECE Databases for International Statistical Activities (DISA 2010) and section B.4.3 of this *Guide*. It covers a wide area of Human settlements and housing statistics, such as living quarters, conventional dwelling, Housing units with piped water, etc.

The main issues on the statistics on human settlements and housing are the large spectrum of sources from which the data is obtained; this can influence the quality of the data, in particular for international comparisons.

This chapter begins by identifying the main policy areas for which these statistics are used. It then provides an overview of the different statistics available on human settlements and housing as well as information on the key definitions. The main sources of data are presented, followed by guidance on how to assess the quality of these statistics. Most importantly, the chapter concludes with suggestions on how to build or to improve human settlements and housing statistics in developing countries.

D.16.1. Policy applications: what housing data is used for

The objective of human settlement is to improve the quality of the social, economic, environmental and living conditions (in particular housing and basic amenities) for all the population. In order to achieve this objective, a technical collaboration should be established between the public and private sectors and the civil society; this will help in designing coordinated and sustainable actions. In addition, as human settlement development implies a move from a natural environment to a man-made environment, there are environmental implications and these have been discussed principally in the international review [“Environmental Perspective to the Year 2000 and Beyond”](#).

Statistics on human settlement and housing are collected mainly at the national and/or sub-national levels. Thereafter the aggregation of the data is generally done by international institutions. These statistics are critical in helping to: (a) design, implement, monitor and evaluate housing settlement policies; and (b) assess the improvement in living conditions as well as the environmental impact of human settlement policies.

Specifically, human settlement and housing statistics enable decision makers to design urban planning policies and assess the impact of population growth on the natural environment. These statistics can also assist in addressing several challenges that arise from a country's socio-economic development. Such challenges include:

Migration and urbanization

- Inadequate shelter (squatting and housing shortages) and basic amenities;
- Urban decay following over-urbanization;
- Environmental degradation through pollution (notably water pollution)
- Lack of services and related infrastructure in rural and urban settlements, especially water and sanitation.

Box 16.1: Links between Human Settlements and Millennium Development Goals, Target 11

The United Nations System assigned the UN-HABITAT the responsibility to assist Members States monitor and gradually attain the “Cities without Slums” Target, also known as “**Target 11**”. Target 11 is among one of the three targets of Goal 7 (“Ensure Environmental Sustainability”) of the Millennium Development Goals. The objective of “Target 11” is: to have achieved a significant improvement in the lives of at least 100 million slum dwellers, by 2020.

Goal 7 Target 11 comes in response to one of the most pressing challenges of the millennium. By dealing with the people living in the most depressed physical conditions in the world's cities, Target 11 is a direct recognition that slums are a development issue, which needs to be addressed.

Source: Adapted from “Guide to Monitoring Target 11: Improving the lives of 100 million slum dwellers”, Progress towards the Millennium Development Goals, Nairobi, May 2003

D.16.2. Concepts and definitions

There is no internationally agreed classification on human settlement statistics and therefore this chapter is based on the global consensus. Human settlement can be defined as a combination of two factors: physical construction and access to basic services. The physical element is mainly shelter that is constructed by humans for security, privacy and protection. Access to basic services includes education, health, culture, welfare, recreation and nutrition.

Development of human settlements and shelter delivery are intrinsically linked and thus require a coherent and comprehensive policy within a common framework. Numerous statistical indicators are collected in order to give a complete overview of human settlement systems. The main indicators, as defined by the Conference of European Statisticians and the Committee on Housing, Building and Planning, UNECE and UN Habitat, are:

- **Total number of living quarters:** Commonly, a living quarter is a separate and independent place of dwelling intended for habitation by one household. However, a living quarter can also not be intended for habitation, but can be occupied as living quarters (e.g. by squatters) at the time of the census.

- **Number of conventional dwellings:** A conventional dwelling is a room or a suite of rooms in a permanent building, which is intended for habitation by one household and is not, at the time of the census used for other purposes besides habitation. A conventional dwelling may be either occupied or vacant.
- **Dwelling stock:** The dwelling stock includes only conventional (permanent) dwellings, whether occupied or not. The simple term “dwelling” is generally used instead of “conventional dwelling”. A rise in the dwelling stock implies an increase in the number of dwellings due to new construction and increases due to other types of building activity (restoration, extension, conversion). Decreases in the dwelling stock could result from several factors, including:
 1. dwellings becoming definitely empty (due for instance from migration);
 2. dwellings fit for habitation are demolished;
 3. dwellings destroyed by fire, floods, land erosion or other natural catastrophes;
 4. reduction in the number of dwellings resulting in the conversion of two or more dwellings into one dwelling or of one or more dwellings into non-residential accommodation.
- **Housing units with piped water:** Percentage of occupied housing units with piped water. Piped water refers to water provided within a housing unit by pipes from community-wide systems or from individual installations such as pressure tanks and pumps. “With piped water” means water supply inside a housing unit or outside the unit, but within 100 meters from the door.
- **Housing units with toilet:** Percentage of occupied housing units with toilet facilities of any type. “Toilet of any type” refers to an installation arranged for humans to discharge their excreta.
- **Owner occupant households:** Percentage of households occupying the housing unit as owner. An owner occupant is one who owns the housing unit he/she occupies, including those who pay a loan for a housing unit, or whose house is under mortgage.
- **Household renter:** Percentage of households that rent either government or private owned housing units, to the total number of households in housing units (rented and owned).
- **Population with access to safe water:** Percentage of the total population with access to an adequate amount of safe drinking water located within a convenient distance from the user’s dwelling. It is important to note that the definitions of “access, adequate amount, safe, convenient distance” vary from country to country.
- **Population with access to sanitation:** Percentage of the total population with access to a sanitary facility for human excreta disposal in the dwelling or located within a convenient distance from the user’s dwelling. It is important to note that the definitions of “access, sanitary facility, convenient distance” vary from country to country.
- **Marginal Housing Units:** The identification of marginal housing unit slums and squatter settlements is an issue that is not adequately covered by the statistics and indicators discussed in the chapter.
 - **Slums** generally refer to older housing, which is underserved, overcrowded, and dilapidated.
 - **Squatter** settlements are areas where housing units have been constructed on land to which the occupants have no legal claim. These types of settlements are usually located in suburban areas, particularly at the peripheries of principal cities.

Box 16.2: The City Development Index (CDI)

Definition: The CDI is a measure of average well-being and access to urban facilities by individuals. The high statistical significance and usefulness of the index indicates that it is actually measuring something real. It appears that the CDI is actually a measure of depreciated total expenditure over time on human and physical urban services and infrastructure, and it is a proxy for the human and physical capital assets of the city. It is used in this report as a benchmark for comparative display of several of the key indicators from the UNCHS (Habitat) Global Urban Indicators Database. The CDI is, to date, the best single measure of the level of development in cities.

Construction: The technique used to construct the City Development Index (CDI) is similar to that used by UNDP for their Human Development Index (HDI). Separate sub-indices are constructed and combined to create a composite index. Thus, the CDI is in effect the reflection of five sub-indices – City Product, Infrastructure, Waste, Health and Education – the base values range from 0 to 100.

Calculating the CDI: The CDI is calculated according to the formulae in the table below. It has separate sub-indices for Infrastructure, Waste Management, Health, Education, and City Product, which are averaged to form the CDI. Each sub-index is a combination of several indicators that have been normalized to give a value between 0 and 1.

For meaningful ranking of cities, the index requires data that are essentially complete, robust and precise – so, not many variables are suitable. All the underlying data thus has to be checked for accuracy and completeness. Where there is missing data (or data is obtained on inaccurate estimates), these can be replaced by using data from another national city of similar geographical size or development level. If the latter is not available, country-wide figures (or national urban data if available) can be used.

Index	Formula
Infrastructure	$25 \times \text{Water connections} + 25 \times \text{Sewerage} + 25 \times \text{Electricity} + 25 \times \text{Telephone}$
Waste	$\text{Wastewater treated} \times 50 + \text{Formal solid waste disposal} \times 50$
Health	$(\text{Life expectancy} - 25) \times 50/60 + (32 - \text{Child mortality}) \times 50/31.92$
Education	$\text{Literacy} \times 25 + \text{Combined enrolment} \times 25$
Product	$(\log \text{City Product} - 4.61) \times 100/5.99$
City Development	$(\text{Infrastructure index} + \text{Waste index} + \text{Education index} + \text{Health index} + \text{City Product index})/5$

CDI Vs HDI: The CDI is positively linked with the national Human Development Index (HDI), but because there is considerable variation between cities in any particular country, it provides a better measure of real city conditions than the national-level HDI. The CDI has been cited as a good index of **urban poverty** and **urban governance**. Health, education and infrastructure components are particularly good variables for measuring poverty outcomes in cities. Similarly, infrastructure, waste and city product components are key variables for measuring the effectiveness of governance in cities. The CDI correlates strongly with the city product; other things being similar, a high-income city will have a higher CDI.

Source: Adapted from UN Habitat

D.16.3. Sources of data

Data on human settlements originate from a wide variety of national and international sources. At national level, the sources of statistics include periodic censuses, surveys (population and housing), administrative records of municipalities, land registries, construction permits and licences, and consumer prices' lists. However, it should be noted that the most important source of human settlement statistics comes from the baseline data collected at the national level for population and housing surveys. Ad hoc surveys, such as the quality of life, Demographic and Health surveys (DHS) may also provide baseline data but are done less frequently.

Human settlement statistics are collected mainly by National Statistical Institutes, housing and urban development ministries or institutes, planning ministries or institutes, construction industry chambers, trade associations (colleges, associations or federations of engineers and architects), banks or agencies that help finance social housing and academic or research institutions related to the sector. One can also consult related companies such as construction firms and the producers and sellers of building materials, Trade and industry associations, classified advertisements in local newspapers, Property and real estate brokers, and insurance companies.

At international level, human settlement statistics can be obtained from: (i) United Nations statistical yearbooks or compendiums, such as the Statistical Yearbook for Latin America and the Caribbean (ECLAC), the Compendium of Human Settlements Statistics (New York), the Construction Statistics Yearbook (New York) and the United Nations Development Programme's Human Development Report (UNDP); (ii) International institutions and organisations such as the [African Development Bank \(AfDB\)](#), the [Asian Development Bank \(ADB\)](#), the [Latin American and Caribbean Demographic Center \(CELADE\)](#), the headquarters and sub-regional headquarters of the [Economic Commission for Latin America and the Caribbean \(ECLAC\)](#), the Women in Development Unit of ECLAC, the [United Nations Programme for Human Settlements \(Habitat/Kenya\)](#), the United Nations Statistics Division (New York) and the [Organization of American States \(OAS/Washington\)](#).

In an effort to harmonise human settlement data, UN-HABITAT has been assigned the responsibility to assist United Nations Members States in monitoring and eventually attaining the global **"Cities without Slums"** target of improving the lives of at least 100 million slum dwellers by the year 2020. ⁽⁵³⁾ To proceed with this task, UN-HABITAT

⁽⁵³⁾ The main documents outlining the mandate of the organization are the [Vancouver Declaration on Human Settlements](#), [Habitat Agenda](#), [Istanbul Declaration on Human Settlements](#), the [Declaration on Cities and Other Human Settlements in the New Millennium](#) and [Resolution 56/206](#).

has consulted a number of experts to develop generic and operational definitions of terms and concepts related to urban poverty and slums for use by National Governments, policy makers and their advisors, planners, local authorities, statisticians, survey specialists and the academics.

The Agency is also keen to collect data globally in order to generate statistically-valid figures and estimates that quantify the magnitude and characteristics of slums as a necessary first step for formulating policy recommendations and actions at the global level. ⁽⁵⁴⁾

Other sources of housing and settlement data include:

- **World Bank: World Bank Data & Statistics.** Urban Development data with link to World Bank online databases.
- **UNECE Environment and Human Settlements Division.** This database is maintained by the Environment and Human Settlements Division, with specific reference to data on housing and building. Data are collected for the ECE Bulletin of Housing and Building Statistics and through the Country Profiles on the Housing Sector from a number of both national and international sources.
- **Global Urban Observatory,** UN-HABITAT. Includes Urban Indicators, Statistics and City Profiles.
- Eurostat: the main source of housing data is provided by the **Statistics on Income and Living Conditions (EU-SILC)** instrument (see also [chapter D.21. Living conditions and poverty statistics](#)). Some related indicators are computed in the context of the **Open Method of Coordination (OMC) in the field of social protection and social inclusion**.
- **The World Gazetteer.** Current population figures for cities, towns, and administrative divisions of all countries.
- **European Mortgage Federation.**

⁽⁵⁴⁾ For instance, for European countries, most of the housing and building data come from replies to the **ECE housing questionnaire** supplied by national statistical offices. In addition to being used for the **Bulletin**, the collected data are also used for other ECE publications.

Box 16.3: Agenda 21

Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and major groups in every area in which human impacts on the environment.

Agenda 21, the **Rio Declaration on Environment and Development**, and the **Statement of principles for the Sustainable Management of Forests** were adopted by more than 178 Governments at the **United Nations Conference on Environment and Development (UNCED)** held in Rio de Janeiro, Brazil, from 3 to 14 June 1992 (see [chapter D.26. Sustainable Development Indicators](#)).

The **Commission on Sustainable Development (CSD)** was created in December 1992 to ensure effective follow-up of UNCED, to monitor and report on implementation of the agreements at the local, national, regional and international levels. It was agreed that a five year review of Earth Summit progress would be made in 1997 by the **United Nations General Assembly meeting in special session**.

The full implementation of **Agenda 21**, the **Programme for Further Implementation of Agenda 21** and the **Commitments to the Rio principles** were strongly reaffirmed at the **World Summit on Sustainable Development (WSSD)** held in Johannesburg, South Africa from 26 August to 4 September 2002.

Source: Adapted from United Nations Department of Economic and Social Affairs (UN DESA)

D.16.4. Analysing data quality and identifying problems

Data on human settlements and housing are collected from a wide range of sources. Several issues may impact the quality of these data for international comparison, mainly at the methodological and collection levels (for general aspects of statistical quality, see [section C.5.3](#)).

The methodological issues of human settlements data quality include:

- i. the distinction between rural and urban settlements that has not yet been resolved satisfactorily. There is no internationally agreed upon classification that can be used to define a settlement as “rural” or “urban”, because characteristics that set apart these areas vary widely from country to country.
- ii. low-income settlements defy generic definition and classification because of the widely differing characteristics of “slums” and illegal settlements and their complex relationships to “informal sector” activities.

At the collection level, disparate sources of data availability and collection are a continuous problem of human settlements statistics, particularly in attempts to assess “marginal” settlements’ conditions and to relate monitoring data to more conventional socio-economic statistics. The geographical breakdown of data is essential for human settlement statistics analysis.

Environmental impacts occur in and through components and processes of ecosystems, and even urban systems have been considered as ecosystems in “integrated ecological approaches to human settlements planning.

Another issue at the data collection level is the periodicity. Even if most of the statistics are presented on an annual basis, some of them use different time periods such as decades (for census), daily and monthly.

D.16.5. Improving sector statistics

Several methodological issues have to be addressed at an early stage of any data collection, including:

- i. the distinction between rural and urban settlements;
- ii. the identification of marginal housing units, for example, slums or squatter settlements;
- iii. resolution of problems of data compatibility and data currency.

The following stages can be used to improve data information processing for Human settlements and housing statistics.

i. Identification of information needs

- How can the human settlement system’s objectives be met and what is the current situation in relation to these goals?
- Establish indicators to measure progress made towards human settlement objectives.
- What are the current difficulties within the sector?

ii. Inventory of available sources and data

- Which department or institution maintains current data?
- How is this data presented?

iii. Data collection

What technique will be used to collect necessary information?

- Population and housing censuses;
- Household survey;
- Administrative and managerial documents;
- Management databases: Contain information on staff hiring and payment.

iv. Database construction

- What structure will the database have? Depending on the complexity of the question, the database may be either a simple electronic file or a relational database.
- Which classification scheme will be used?

- How will administrative units be identified? It is important that the codes used to identify institutions be the same for all databases?

- Who will enter the data?

v. Data processing

How will the data be presented?

- Statistical tables?
- Figures?
- Maps?
- Analytical texts?

vi. Publication and dissemination

How will processed data be distributed?

- Written publications;
- Written memoranda;
- Web site;
- CD-ROM.

To find out more...

Institutional framework

- Vancouver Declaration on Human Settlements
- Habitat Agenda
- Istanbul Declaration on Human Settlements
- Declaration on Cities and Other Human Settlements in the New Millennium
- UN General Assembly Resolution 56/206 on Strengthening the mandate and status of the Commission on Human Settlements and the status, role and functions of the United Nations Centre for Human Settlements (Habitat)
- European Commission: Open Method of Coordination (OMC) in the field of social protection and social inclusion

Data sources

- United Nations Human Settlements Programme (UN HABITAT)
- World Bank
- Office of the United Nations High Commissioner for Human Rights (OHCHR): Right to adequate housing
- European Network for Housing Research (ENHR)
- International Union of Tenants (IUT)
- International Real Estate Federation (FIABCI)
- Co-operative Housing International (ICA Housing)
- International Federation for Housing and Planning (IFHP)
- European Liaison Committee for Social Housing (CECODHAS)
- International Society of City and Regional Planners (ISoCaRP)
- United Cities and Local Governments (UCLG)
- Disaster assessment Portal
- Shelter center
- Eurostat: Statistics on Income and Living Conditions (EU-SILC)
- The World Gazetteer

Metadata

- Multilingual glossary of human settlements
- United Nations Economic Commission for Europe (UNECE)

Classifications registries

- UN Classifications registry

D.17

Agricultural, forestry and fishing statistics



D.17. Agricultural, forestry and fishing statistics

The chapter in brief

This chapter covers statistics in the areas agriculture, forestry and fishery, which are all policy areas covered by the European Consensus on Development (see [section B.1.5.1](#)). Due to the importance of these areas to central policy issues such as poverty reduction, hunger prevention, rural development and sustainable management of natural resources, international organisations are actively seeking to improve statistics as basis for decision-making, monitoring and evaluation.

A key challenge for these statistics is that subsistence farming and fishing often make up a large part of these sectors in developing countries; both production and employment are not captured by standard surveys and registers. Other ways to capture the real scope of agricultural, forestry and fishing production and employment must thus be explored.

The chapter covers a wide area of statistics on agriculture, forestry and fishery, as well as satellite national accounts and price statistics for these areas. The chapter starts by identifying the main policy areas for which these statistics are used and continues by providing a user's view of the statistics involved. The chapter then identifies the main sources of data and information about methods, continues by discussing how to analyse the quality of the statistics in these fields and concludes with information on complementary sources.

D.17.1. Policy applications: what this data is used for

Agriculture, forestry and fisheries statistics have a wide variety of uses, including:

- Providing timely information on agriculture, forestry and fisheries, which are key sectors for income, employment and provision of food and basic materials in most developing countries. These statistics cover both the structure of the sectors and their production of goods;
- Analysis of the production processes of the agricultural, forestry and fishing industries and the primary income and employment generated by them;
- Supporting trade policy for agricultural, forestry and fishing goods, providing information on bilateral and multilateral trade issues and the impact of individual policies (for more information on trade statistics, see [chapter D.10](#));
- Monitoring and evaluating policy instruments for developing these sectors in developing countries, as defined in the [European Consensus on Development](#);
- Monitoring sustainable use of natural resources such as fish-stocks and forests, protection of the environment (e.g. organic farming, soil degradation, etc.) (for more information on environmental statistics, see [chapter D.14](#));

- Provision of information for research, analysis and impact assessments on topics related to agriculture, forestry and fishing, e.g. for quantitative studies including short, medium and long-term forecasts of agricultural and fishing commodity markets.

D.17.2. Concepts and definitions

There are currently several initiatives ongoing on international level regarding concepts and definitions for agriculture, forestry and fisheries statistics. The key initiatives are briefly described and references in the form of hyperlinks given to websites and central documents. As most of this work is ongoing, it is recommended to follow these references to be informed of the most recent developments.

The statistics covered in this section include a wide range of agriculture, forestry and fishery related statistics, including:

- agri-monetary statistics (economic accounts for agriculture and agricultural price statistics);
- agricultural structures (farm structure, labour input, structure of vineyards and orchards);
- agricultural production statistics;
- agri-environmental indicators;
- wood and wood product statistics;
- forest resources assessment and forest fires;
- trade in wood products;
- fisheries.

This chapter does not deal with statistics on land use/land cover (see [chapter D.14](#)) or statistics on rural development (see [chapter D.18](#)). Neither does it cover the specific statistical methodology and organisation of censuses and surveys in the areas covered.

Several different areas and types of statistics are covered (e.g. structure, production, trade). The specific concepts and definitions may vary from statistics to statistics, as explored in [section D.17.2.1](#) to [section D.17.2.7](#) below. However, these concepts and definitions might be over-ambitious in developing countries. Dependent on the specific situation of the individual country, some areas may be of limited relevance, e.g. due to a large share of subsistence farming and fishing, climate and weather, physical landscape (altitude, fertility and type of soil), whether the country is landlocked or coastal, etc.

Internationally developed concepts and definitions should be used as far as possible, but adapted to the needs and the

situation in the individual country. Especially the importance of subsistence farming and fishery, i.e. that the production from agriculture and fishery is directly used to feed the farmers/fishers and their families, is of huge importance for the establishment and development of agricultural statistics in developing countries. The OECD handbook '[Measuring the non-observed economy](#)' presents different approaches for measuring and estimating the scope and value produced by the 'informal economy', i.e. also covering subsistence activities. Approaches are presented both within the frame of national accounts and for statistics on normally non-observed structures, production and employment.

The data collected should focus on information required to analyse the situation in a country with respect to its agricultural policy (e.g. economic importance of the agricultural sector for the country, main products produced). Agricultural data are generally collected with different frequencies (monthly, quarterly, annually, every three years). The frequency of agricultural data collections in developing countries should be adapted to the information (policy) needs and to the resources available for collecting data.

In the '[Global Strategy to Improve Agricultural and Rural Statistics](#)' presented at the 41st session of the UN Statistical Commission (2010), the World Bank defines a core set of economic indicators to be collected regularly for agriculture, forestry and fisheries. This indicator set covers groups of variables on output, input, stocks, trade, prices, final expenditure, agro-processing, rural infrastructure and international transfers. In the following sections, more details on individual variables and groups of variables are given. Several efforts provided input to the Global Strategy, including the FAO, World Bank and Global Donor Platform for Rural Development (GDPRD) sourcebook of indicators for monitoring and evaluation: '[Tracking results in agriculture and rural development in less-than-ideal conditions](#)'.

In developing countries, the proposed 'core set of indicators' should be considered as a basis. Dependent on the national development strategy and priorities, some core indicators might be of high priority whereas others might be of limited relevance. On the other hand, additional indicators which are not part of the proposed core set might be of national interest. Consequently, each country needs to set its own priorities regarding the inclusion of core indicators in its national system.

D.17.2.1 ECONOMIC ACCOUNTS FOR AGRICULTURE (EAA)

Statistics play a key role in the design, implementation and monitoring of agricultural policy, as well as in the evaluation of measures addressed at the economic and financial situation of the agricultural community. In the EU, the Economic Accounts for Agriculture (EAA) has been developed to provide such statistics (a detailed methodology can be found in Annex I of [Regulation \(EC\) N° 138/2004](#), amended by [Regulation \(EC\) No 212/2008](#)).

The EAA is a satellite account to the national accounts ([European System of Accounts](#)), providing complementary information and concepts adapted to the particular nature of the agricultural industry (see also [section B.2.4.1.3](#)). Although their structure very closely matches that of the national accounts, their compilation requires the formulation of appropriate rules and methods.

EAA collect economic accounts and data on agricultural labour input (ALI). The EAA accounts consist of a sequence of inter-related accounts:

- the production account;
- the generation-of-income account, and;
- the balancing items 'value added' and 'operating surplus', respectively.

The EAA covers agricultural products and services produced over the accounting period. The main indicators are labour input, output, intermediate consumption, gross and net value added, compensation of employees, other taxes and subsidies on production, net operating surplus or net mixed income, property income, net entrepreneurial income, etc. at current and at constant prices.

The EAA framework is a very strong methodology for analysing the value added and labour input in the agricultural sector. It also provides information on interdependencies between different parts of the agricultural sector. As such, the EAA methodology constitutes a strong basis for developing agricultural accounts within the national accounts also in developing countries. However, the full EAA framework is ambitious, requiring complete and high quality input data. In developing countries, this should be simplified and adapted to the national setting, building on existing information sources and the most pressing needs for data to formulate, implement and monitor policies in and for the agricultural sector.

An important limitation of the EAA framework in developing countries is that it covers only registered businesses, such as state farms and plantations, major food producers and other organised and registered businesses (e.g. the export-oriented flower producers in East Africa). However, in many developing countries, a large share of agriculture production and employment takes place in households producing crops and livestock for their own use (subsistence farming). This production, which is of vital importance in the context of poverty reduction and the MDGs, is not covered by ordinary surveys and national accounts approaches. To get better and more complete accounts of the agricultural sector, strategies to improve the coverage and the measurement of this part of the agricultural sector are required. A strategy for setting up a survey of the informal sector is presented in [Box 13.4](#) in [chapter D.13](#); a strategy for assessing non-observed agricultural activities in the national account setting is outlined in [Box 17.1](#) below:

Box 17.1: Non-observed agricultural production and employment

The OECD's Handbook on [Measuring the Non-Observed Economy](#) presents strategies to improve the national accounts, as defined by the System of National Accounts 1993 (SNA93), in particular with the goal of reducing non-observed and non-measured activities. This is a key issue for the agricultural sector in many developing countries, as it is normally characterised by a large share of unregistered household production for own final use.

A national statistical system should have a measurement programme for the non-observed economy. It should have clear objectives, roles and responsibilities for national accountants and for survey statisticians. The major data users should be informed and involved. Exhaustive coverage is an important aspect of quality, thus the non-observed economy measurement programme should be integrated with other quality management and improvement initiatives.

The proposed measurement strategy is defined in five lines of action:

1. Identify an appropriate conceptual and analytical framework for assessing the non-observed sector;
2. Assess the basic data supplied to the national accounts and the compilation methods. Identify the extent of non-observed and non-measured activities and establish priorities for dealing with them;
3. Identify potential improvements in the national accounts compilation process that will reduce non-measured activities through model based adjustments and the results of supplementary surveys. As a short term solution, such indirect measurement methods can be introduced relatively quickly and cheaply in comparison to changes to the basic data collection programme that may require substantial additional resources;
4. Identify potential improvements in the infrastructure and content of the basic data collection programme that will reduce the incidence of non-observed activities by bringing the programme into line with international standards and best practices. This is the long-term solution to many data problems;
5. Develop an implementation plan that includes consultations with users, prioritising potential improvements, ensuring good communication between survey statisticians and national accountants, and dealing with revisions to national accounts estimates that may occur as a consequence of the changes.

D.17.2.2. AGRICULTURAL PRICE STATISTICS (APS)

Agriculture is crucial to maintain food supply and basic subsistence for a large share of the population in many developing countries. One important input for the formulation of agricultural policy is information on agricultural prices. For small farmers, prices of the inputs to production (e.g. fertilizers) and the prices given for their products by market traders, production cooperatives and other channels are critical to their economic survival. Thus, price information is vital for specifying targets of agricultural policy, for defining the means to implement the policy and for monitoring progress and evaluating the outcomes.

Differences in prices between regions, variations in prices over time and the level of key prices are of interest. Basic tools for the measurement of price variations and price

trends are absolute agricultural prices and agricultural price indices. The main use of absolute agricultural prices is to compare price levels between regions or countries and to study sales channels. In contrast, agricultural price indices are used primarily to analyse price developments and the effect on agricultural income. Provided that methodological compatibility is given, absolute agricultural prices and agricultural price indices can also be used in the Economic Accounts for Agriculture (EAA).

The purpose of the price indices is to provide information on trends in producer prices of agricultural products and purchase prices of the means of agricultural production. They permit a comparison of trends between various regions or countries and between different products within a country. They also facilitate comparisons between trends in producer prices and trends in prices of the production means. They cannot, however, express differences between regions or countries in terms of absolute agricultural price levels. Agricultural Price Indices (output and input) comprise:

- An index of producer prices of agricultural products;
- An index of purchase prices of the means of agricultural production.

While the agricultural price indices reveal trends in the prices of individual agricultural products or product groups, statistics of absolute agricultural prices are used for comparisons between regions or countries and for economic analyses. Absolute agricultural prices (especially aggregated prices) are needed for many model calculations and for the determination of price elasticities.

Two objectives should be met with the collection of agricultural price statistics. The first one is that absolute prices should be **comparable** between regions or countries. The second is that the products for which the prices are to be recorded are of **economic relevance** for the respective country. In other words, focus must be on collecting the prices of those products that are of key importance for the country, either for supplying food for the population, for providing basic income to farmers, for generating export income, or for other central policy targets. These two objectives are not necessarily compatible and some compromise may be necessary. Especially the comparison of time series for actual agricultural prices between countries has to be made with caution. Differences in the prices may reflect methodological differences (for example different forms of commercialisation of the products concerned) and not in every case factual differences in the prices themselves.

An example of methodology for APS, including the target definition, can be found in the [Handbook for EU Agricultural Price Statistics](#). As in all domains, the statistics on agricultural prices should follow international classifications (e.g. on crops, livestock, economic sector) and good practices, but be adapted and focused to meet the most pressing information needs for the agricultural policy in the specific country.

D.17.2.3 AGRICULTURAL STRUCTURES (FARM STRUCTURE)

International statistics on agricultural structures are collected using censuses and surveys based on the 'agricultural holding'. An 'agricultural holding' is an agricultural production unit with one owner (either an individual or a group of individuals). In developing countries, in addition to data on agricultural holdings, data on households producing crops and livestock for own use and local markets are necessary to get exhaustive information about the agricultural sector. Consequently, all units producing for the agricultural market should be considered in the scope of agricultural statistics. In the case of agricultural holdings, this should be done in the censuses and surveys, while data for households should at least be collected in censuses.

In recent years, increasing efforts have been made towards the better integration of statistical activities for agriculture. Integration means that each statistical collection is carried out as a component of the national statistics system (see [section B.2.3](#)). To carry out an agricultural survey, a 'sampling frame' such as a farm register is necessary to identify the production units and draw a sample of them for the survey. In many developing countries, there is no farm register or similar overview of production units or it is not maintained and up-to-date. An agricultural census provides such an overview and can be used for establishing a farm register for future surveys. An agricultural census should be carried out every ten years.

A census of agriculture collects data on the structure of agriculture, covering the whole or a significant part of the country. Typical structural data collected in a census of agriculture are size of holding, land tenure, land use, crop area harvested, irrigation, livestock numbers, labour and other agricultural inputs. The FAO's World Programme for the Census of Agriculture 2010 is detailed in '[System of Integrated Agricultural Censuses and Surveys - World Programme for the Census of Agriculture 2010](#)'. This publication presents guidelines for censuses to be carried out by countries between 2006 and 2015. FAO has encouraged countries to develop and implement their census of agriculture tailored to their unique situation, but to be mindful of the need to collect a minimum set of data for international comparison purposes. A new objective of the 2010 round of agricultural censuses is to monitor progress towards global development targets, in particular MDG 1, through a food security module.

The need for statistical information has to be balanced against the resources required to produce the statistics. A census of

agriculture is very costly and highly demanding on technical and other resources. Where statistical systems are not well developed, there has been a tendency to use the opportunity provided by the census of agriculture to collect a wider range of data than would normally be the case in such a census.

In the EU, the farm structure surveys are the backbone of the agricultural statistical system. They provide micro-data on the agricultural labour force, land use, livestock, equipment and non-agricultural activities. They are also the statistical basis for sample surveys on land use, livestock and agricultural income. For classification of agricultural holdings, the [EU typology of agricultural farms \(holdings\)](#) could serve as a framework. This framework needs adaptation to the national conditions in developing countries, which might be different from one country to another. Especially the size of the utilised agricultural area, which is used for the definition of a holding, might have to be adapted to the national situation. In case there is no farm register ⁽²⁵⁾, it has to be created. Farm structure surveys should be carried out as sample surveys at regular intervals (e.g. in the EU every three years).

Regarding non-observed agricultural producers, e.g. subsistence farmers and other small production units, the collection of data in the framework of population censuses is a good means to cover this group of agricultural producers. However, additional data collection between two censuses would be desirable for the completeness of statistics on agricultural structures (see [Box 13.4](#) in [chapter D.13](#)).

Micro-data should consist of a set of records containing information on individual respondents or on economic entities and cover the following main data:

- Labour force data, which cover all persons having completed their compulsory education (having reached school leaving age) who carried out farm work on the holding under survey during the 12 months up to the survey day;
- Livestock for breeding, dairy, draught, etc. consists of livestock that are produced / cultivated for the products they provide year after year;
- Land use, which provide data on areas used for different crops (see [chapter D.14](#));
- Other gainful activities of the holding;
- Support for rural development.

Special attention should be given to the definition of the labour force. This definition should be adapted to the national situation in each developing country.

⁽²⁵⁾ More information on the development of farm registers is available in the "[Global Strategy to Improve Agricultural and Rural Statistics](#)".

D.17.2.4 AGRICULTURAL PRODUCTION STATISTICS (CROP AND ANIMAL PRODUCTION)

Agricultural production statistics cover three main output categories: production of crops and livestock, yield of crops and core livestock, areas harvested and planted (only for crops). Production statistics play a key role in the design, implementation and monitoring of agricultural policy, and also contribute to ensuring food safety. Data collection on crop and animal production in developing countries should be limited to the core crops and animals. Subsistence farming is an important aspect for providing food security in many developing countries. It is therefore important to develop strategies for capturing or estimating also this agricultural production.

Both the '[Global Strategy to Improve Agricultural and Rural Statistics](#)' and the indicators sourcebook '[Tracking results in agriculture and rural development in less-than-ideal conditions](#)' addresses statistics on crops and livestock and approaches to prioritise different statistics and products.

Crop production statistics cover the field of cereal production and other field crops and of fruits and vegetables. They also cover supply balance sheets, which focus on resources and uses of a specific commodity (i.e. changes in stocks, products used for processing, products used by the producers, etc.). The major groups are cereals, other main crops, vegetables, fruit, fodder and horticultural crops. Crop statistics cover also structural data on orchards and vineyards. As an example, methodologies for data collection in the EU are given in [Crop production – Glossary](#) and [Crop production – Manual for current statistics \(2001 edition\)](#).

The objective of statistics on animal production is to provide data on livestock, meat and milk production. This comprises e.g. cattle, pigs, sheep and goats livestock surveys; meat production; trade of live animals; production forecasts; supply balance sheets, activity, trade and structure of hatcheries. As a good example of a comprehensive methodology, [Regulation \(EC\) No 1165/2008 concerning livestock and meat statistics](#) describes in detail the collection, validation and dissemination of data, analysis of methods and update of metadata information. Information on methodologies for data collection in individual EU member states and in candidate countries is given in '[Methodology of animal statistics](#)'.

D.17.2.5 FORESTRY STATISTICS

In the context of climate change, the state of the world's forests is increasingly coming into focus. Data on deforestation and reforestation, i.e. changes in land use/cover in forest areas, is an important input to this discussion by providing evidence for monitoring and policy initiatives. The platform [Reduce Emission from Deforestation and forest Degradation \(REDD\)](#) shows how this information can be used. REDD could be used together with statistics on land cover and land use (see [section D.14.6](#)) to advocate the importance of forest

statistics, both in the context of sustainable use of natural resources and in the context of climate change.

Developing countries should as a minimum aim to collect the indicators recommended by the '[Global Strategy to Improve Agricultural and Rural Statistics](#)':

- Area in woodlands and forests, removals and prices for land associated with agricultural holdings.
- Area in woodlands and forests, removals and prices for products from non agricultural holdings and respective utilization.

To avoid duplication of efforts, work on forestry statistics on international level is coordinated between Eurostat, FAO, UNECE and the International Tropical Timber Organization (ITTO). The annual [Joint FAO/UNECE/Eurostat/ITTO Forest Sector Questionnaire \(JFSQ\)](#) collects production and trade data for wood and wood products. The main products covered are:

- Roundwood
- Sawnwood
- Wood-based panels (veneer sheets, plywood, particle board)
- Pulp (wood pulp, recovered fibre pulp, pulp from fibres other than wood)
- Paper and paperboard including packaging materials

In the EU, annual data is also collected on economic accounts for forestry and logging, following the new concepts of 'Integrated environmental and economic accounts for forests' (IEEAF). The Economic Accounts for Forestry (EAF) are satellite accounts of the [European System of Accounts](#) and provide complementary information to the ESA. The concepts have been adapted to reflect the nature of the forestry industry. A detailed methodology for EAF can be found in the [Manual on the economic accounts for Agriculture and Forestry EAA/ EAF 97 \(Rev.1.1\)](#).

FAO and the [Ministerial Conference on the Protection of Forests in Europe \(MCPFE\)](#) collect data on forest resources, ownership, and selected economic, employment and sustainable forest management variables. The data covered are similar and the reference years are identical, but the type of data is different. FAO collects forecasts on a global level, while MCPFE collects definitive data on Europe including Russia. The FAO exercise is called [Forest Resources Assessment \(FRA\)](#), while the MCPFE exercise is called State of Europe's Forests (SoEF). According to the information needs, data collection could follow either the FAO or the MCPFE concept.

D.17.2.6 AGRI-ENVIRONMENTAL STATISTICS

In most countries, agriculture is the largest user of water, a cause of chemical pollution and soil degradation, and a contributor to climate change. However, agriculture plays a positive role in capturing carbon, managing watersheds, preserving biodiversity, and providing feed stock for biofuel production. Information on many of the production inputs that are used in measuring productivity is agro-environmental.

Agri-environmental statistics are thus of great interest for environmental policy and the sustainable development of the world economy. As such, they are closely related to sustainable development indicators (see [chapter D.26](#)) and [Agenda 21](#). Poverty is a major cause of food insecurity. Increased food production, including staple food, should take place within the framework of sustainable management of natural resources. These issues are important to developing countries, as they seek to reduce poverty and increase food security, while at the same time facing the effects of climate change and degradation of soil and other natural resources.

Environmental problems are generally global issues, thus agri-environmental data should be comparable worldwide. Consequently, data collection in developing countries should use already developed and fixed international standards. New developments regarding additional indicators and or data collection methodologies should be considered. As a starting point for the creation of agri-environmental statistics, developing countries may concentrate on data on agricultural inputs such as quantity of water used for agricultural irrigation, quantity and value of fertilizers (by core crops) and pesticides (by category such as fungicides) used, as well as seeds. A tentative list of indicators was presented in the FAO paper '[Agri-environmental statistics for compilation of indicators, accounts and meeting other needs of decision](#)'.

In the EU, [agri-environmental statistics](#) are defined in a system of agri-environmental indicators, monitoring the integration of environmental concerns into agricultural policy.

D.17.2.7 FISHERIES

Information on the status and trends of capture fisheries and fishery resources is a key to sound policy-making and responsible fisheries management. Fish is a major source of food and household income. This includes the capture of fish in the open sea, captures in coastal zones managed by each country, captures from rivers and other fresh water sources, as well as aquaculture. Fisheries directly utilizes and impacts on national resources and environments. Countries are responsible for providing statistics on all fisheries and aquaculture within their national jurisdiction, including their exclusive economic zone as well as conducted by vessels which sail under their flags.

FAO collects, analyses, interprets and disseminates statistics relating to various aspects of world fisheries, such as fishery production from capture fisheries and aquaculture, trade of fishery commodities, preserved and prepared production of fishery commodities, apparent fish consumption, fishery fleets and employment in fisheries. Fisheries statistics are usually obtained from national reporting offices. Regional Fishery Bodies have been formed to coordinate the data collection and management of fishery resources and fisheries with open access, including high seas areas and species. Data collected by Regional Fishery Bodies generally contain detailed information on operational and biological aspects of capture fisheries.

The '[Global Strategy to Improve Agricultural and Rural Statistics](#)' recommends focusing on statistics which give information on food supply:

- Quantity of fish landed and discarded, number of days fished, amounts processed for food and non-food uses, prices, and imports and exports.
- For aquaculture: area cultured, production, prices, and net trade of imports and exports

FAO has a central role in the development of methodologies for [statistics on fisheries and aquaculture](#). To develop fishery statistics in a developing country, the following documents present an overview of good practices and international standards, especially with a view to developing a comprehensive strategy in the area:

- FAO '[Strategy for Improving Information on Status and Trends of Capture Fisheries](#)'
- The Coordinating Working Party on Fishery Statistics (CWP) [Handbook of Fishery Statistics Standards](#)
- '[Global Strategy to Improve Agricultural and Rural Statistics](#)'

The [Living Standards Measurement Study - Integrated Surveys on Agriculture \(LSMS-ISA\)](#) is a program in Sub-Saharan Africa to implement panel household surveys focusing on agriculture. Fish contribute to the food security in developing countries, both as a source of income and as a basic food. Realising that fishery is often not captured, a Sourcebook on '[Design and Implementation of Fishery Modules in Integrated Household Surveys in Developing Countries](#)' has been developed within the frame of LSMS-ISA. This Sourcebook provides essential technical guidance on the design of statistical modules and questionnaires aimed at collecting fishery data at household level. It also outlines the background of main policies relevant to the fishery sector, information on the data needed to analyze issues of policy relevance, and methodology on the construction of survey questions to collect necessary data are also provided. A [standard fishery questionnaire](#) and an [expanded fishery questionnaire](#) have also been developed in this context, providing standard modules for direct inclusion in integrated household surveys.

Data collection could also follow the guidelines on fishing statistics in the EU, which form the basis for a comprehensive statistical system in this area. The Eurostat fisheries statistics are designed to meet the policy-related data requirements of the Common Fisheries Policy (CFP). At the moment, the main focus is on the collection of data necessary for the control and support of sustainable exploitation of fisheries resources covering catches and landings of fishery products as well as aquaculture. The further goals include resource management, sustainability of fisheries, structural policy, socio-economic impact and market policy. The EU fishery statistics might in future place greater emphasis on data which have until recently received relatively little attention. This covers e.g. employment data and supply balance sheets on fisheries products statistics.

An overview over methodologies and good practices in the EU and in the individual member states can be found in '[Collection and compilation of fish catch and landing statistics in member countries of the EEA](#)' and in '[Collection and compilation of fishery statistics in EU Candidate Countries](#)'. '[Ramon](#)', [Eurostat's Classification Server](#) contains detailed information on classifications.

Box 17.2: Eurostat's statistics system for agriculture, forestry and fisheries

The primary aim of collecting of agriculture, forestry and fishing statistics in the EU is to provide data for the analysis of the Common Agricultural Policy (CAP) and the Common Fisheries Policy (CFP). These data come from a variety of sources and are of different nature. They come from economic accounts, balance of payments, agriculture, forestry, fishing, rural development and environmental statistics. Consequently, the data collection methods vary considerably for the different sets of statistics.

The statistics system includes data collected according to commonly agreed methods used for a long time, such as the European System of Accounts. It also includes data based on surveys such as the Farm Structure Survey (FSS), orchards and vineyard surveys. The statistical information and quality therefore depends on data collected using varied but well-established data collection methods.

Key data for agriculture:

- Economic accounts
 - o Agricultural output (million EUR) – of which crop output and animal output in %;
 - o Gross value added at basic prices (million EUR);
 - o Agricultural input expressed as total intermediate consumption (million EUR);
 - o Agricultural income – Indicator A (% change on previous year).
- Farm structure
 - o Holdings – number (of which UAA < 2ha, ESU < 1, holder < 35 years, holder > 64 years, each in %) and UAA per holding in ha;
 - o Labour force – persons in holdings of more than 1 ESU (of which holders and women in %), agriculture as % of total employment.

D.17.3. Sources of data and metadata

International organisations publish agriculture, forestry and fishery transport statistics for either their member countries or for almost all countries of the world. The United Nations Economic Commission for Europe (UNECE) and the Organization for Economic Co-operation and Development (OECD) belong to the first and the Food and Agriculture Organization of the United Nations (FAO) to the second group.

The most important data source for worldwide statistics on agriculture, forestry and fishery is the FAO, which publishes statistics on agriculture, forestry and fishery in its [FAO Statistical Database](#). This on-line database contains time-series from over 210 countries and territories, covering statistics on agriculture, nutrition, fisheries, forestry, food aid, land use and population. For each of these domains there are separate datasets available. The main ones are '[FAO Stat – Agriculture](#)', which provides data on crops, livestock, irrigation, land use, fertilizer, pesticide consumption, and agricultural machinery. '[FAO Stat – Fisheries](#)' provides statistics on fish production and primary products, while '[FAO Stat – Forestry](#)' provides statistics on imports and exports of woods and paper. In addition to these main datasets there are some detailed datasets on other specific topics available (see [Box 17.3](#)).

FAO has initiated a programme called [CountrySTAT](#). CountrySTAT is a web-based information technology system for food and agriculture statistics at national and sub-national levels. It provides decision-makers and interested parties access to statistics on production, prices, trade and consumption. This supports analysis, informed policy-making and monitoring with the goal of eradicating extreme poverty and hunger. Through national and regional CountrySTAT projects, FAO forms partnerships with statistical offices and the ministries of agriculture, fisheries and forestry to introduce the system and build the national capacity to use it. In each country, the national government makes a substantial contribution to ensure its deployment and continued training and maintenance.

Box 17.3: FAO datasets on selected topics in agriculture, forestry and fishery with special interest for developing countries

CountrySTAT

The [CountrySTAT system](#) is a project initiated by the FAO with the aim to harmonise information on food and agriculture in its member countries. The system is owned and maintained by the country itself. CountrySTAT gathers and harmonises scattered institutional data, so that the information becomes consistent within the country and compatible with data at the international level.

GLIPHA

The [Global Livestock Production and Health Atlas \(GLIPHA\)](#), is a user-friendly, highly interactive electronic atlas using the Key Indicator Display System (KIDS) developed by FAO. The atlas provides a scalable overview of spatial and temporal variation of quantitative information related to animal production and health through the combination of maps, tables and charts.

Forestry Country Information

The [Forestry Country Information](#) contains statistics on forest and forestry issues on a country by country basis including forest cover, plantations, volume and biomass as well as fires.

AQUASTAT

[AQUASTAT](#) is FAO's global information system of water and agriculture developed by the Land and Water Development Division of FAO. AQUASTAT provides users with comprehensive statistics on the state of agricultural water management across the world, with emphasis on developing countries and countries in transition.

Fishery and Aquaculture Statistics

The [Fisheries and Aquaculture Department](#) of the FAO provides advice and objective information to its members to help promote responsible aquacultures and fisheries. Therefore data collections are compiled, analysed and disseminated.

[UNECE](#) disseminates forestry statistics and some data on agriculture for about 50 countries. Several indicators are available for forestry statistics: forest resources, forest health and vitality, productive functions, biological diversity, protective functions and socio-economic functions.

The [OECD](#) collects and publishes data on [agricultural policies and trade, sustainable agriculture, pesticides and fisheries](#) on its web site. However, most of the data are not disseminated in the form of statistical tables on the website, but presented in publications and policy papers.

The [World Bank](#) collects and publishes data collected in the framework of the '[Living Standards Measurement Study – Integrated Surveys on Agriculture \(LSMS-ISA\)](#)' project. This project covers seven Sub-Saharan African countries and aims at the generation of nationally representative, household panel data with strong focus on agriculture and rural development.

[EUROBASE, Eurostat's free dissemination database](#) provides free access and free data to all since October 2004. It provides rich and high quality information agriculture, forestry and fisheries in Europe, as well as a range of methodological notes and guidelines.

D.17.4. Analysing data quality and identifying problems

The quality of data for agriculture, forestry and fisheries depends on the data coverage, the timeliness of the published figures and their compliance with the agreed methodology. For comparisons and analyses, international standards and classifications should be respected. A critical factor for the completeness of agricultural and fishery statistics in developing countries is the strategy developed for handling subsistence farming and fishery (see [Box 13.4](#) and [Box 17.1](#)). Timeliness is especially important for agricultural production statistics; for example, data about a record harvest have little information value if they become available only a year after the harvest. Therefore, nowcasting and forecasting techniques are used to estimate current and future trends in agricultural production, soil quality, deforestation, fish stocks, etc.

When the collection of data is based on legal acts or international agreements, these often specify the data collection methods. In these cases, this should be used as a starting point for developing the validation procedures. For several international datasets, quality checks are also described in the relevant Handbooks. When quality checks are not explicitly described for a dataset, general principles for quality should be applied (see [section B.2.1.2](#) and [section C.5.3](#)).

A valuable tool for validating results is to use mirror techniques. For example, production data for a specific crop can be validated against data from markets, cooperatives and wholesale buyers in order to assess differences in data between the two sides of the crop market. The following analysis of these differences should lead to a strategy to improve accuracy and methods, step by step leading to better data and better estimates.

A tool for validating data on production areas, degradation of soil and deforestation is the use of remote sensing data. The [Africover project](#) has been prepared to assist in the development of reliable and geo-referenced information on natural resources required at sub-national, national and regional levels, amongst others for early warning, food security, agriculture, forest monitoring, watershed management, etc. Such data can be used to cross-check data from on-the-ground surveys. Based on Africover, the Global Land Cover Network initiative has been launched by FAO and UNEP. (For more information on land use and land cover, see [section D.14.6](#).)

Box 17.4: Using new technology to improve quality: LSMS-ISA

The [Living Standards Measurement Study – Integrated Surveys on Agriculture \(LSMS-ISA\)](#) seeks to improve agricultural data in Sub-Saharan Africa. At the heart of this project is engagement with both line ministries and national statistical offices to design and implement panel household surveys emphasizing agriculture.

Besides supporting the production of high-quality household-level data, the project emphasizes the validation of measures and indicators and promotes research in data collection methods. Some of the areas being considered include improved methods for quantification of agricultural production (particularly for difficult-to-measure crops such as tubers and vegetables); measurement of agriculture and non-farm self-employment income; and for understanding how farmers are adapting to and mitigating the effects of climate change.

The new surveys employ state-of-the-art techniques and methods, including GIS technologies and the use of Computer Assisted Personal Interviews (CAPI) to provide more accurate estimates and reduce the time lag between data collection and dissemination.

plan, set up timetables and prepare recommendations on methodologies to be implemented. The user group should not only comprise international organisations and national authorities responsible for food safety, agricultural development and natural resources, but also NGOs involved in these fields as well as independent researchers and analysts. The data providers comprise both large private and state estates, as well as small-scale farmers and fishers.

New technologies may prove valuable for augmenting existing surveys. An example is the use of GPS and satellite data in the monitoring of crop producing areas, deforestation and desertification. Another example is the use of robust low-cost laptop computers in computer-assisted personal interviews (CAPI), which could significantly improve coverage, timeliness and quality of household-based surveys. However, new technologies are normally costly. The expected benefits must be assessed against the costs, the users' information needs and especially against the priorities of the national statistical strategy.

A key quality issue is that the NSI at least implements basic credibility and consistency checks on the data. These checks are especially important to agriculture, forestry and fisheries statistics, which normally draw on several different sources. In particular, methods and coverage should be compatible between the organisations that collect these different data. In developing countries, the handling of agriculture, forestry and fishing in the informal sector is also of huge importance for the completeness and information value of the statistics.

D.17.5. Improving sector statistics

Agriculture, forestry and fisheries are key sectors in developing countries, providing food and basic energy and building materials to the population. The objective of any intervention on statistics in these areas is to improve the quality (see [section C.5.3](#)), including timeliness and completeness. The basic quality criteria is whether the statistics are 'fit for use', in other words whether they meet the information needs of the users. Interventions should address any critical points in the data chain, from data collection and processing to the publication of statistics.

Due to the critical role of these sectors, much attention is given internationally to improving these statistics. Links to key initiatives and strategy papers can be found in the ['To find out more ...'](#) box at the end of this chapter.

Data on agriculture, forestry and fishing are often collected both by the NSIs and by ministries of agriculture, rural development, environment, etc., and associated administrations. Estimates of e.g. crop production and area may be published both by the NSI and the responsible line ministry, often with different results. An efficient use of resources requires that data collections are not duplicated. It is therefore vital to establish a close cooperation between the institutions concerned. Whether the NSI should publish statistics based on the administrative data or the administration should publish the data themselves depends on the structure of the national statistical system. A formal service-level agreement or memorandum of understanding, especially for statistical activities not covered by legislation, is often necessary to align the interests of the two services.

A very useful tool is to organise working groups, task-forces or workshops with key users and data providers. A key issue is to clarify the users' needs for statistics on agriculture, forestry and fishing. These meetings can be used to define an action

Box 17.5: Example – Improvement of agricultural statistics in Ethiopia

Agriculture is the dominant sector in Ethiopia. Agriculture contributes about 50% to the overall GDP, generates 90% of export earnings and supplies about 70 % of countries raw materials to secondary activities. Improvement of the agricultural statistics is a priority area of the [National Statistical Development Strategy \(NSDS\)](#). A lack of capacity applied largely to programme objectives in agricultural statistics, while the lack of appropriate methods applied to both agriculture and environmental statistics. Problems with source data applied to a wide range of domains including fishing, labour, health, construction and transport.

A survey of stakeholders identified needs for more information on the agriculture-related issues:

- Socio-economic data relating to non sedentary areas, with particular emphasis on agriculture and livestock;
- Rural socio-economic survey (including off-farm activities);
- Natural resources: stocks and changes over time to desertification, land degradation and resource depletion;
- Environmental statistics: very few available at present; priorities are agricultural statistics, soil protection and natural resources.

A strategic aim for the agricultural statistics is to improve methodology and expand coverage to commercial farms, non sedentary population and to natural resources. Furthermore, an agricultural census will be undertaken every 10 years to maintain the basis for agricultural sampling and to provide periodic robust agricultural estimates. The major strategic action lines for the agricultural statistics are:

- Maintain the annual agricultural survey, but change it into a rural socio-economic survey. Improve methodology by seeking technical assistance and reviewing best practice. Include details on improvements such as irrigation, terracing, soil conservation;
- The agricultural census should be a regular feature of the statistical program (every 10 years), and will be repeated in the NSDS period;
- Use the agricultural census to draw samples for special surveys of new farming activities, techniques or to investigate the outcomes of agricultural investments;
- To improve the data quality and coverage, change from a list frame for all socio-economic surveys (including agriculture) to an area frame augmented by satellite images;
- Coordinate and harmonize data collection with the Ministry of Agriculture. Provide training to development agents to obtain better standardization of methods, definitions and classifications;
- Consider introducing household survey questions on growing, production and amount sold of vegetable and minor crops in both urban and rural contexts;
- Improve the frame of commercial and state farmers (develop enterprise survey stratified by size) and conduct agricultural surveys annually.
- Introduce GPS measurement for land parcels, using area frame and satellite imagery for areas of agricultural production and for land uses;
- Develop a methodology for livestock estimation for non sedentary populations;
- Improving forecasting methods by using agro-meteorological data;
- 'Woreda' (local district) level data using small area estimation techniques.

To find out more...**Recent and current initiatives and activities**

- [Global Strategy to Improve Agricultural and Rural Statistics](#) (UN Statistical Commission, World Bank, FAO, Eurostat, US Department of Agriculture, International Statistical Institute) (2009)
- Food and Agriculture Organization (FAO): [System of Integrated Agricultural Censuses and Surveys - World Programme for the Census of Agriculture 2010](#)
- ISI Satellite Meeting on [Strategy for Improving Agricultural and Rural Statistics](#) (2009)
- [International Conference on Agricultural Statistics \(ICAS\): Modernization of Agricultural Statistics in Support of the Sustainable Development Agenda](#)
- World Bank and the Bill and Melissa Gates Foundation: [Living Standards Measurement Study – Integrated Surveys on Agriculture \(LSMS-ISA\)](#)

Further strategies and methodologies

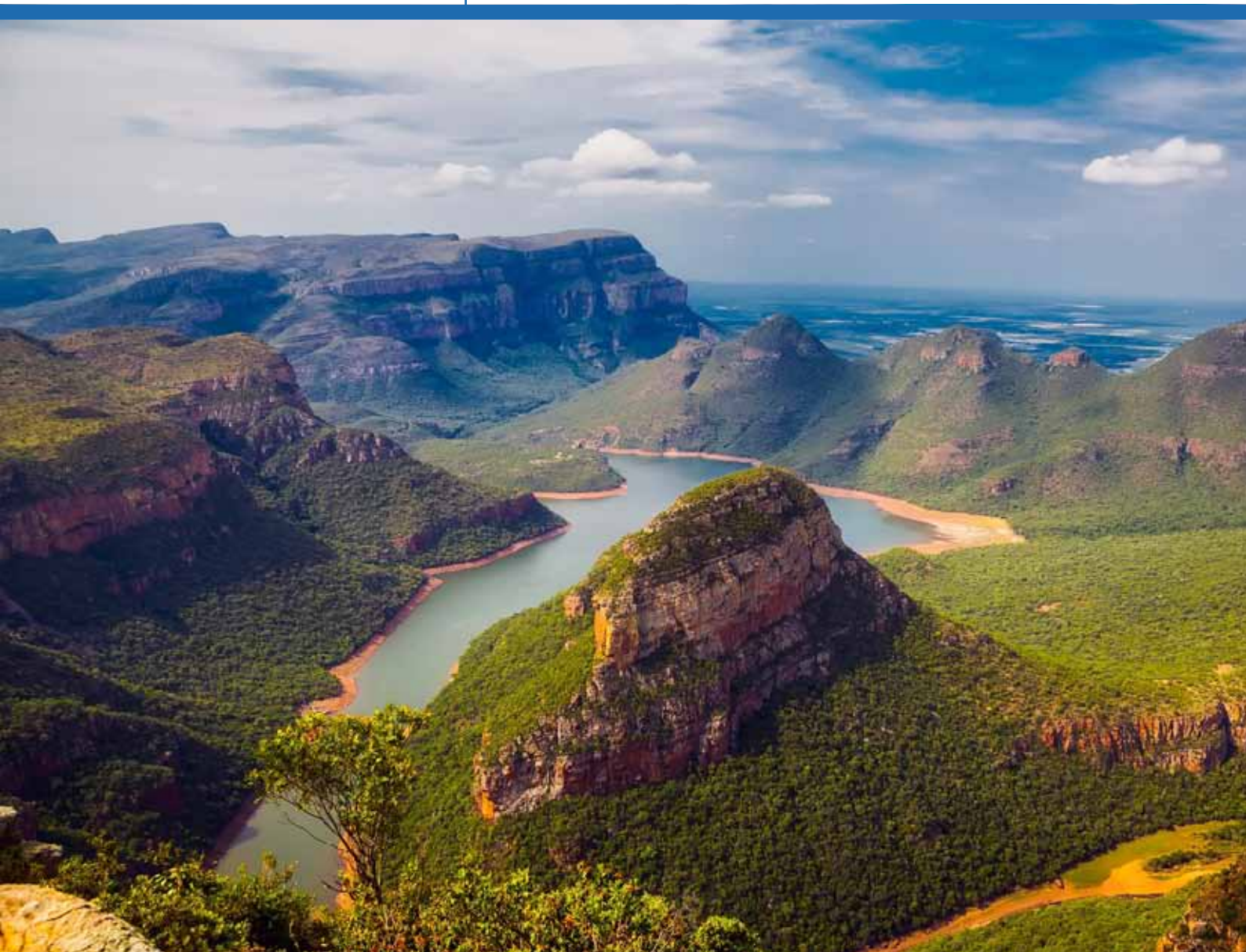
- The Wye Group Handbook on [Statistics on rural development and agricultural household income](#) (UNECE, Eurostat, FAO, OECD, World Bank)
- FAO sourcebook [Tracking results in agriculture and rural development in less-than-ideal conditions](#)
- Coordinating Working Party on Atlantic Fishery Statistics (CWP) [Handbook of Fishery Statistical Standards](#)
- WorldFish Center/LSMS-ISA: [Sourcebook on the 'Design and Implementation of Fishery Modules in Integrated Household Surveys in Developing Countries' \(2012\); Standard Fishery Questionnaire and Expanded Fishery Questionnaire](#)
- [UNECE web site](#)
- Eurostat's [Metadata](#) and [RAMON metadata server](#)

Data sources

- [Food and Agriculture Organisation \(FAO\) statistics](#)
- [CountrySTAT](#)
- UNECE's web sites on [Agriculture](#) and [Timber](#)
- [OECD Agriculture and fisheries web site](#)
- [International Tropical Timber Organization \(ITTO\)](#)
- Eurostat's free dissemination database [EUROBASE](#)
- [DG Agriculture and Rural Development \(AGRI\)](#)
- [DG Environment \(ENV\)](#)
- [European Environment Agency \(EEA\)](#)

D.18

Regional and small area statistics



D.18. Regional and small area statistics

The chapter in brief

This chapter covers information on how to develop regional and small area statistics relevant to the European Commission development cooperation. Regional and small area statistics can be developed for any statistical field, but need to be based on a consistent (in the best case officially agreed and used) regional and small area classification.

The present chapter on regional and small area statistics begins by giving information on why these statistics are needed. It continues with a description of the main concepts used and how these concepts could be transferred and applied in developing regions and countries. Information on a basic set of regional and small area indicators is also given. In developed countries, a vast variety of high quality statistics with a structured regional breakdown is produced. It is very difficult for developing countries to reach this quantity and quality of regional statistics. Indeed, it is mostly not required for developing countries to reach that level; for the core analysis of the situation and development of regions, a dataset covering the main economic and social indicators is normally sufficient.

Finally, some information is given on how to improve regional and small area statistics step by step and where to get additional information on individual topics related to regional and small area statistics, such as small area estimations and data collected on city level.

The **European Spatial Development Policy (ESDP)** - a EU framework for policy guidance to improve cooperation among sectoral policies with regional impact – could be used as a model for regional cooperation between developing countries. The idea behind the ESDP was that the work of the EU member states complemented each other best if directed towards common objectives for spatial development. The ESDP has three main aims:

- Economic and social cohesion;
- Sustainable development; and
- Balanced competitiveness of the European territory.

A similar strategy for regional development and co-operation has been established in Africa. The **Spatial Development Initiative (SDI)** was developed in South Africa in 1996 and established by the **African Union (AU)** in the framework of **NEPAD (New Partnership for Africa's Development)**. The SDI process is essentially a methodology, rather than a policy. It can be applied to facilitate investment-led growth and development in any locality. SDI represents an understandable and reasonably objective way to prioritize regional infrastructure projects, stimulate investments into productive capacity and achieve economic densification in order to optimize – amongst other aims – regional economic development and co-operation.

D.18.1. Policy applications: what this data is used for

Over the last decades, the development of regions has emerged as an important issue in the public debate worldwide. There is a strong need to develop strategies to guide this development, within the European Union and other regions of the world. A number of factors have contributed to this:

- Increasing formal and informal functional ties between regions and between countries;
- Increasing co-operation with partners sharing the same interest and facing similar challenges;
- Creation of networks;
- Regional policy needs in view of limited public resources.

All these factors have called for new, unifying frameworks that make it easier to secure convergence and co-ordination between sectoral policies. At regional level, a crosscutting, multi-sectoral perspective can be developed, forming a basis for co-ordination and functional balance in spatial planning. It is necessary to develop instruments enabling reliable and comparable analysis of regions, definition of clear medium-term aims and targets and adequate co-ordination, delivery, monitoring and assessment mechanisms.

One must analyse if and where support is needed before decisions regarding specific actions and their implementation can be made. This analysis is mainly based on regional and small area data. Analysis of regional data supports regional cohesion and is necessary to assess the eligibility for financing/funding.

Regional data is the source for applied structural research and projections (forecasts) for regional development. To carry out such analysis, there is a need for reliable data at the regional level. As far as possible, these data should be harmonised and comparable between countries, regions and smaller areas (e.g. cities). One aspect of this is the use of common international classifications and best statistical practices. Another key aspect is that the data cover regional entities of similar structure and size. In the EU, the European Commission has developed the **Nomenclature of Statistical Territorial Units (NUTS)**. For OECD countries a different regional classification called **OECD regional typology** is used (see also [Box 18.5](#)). Based on either regional classification/typology, data for different statistical domains are collected in the member countries of these two organizations, ranging from horizontal statistics (e.g. national/regional accounts) to sector specific statistics (e.g. demography, labour market, agriculture, health, education, tourism).

Regionally comparable data are vital for analysis of disparities and cohesion between regions also in other parts of the world, especially in those that receive EU aid or financial

support. Such support is partly given to the state and partly directly to local projects. Thus, there is a need for regional/local statistics to evaluate the need for aid and to assess the results of this support. For example, DG EuropeAid funds regional integration activities and micro-finance initiatives in many regions worldwide, with the aim of strengthening regional macroeconomic stability and convergence, establishing free trade areas and customs unions as well as creating synergies and support activities to increase intraregional trade.

Urban development has become a topic of growing importance for policymakers in both developed and developing countries, in particular in view of the migration from rural to urban areas. Cities are key sources for economic development and competitiveness. At the same time, cities have to deal with their own processes of economic restructuring and major issues of social inclusion within the city itself. Within the EU, the so-called “Urban Audit” has been designed to provide a greater insight into the economic potential and the social imbalances of European cities by collecting statistical information, on a consistent pan-European basis, for a wide range of data at the level of the cities, their wider urban areas and their sub-city districts. The Urban Audit covers cities both within and outside the EU. The data collected in the Urban Audit system allow analysis of the situation of each city, comparisons between cities and establishment of urban typologies. The [methodology developed for the Urban Audit](#) is designed to apply to a wide variety of cities and can in principle be applied to cities and urban regions also in developing countries.

D.18.2. Concepts and definitions

Regional and small area statistics are statistics going below the national level. They often serve as basic information for the calculation of national aggregates. In this context, a region refers to “a tract of land with more or less definitively marked boundaries, which often serves as an administrative unit below the level of the nation state”. The term “small area” generally refers to a small geographical area such as a county, a municipality or even smaller.

There are several criteria possible to define the limits of a region:

- Natural boundaries (e.g. rivers, mountains, sea, industrial regions such as coal mining, etc.);
- Historical boundaries (e.g. dukedoms, kingdoms, free cities, etc.); and
- Administrative boundaries (e.g. communes, counties, etc.).

Regions defined according to natural boundaries are also called analytical or functional regions, because they group together zones using geographical (e.g. altitude, type of soil) or socio-economic (e.g. homogeneity, complementarities of regional economies) criteria.

Regions defined according to historical and/or administrative boundaries can be summarised under the terms normative/institutional/administrative regions. They reflect political will and their borders are fixed according to the tasks allocated to the territorial communities, according to the size of population necessary to carry out these tasks sufficiently and economically.

Administrative regions

From a statistical point of view, each of these two breakdown types has strengths and weaknesses. Administrative regions usually have a statutory existence in the administrative practice of the country concerned. They are clearly defined, usually universally recognised and relatively stable. They comprise the structure within which certain levels of government exercise their powers, particularly where regional policy is concerned. Normative or administrative regions are therefore generally adopted by the national statistical systems as the most appropriate geographical units for data collection, processing and dissemination. The drawback of this approach is that the administrative and historical grounds for defining these regions differ widely from country to country. International comparability is therefore difficult to achieve, even in terms of area and population.

Functional regions

A functional (analytical) concept could be tailored according to the region in which one is particularly interested. This concept is often applied for the analysis of e.g. cross-border regions, functional economic areas (such as tourism regions), or larger urban zones. However, the definition of regions and small areas according to a functional method is often based on an administrative regional classification, which serves as a regional basis for data collection, because such data are normally reliable and actually available. The main weakness of the analytical concept is that information between two different regions or small areas can be compared only to a limited extent.

The decision regarding which regional concept (analytical or normative regions) should be applied has to be made according to the situation in each country where the regional (small area/local) data collection should be carried out and the intended use of the statistics. For practical reasons, the normative (administrative) concept is often preferable as this is commonly collected in all countries and the regional coverage is complete and clearly defined. However, this administrative concept is not always realistic in the case of cities and of city districts. Where the city, defined as an urban zone, covers several administrative regions, a mixture of administrative and functional data might be preferable (depending on the purpose of the data collection). For example, an industrialised region might include several cities and towns and some ‘hinterland’ of those, each closely linked to a certain industry or to several industrial branches. In this situation, a separate definition of the region could be created, based on either the concept for a functional region or an administrative classification or a mixture of both.

Nomenclature of Statistical Territorial Units (NUTS)

At EU level there are two types of statistics broken down below the national level. Statistics collected according to the ‘Nomenclature of Statistical Territorial Units’ (NUTS) and statistics collected in the framework of the “Urban Audit”. Both sets of data are described in the ‘European Regional and Urban Statistics Reference Guide’ (2009).

The NUTS classification is based on [Regulation \(EC\) No 1059/2003 of the European Parliament and of the Council of 26 May 2003 on the establishment of a common classification of territorial units for statistics \(NUTS\)](#). Since its adoption, the [NUTS Regulation has been amended several times](#), following changes in the administrative regions in the Member States and enlargement of the European Union.

NUTS is a good example of a classification which divides countries into spatial areas based on an administrative/institutional concept. This concept requires appropriate administrative structures. NUTS is a three-level hierarchical classification, subdividing each country covered (all EU member states and some other European countries) into three NUTS categories (NUTS 1, NUTS 2 and NUTS 3), with each lower level fitting exactly in all levels above (more details in [Box 18.1](#)).

Box 18.1: The NUTS classification – definition of levels

NUTS subdivides each EU member state into a number of regions at NUTS 1 level. Each of these is then subdivided into regions at NUTS level 2, and these in turn into regions at NUTS level 3. Leaving aside the local level (municipalities), the internal administrative structure of the Member States is generally based on two of these three main regional levels. This existing national administrative structure may be, for example, at NUTS 1 and NUTS 3 levels (e.g. the *Länder* and *Kreise* in Germany), or at NUTS 2 and NUTS 3 (*régions* and *départements* in France and *Comunidades autónomas* and *provincias* in Spain).

Providing a complete breakdown, i.e. at all three NUTS levels, therefore means identifying a regional level for each Member State *in addition to* the two main levels mentioned above. This additional level thus corresponds to a regional structure that is less extensively used for administrative purposes — or which may indeed be instituted solely for this statistical purpose, without having any administrative function whatsoever. Depending on which levels already exist, the additional level may be created at the missing of these three NUTS levels. France, for example, has functional administrative units at levels 2 and 3, thus the additional level is introduced at NUTS level 1. By contrast, the additional “non-administrative” level is at NUTS level 2 for Germany and the United Kingdom and at NUTS level 3 for Belgium.

The NUTS Regulation lays down the following minimum and maximum **population** thresholds for the average size of the NUTS regions:

Level	Minimum	Maximum
NUTS 1	3 million	7 million
NUTS 2	800 000	3 million
NUTS 3	150 000	800 000

All levels are defined according to administrative boundaries, which have to be appropriate and stable. Appropriate boundaries give the guarantee that these are accepted by the people administered, as well as homogeneity and a suitable size of the unit. Stable boundaries permit data collection over a longer period (time series) and more meaningful units. However, administrative reforms in countries might lead to a disruption of this pattern. For the definition of regions, it has to be considered that political power is often highly centralised.

Box 18.2 How to apply a nomenclature of territorial units

There are several stages in applying a regional classification to a particular country. First, the **administrative** structure of the country has to be analysed. Next, a check has to be made of whether regional data are collected and disseminated on the basis of this regional breakdown, which is often the case. The average size (mainly in terms of population) of the units of the existing administrative levels is then analysed, in order to determine where these administrative levels should be placed in the nomenclature hierarchy.

There are two possible outcomes:

- The average size of the level examined corresponds more or less to one of the nomenclature levels. In this case, the administrative structure in question could be adopted in its entirety, without change, as the statistical regional breakdown at this level. Of course, given the historical development of the regional structure, this may mean that the size of individual units in the country differs considerably from the average/typical size of units registered at this nomenclature level;
- No administrative structure has an average size similar to the typical average for this level of the nomenclature; in this case an *ad hoc* breakdown, called “**non-administrative units**”, is constructed by grouping together existing smaller administrative units. As there are no historical constraints on this regional breakdown, much closer attention has to be paid to whether all of these regions comply with the population thresholds defined in the territorial unit nomenclature.

The principles of the European NUTS classifications are well established and have a solid methodological basis. These principles provide a very useful starting point for developing classifications of spatial units elsewhere.

Box 18.3: Small areas below NUTS 3 level – SIRE data-base

SIRE (European infra-regional information system) is a dataset, maintained by Eurostat, on regional levels below the lowest NUTS level. SIRE consists of a classification for [local administrative units \(LAU levels 1 and 2\)](#) below NUTS level 3 and statistical data from population censuses. The dataset is not publicly available.

Since there are frequent changes to the local administrative units, there is a need to follow its development from year to year. Some countries make very frequent changes to their LAUs, while others virtually never change them. No attempt is made to link data from different censuses in any comprehensive manner. Links to the regional NUTS levels are stored in the SIRE database.

SIRE contains statistical data from the population and housing censuses with updates every 10 years. Censuses are not held on the same date in every Member State. The time lag between the earliest census in a particular round and the last is about three years. The new [Census Regulation \(EC\) No 763/2008](#) obliges Member States to submit data for numerous essential population and housing topics at LAU level 2.

The Urban Audit

The Urban Audit is another example of a dataset containing data on a lower level than the lowest level of NUTS. It covers urban spatial units and collects data with a direct or indirect reference to a specific location or geographical area. Data collected in this project may already exist in databases of NSIs or administrative registers or they may have to be collected from the cities directly. The [Urban Audit Reference Guide](#) gives detailed information on the dataset and the variables collected.

Urban Audit statistics contain data collected on a voluntary basis for more than 300 cities in European countries both within and outside the EU. The data collection is based on the [Urban Audit Methodological Handbook and the 'European Regional and Urban Statistics Reference Guide 2009'](#).

Eurostat coordinates the Urban Audit through a network of national coordinators (normally in the NSIs). The methodology of the Urban Audit has been developed to across diverse cities and across diverse countries; it should form a strong basis for developing urban statistics also in other parts of the world.

The Urban Audit system distinguishes between three different levels of urban spatial units:

- “Central” or “core city”, i.e. the administrative unit;
- “Larger urban zone” (LUZ) is used to gather information that also covers the hinterland of a city; and
- “Sub-city districts” (SCD), taking intra-urban discrepancies into account.

In general, a “city” can be designated as an urban settlement (morphological or functional concept) or as a legal entity (administrative or normative concept). The Urban Audit mainly uses the latter concept and defines the “core city” according to political and administrative boundaries. Since there are a number of key variables which cannot be sensibly limited to the boundaries of the “core city” (e.g. air pollution), the spatial level is extended to the “larger urban zone”, which is defined in terms of commuter flows (i.e. a functional region). It includes the “core-city” and the so-called “commuter belt”. “Sub-city districts” are the different parts of a core city. Data about these sub-entities enable analysis of disparities within a core-city.

Variables to be collected

Both regional and small area statistics should contain a basic set of core variables, providing required background information for definition and implementation of regional development programmes. A further aspect is the monitoring and evaluation of the results of programmes launched (e.g. financial assistance for candidate and potential candidate countries, EDF community aid for development in ACP countries). Especially regional accounts data (namely GDP per head in a region) is used to define regions in need of development support and specific actions. The core data at regional level comprise demographic, economic accounts, agriculture, education and labour market statistics. For further details on these statistical areas, see the specific chapters, e.g. [chapter D.13 Business statistics](#), [chapter D.17 Agricultural, forestry and fishery statistics](#), [chapter D.28 Social protection statistics](#), etc. Other regional or small area data could be collected to respond to explicit policy priorities for regional development and cohesion, applying the concepts and definitions for data collection described. For further discussion of correspondence between development strategies and statistics, see [chapter C.6.1](#).

Collection of data for small areas is of high importance if it is impossible to collect an indicator/variable nationwide. This is for example the case when data are collected using gauging stations (e.g. precipitation amount, waste collected, measurement of ozone concentrations). The main characteristic for this kind of data is that they cannot always be aggregated to national levels.

Box 18.4: Small area estimations

There is an increasing need for small area statistics within governments for policy making and distribution of funds. Official statistics produced in an NSIs cannot always cope with these needs. Due to several constraints (e.g. lack of human and financial resources, lack of administrative sources such as registers, etc.), NSIs are sometimes unable to produce the quality and quantity of small area statistics demanded by using standard survey methods. Small area estimation methods get around this problem by making use of model-based or model-assisted techniques to predict the values of target variables at small area level. However, the use of the methods developed for small area estimations require very good knowledge of applied statistics.

Small area estimation is any statistical technique involving the estimation of parameters for small sub-populations, generally used when the sub-population of interest is included in a larger survey. In this context, the term «small area» generally refers to a small geographical area such as a county. It may also refer to a «small domain», i.e. a particular part of a population within an area. A nation-wide survey normally has very few (if any) observations in each small area. To provide estimates of the variable(s) of interest for each of these small areas, advanced statistical methods are applied. These often involve using information from previous surveys in the region, from similar or neighbouring regions and/or any other useful auxiliary information (e.g. from population and housing registers, tax registers, etc.) The availability of such information varies greatly from country to country, thus the small area estimation methods must always be adapted to the national setting.

Methods for small area estimations are subject to intensive research. European researchers and NSIs are at the forefront of this research area. An important research project at European level was [EURAREA](#) (Enhancing small area estimation techniques to meet European needs). EURAREA brought together experts from academic institutions and NSIs, carrying out substantial methodological development, as well as testing and simulation with real data from the NSIs.

Key conclusions of the EURAREA project were:

- At NUTS 3 level: model-based estimators achieve comparable or slightly better levels of precision than design-based estimators;
- At LAU level: model-based estimators substantially outperform design-based methods, even when the models have fairly limited predictive power;
- The gain from using model-based methods increases substantially with the availability of explanatory covariates that are highly correlated with the target variable.

Software routines for small area estimation, developed by NSIs in the EURAREA project, are available for free download from the download section of the EURAREA website (zipped SAS programme code files with PDF documentation).

D.18.3. Sources of regional data

There are two main internationally recognised classifications for regional and small area statistics: the NUTS classification of the European Union and the regional statistics system of the OECD. However, for most EU countries the OECD classification is identical to NUTS. Both systems can be used to define regions and small areas. For the small area level (below NUTS 3 level), the European Union uses two different systems: a combined functional/administrative approach applied for the Urban Audit dataset and purely administrative approach (LAU 1 and 2) in line with the NUTS classification.

Within the European Union, the NSIs collect and provide regional statistics according to the NUTS-system. The OECD, on the other hand, “regionalises” the data according its own classification (see [Box 18.5](#)).

Box 18.5: Other examples of regional typologies/classifications

OECD regional database

The [OECD regional database](#) is a source of statistical information at sub-national territorial level for all OECD countries. It is based on a functional approach and currently encompasses time-series for around 40 indicators on demography, economic accounts, labour market, social and innovation themes. For EU member states, all this data is sourced from Eurostat’s database.

In any analytical study conducted at sub-national levels, the choice of the territorial unit is of prime importance. [Regions in OECD Member Countries](#) have been classified according to two territorial levels (using the administrative concept) to facilitate international comparability. The higher level (Territorial level 2) consists of macro-regions, while the lower level (Territorial level 3) is composed of micro-regions in the OECD member countries. These levels are officially established, relatively stable and correspond in most countries to the levels used for implementing regional policies. For most EU countries the OECD classification is identical to NUTS.

Regions of OECD member countries have been [classified into Predominantly Urban, Intermediate and Predominantly Rural regions](#) to take into account the geographical differences among them. Comparing the socio-economic performance of regions of the same type (whether urban or rural) across countries is useful in detecting similar characteristics and development paths. This typology has been used by the OECD in its analytical work (see, for example, the series [OECD Regions at a Glance](#)), as well as in analysis carried out by other institutions, such as NSIs and the European Commission.

ESPON typology compilation

ESPON ([European Spatial Planning Observation Network](#)) is a programme under the EU structural funds initiative [European Territorial Co-operation objective](#). The aim of the program is a European applied research network which observes the spatial development of the European Union. It intends to provide policy makers on the European, national and regional level with knowledge on territorial trends and impacts of spatial policies. Amongst many subjects, ESPON has also carried out [research on functional typologies](#), e.g. on rural and urban areas and on cross-border regions.

D.18.4. Analysing data quality and identifying problems

Regional and small area statistics cover many statistical domains of different nature and structure. They range from economic and social statistics to environmental statistics and cover a large number of human activities. The quality of regional data relies first of all on a harmonised regional classification and secondly on the quality of data and statistics used as input. Generally, more than one institution or body is involved in gathering data at regional and small area level. In principle, all these institutions, at all levels from local to national, have (or should have) developed their own procedures to ensure the quality of the data they are collecting and the statistics they are producing.

Good quality and reliable indicators should meet some basic and inter-related criteria. Thus, quality check procedures have to be developed and implemented at the different levels of the data collection chain, from the data acquisition to the final compilation.

In this context, the most important validation rule for regional and small area statistics is that the sum of data from a lower regional level should (in general) not exceed the value at the higher regional level. This rule applies for all absolute values. For example, the value of the sum of the population reported by all communities (lower level) in a district cannot be larger than the value for the total population reported for the same period by the district (level directly above). However, this principle does not always work in practice. In the case of ratios (indices, etc.), such as regional gross domestic product per inhabitant, the value for a lower level (e.g. city or municipality) can be either bigger or smaller than the value for the next higher level(s). In such cases, other data validation checks should be applied, such as standard deviation, lower and upper thresholds around a mean, etc.

The following main quality criteria should be considered (see also [sections B.2.1.2](#) and [chapter C.5](#)):

- Reliability of input data: in the case of administrative data, this is in general controllable. In the case of survey data, it depends on a number of factors; the training, experience and motivation of the staff involved is one of the key factors. It is important that the staff is motivated and equipped to carry out the survey(s) with the highest possible accuracy. Other key factors for the quality range from the quality of the sampling frame (e.g. population register), via the survey design to data processing and analysis.
- Representativeness and completeness: the indicator integrates all input data needed in terms of spatial coverage and reference period(s), of the phenomena (variables) that are being addressed.
- Consistency and coherence: the indicator should be consistent over time and coherent (i.e. not in contradiction with other related indicators or statistics). For regional

statistics based on normative regional units, national reforms of the administrative structure and changes in the administrative regions will lead to breaks in the time series. When such reforms mainly involve merging small administrative regions (e.g. municipalities) inside the larger regions, this has limited impact. Larger-scale changes in the major regions or redefinitions of the whole system of administrative regions will cause severe breaks in the comparability of regional statistics over time.

- **Comparability:** this is ensured when the same principles are applied for defining all regions surveyed and all regions apply the same definitions of the collected variables. A critical factor for regional statistics is that the regions at the same level of the classification are of comparable size (in terms of population).
- **Traceability:** reliable and full documentation is of utmost importance when updating or repeating an exercise, e.g. for another reference year. Any suspicious changes in data should be explained by the metadata information. This meta-information makes it possible to compare data and shows divergence in the concepts of data collection, which is necessary for the interpretation of data.

This basic dataset (ideally covering several subsequent years) should be subject to steady improvement (e.g. data for the most recent year to be added on an annual basis and filling data gaps for previous years) and extension with variables to meet the information requirements of new policy areas.

In order to achieve a good quality level in regional statistics, it is necessary to cooperate with different institutions (different responsibilities) involved. These bodies may not have experience in working together and/or authority of sharing information. Coordination and connection channels may need to be established in order to ensure effective sharing of data and information. This may require the development of memoranda of understanding or other formal arrangements for the cooperation with regional public services.

In regional statistics, a good cooperation with regional bodies is also valuable for improving quality. Such bodies have in-depth knowledge of their region and can be of very good help in verifying statistical results and to detect problems in the data. Another way of improving regional statistics is to identify auxiliary data that can be used as basis for estimations at regional level, for calibrating the survey data, for complementing the indicators or for verifying results.

D.18.5. Improving regional statistics

As mentioned earlier, more than one institution might be involved throughout the process of data collection at regional level. However, in many countries institutional structures are not settled or are subject to frequent changes. Another critical issue is the identification of indicators of interest. Often, from a theoretical viewpoint, a large number of different indicators could be collected. In practice, it is not realistic or even necessary to generate all of them. The selection of indicators depends on the need (of national institutions, donors and others) for information at regional and local levels of the country. In many cases, the selection is also influenced by which data are already available in the country. A careful selection of appropriate indicators should be carried out, based on the priorities for regional policies and actions and on the particular subject of interest at regional level.

The data collected should at least have a high level of comparability within a country, and preferably between countries. One main objective of regional statistics should be to establish a regional classification comparable with that of other countries (at least the countries in the same geographical area, e.g. West Africa), enabling meaningful comparisons of regions between countries as well as within the same country. Once such a classification is established, it should be kept unchanged over a longer period of time in order to get reliable datasets for analysis of longer-term developments in the individual regions. The principles of the European NUTS classifications are well established and have a solid methodological basis; NUTS may well inspire nomenclatures of spatial units in other parts of the world. Once a classification of regions is established, the main variables required for evaluating the socio-economic development in the regions needs to be defined.

To find out more...

Regional statistics

- [Spatial Development Initiative \(SDI\) in Africa](#)
- Eurostat's dedicated section on [Regional Statistics](#)
- European Union [Nomenclature of Statistical Territorial Units \(NUTS\)](#)
- [NUTS Local Administrative Units \(LAU\)](#)
- [European Regional and Urban Statistics Reference Guide 2009](#)
- [OECD Regional Statistics and Indicators](#), which gives access to the OECD regional statistics database and information on the regional typology and breakdown of regions in the OECD member states.
- [European Spatial Planning Observation Network \(ESPON\)](#)

Small area statistics

- [Neighbourhood statistics in England and Wales, Scotland and Northern Ireland](#)
- [European Working Group on Small Area Estimation \(EWORSAE\)](#)
- [Small Area Estimation conference \(SAE\)](#)
- [Recent Advances in Small Area Statistics \(RRC09\) colloquium](#)
- [EURAREA](#) research project, including free SAS routines for download

Urban statistics

- DG REGIO's websites [Structural actions in support of urban issues](#) and [Urban Audit](#)
- The Urban Audit '[State of European Cities Report](#)' and its [executive summary](#)
- Eurostat's dedicated section on [City statistics – Urban audit](#)
- [Urban Audit Methodological Handbook](#)
- [European Regional and Urban Statistics Reference Guide 2009](#)
- [Urban Audit Reference Guide \(2003/2004 data collection\)](#)

Information on spatial (regional) data in developing countries

- [Global Spatial Data Infrastructure Association - \(GSDI\)](#)

D.19

Government finance and public sector statistics



D.19. Government finance and public sector statistics

The chapter in brief

This chapter covers statistics on the finances of government and public sector, informing fiscal policy both at national and sub-national level. The methodology of the budget compilation at national or sub-national (regional, local) level varies from country to country. It may also be modified from year to year. Thus, data taken directly from the national budgets may not be directly usable for international comparison. In some instances, time series within the same country are also not comparable. Therefore, there are advantages in the use of statistical methodology over the use of budget data, as the statistical methodology provides a unified and transparent tool for macroeconomic analysis of fiscal processes.

The different principles of government budgeting and accounting are explained. The difference between government finance statistics and public financial management is also clarified. Practical advice is given on how to develop government finance statistics in developing countries. In particular, this advice relates to different types of public budgeting, emphasising comparability across countries and over time. The chapter also touches upon the problem of how to measure the level and volumes of government services. This is a crucial issue for evaluating the efficiency of public services.

- In recent years, policy interest in improving the efficiency and productivity of government services has been growing. For this purpose, there needs to be a value set for the output of government services.

In particular, the availability and quality of government finance and public sector statistics are vital for budget support, as they provide baselines and data for calculating key indicators for monitoring and evaluation of the impact of the budget support interventions.

D.19.2. Concepts and definitions

D.19.2.1. ACCOUNTING PRINCIPLES: CASH BASIS VERSUS ACCRUAL BASIS

There are two different accounting principles used in budgets and by budget units, cash basis accounting and accrual basis accounting. National budgets are usually compiled on cash basis; this is generally the case in developing countries.

Cash basis

The cash basis of accounting recognizes transactions and events only when cash is received or paid by the budget unit. For example, under the cash basis the payment of current income tax is recorded when the payment is actually done, usually some months after the end of the reference year. A budget based on cash basis only records monetary flows. Financial statements prepared under the cash basis provide information on the sources of cash raised during the period, the purposes for which cash was used and the cash balances at the reporting date.

The financial statements focus on measuring cash balances and the changes in them. Notes to these financial statements may provide additional information about liabilities and some non-cash assets. Under the cash basis, the payments of government debt are recorded when interest or down-payments are actually paid.

Under cash basis accounting, debt is only captured for debt service and “drawing” (i.e. raising cash by taking up debt, issuing government bonds, etc.). In other words, current transactions are captured, liabilities not. In order to assess a country’s ability to handle further borrowing, separate records are needed to keep trace of the nominal value of the country’s debt stock. Debt management and reporting is a critical issue in many developing countries, not only in the [Heavily Indebted Poor Countries \(HIPC\)](#).

D.19.1. Policy applications: what this data is used for

There are a number of important reasons for the great interest in government finance and public sector statistics:

- Governments redistribute a large part of the national income through the budget, so it is important to know for which policy purposes/fields the money is spent.
- The level and the composition of the tax burden is a key area for policy making and analysis.
- Governments are usually good debtors; they are able to absorb liquid financial assets, crowding out private investors.
- In developing countries, the availability of reliable fiscal statistics is a central element for development planning.
- Public debt is a burden for coming generations. This is why public deficits and debt levels should be kept under strict control, so that a sustainable fiscal position is maintained in the long term. The liabilities of social security pensions are another (implicit) burden for future generations.
- The public sector is a large employer; its behaviour has a significant impact on employment and wages at national level.
- In many countries, government debt is mainly financed by foreign investors. Thus, the level of government deficit and debt may influence international financial markets.

The [International Public Sector Accounting Standard \(IPSAS\) for Cash Basis](#) details the financial reporting under the cash basis of accounting in the public sector.

Accrual basis

Under the accrual basis of accounting, transactions and events are recorded when amounts to be paid are built up. For example, the payment of current income tax is recorded within the reference year, when the income is earned. Interest payments on the government's debts are recorded when the payable amounts are built up. Accrual accounting also covers non-monetary transactions, such as distribution of goods or assets free of charge, the assumption or cancellation of debt.

Accrual accounting is often considered the best basis for analysing enterprises, measuring cost, income and net worth. However, cash based accounts are useful for example for purposes such as liquidity management. It is possible to adjust from cash based to accrual based financial statements or the other way.

Although the main guidelines for government finance apply accrual accounting (see [section D.19.2.2.](#) below), even developed countries often use cash basis accounting in their national budgets. However, more and more countries move towards accrual accounting, based on international accounting standards and recommendations. In any case, a good cash based system must be in place first of all. Such a move should be a part of overall reform and not an end in itself, and each step should be useful in itself.

D.19.2.2. GUIDELINES FOR GOVERNMENT FINANCE STATISTICS

Government has special power, motivations and functions in the economy; this is reflected in the statistical methodology of government finance. At the same time, government activities have a great influence on the economy; to follow this impact, the methodology of government finance is consistent and coherent with the rules of national accounting.

Two main internationally accepted government finance guidelines exist. One is the [Government Finance Statistics \(GFS\)](#), prepared by the IMF. The second methodology is the [European System of Accounts \(ESA\)](#), managed by Eurostat, and its supplementary detailed regulations for the accounting of the performance of the government sectors. ESA is based on the UN's [System of National Accounts \(SNA\)](#). The presentation of the two systems is different, but the stocks and flows are defined and valued in the same way. The balancing items are either identical, or can easily be deducted from each other. The conceptual differences are of minor importance.

In addition, the International Public Sector Accounting Standards Board (IPSASB) publishes International Public Sector Accounting Standards (IPSAS), both for cash basis accounting and accrual accounting in the public sector. All IPSASs are contained in the [IFAC Handbook of International Public Sector Accounting Pronouncements](#).

The IMF, the European Union and the IPSASB work to eliminate as many differences as possible. However, it is inevitable that some differences will remain because the purposes of the various reports are different.

Example of minor differences between GFS and ESA

The GFS does not record separately the value of financial services paid as part of the 'interest margin', i.e. the difference between the bank interest rate charged for credits and the interest rate paid on deposits. This item is called FISIM: Financial Intermediation Services Indirectly Measured.

D.19.2.3. THE COVERAGE OF THE GOVERNMENT SECTOR AND OF THE PUBLIC SECTOR

In government finance statistics, economic criteria are used to define the government sector, not legal criteria. This means that the coverage of the government sector in government finance statistics does not necessarily coincide with the coverage of the official budget. Thus, the definition of the government sector for statistics is:

- The Government sector consists of entities/institutional units that implement public policy, through the provision of non-market services and/or through the redistribution of income and wealth (this redistribution is regarded as a form of provision of non-market services.)

Two criteria decide whether an institutional unit belongs to the government sector or not. The units in the government sector:

- should be non-market producers, and
- should be controlled by the government.

Production is called 'non-market' if the majority of the production costs are not covered by market sales, but financed from other sources. 'Control' is the ability to determine the general policy or program of an institutional unit.

Box 19.1: The government sector and the public sector

In statistics, the **government sector** usually differs from the set of units covered by the national and sub-national budgets.

Universities, the national broadcasting agency, or units engaged in public transport investments (road development) are good examples of borderline cases; these units are outside the budget, but are mainly financed directly from government sources and controlled by government units.

The **public sector** consists of all institutional units controlled by government entities: that is, the government sector **plus** those corporations in which the government owns the majority of equity. Public transport companies, public utilities etc. usually belong to the public sector. Currently, only a few countries compile statistics on the public sector.

Depending on administrative and legal arrangements, there may be more than one level of government within a country. In public finance statistics, a maximum of three levels of government is defined: central government, state/regional government and local government. Social security funds may be treated as a separate subsector.

In some countries, the budget only covers a general fund, without institutional coverage. In such a case, only taxes, social contributions and dividends (if applicable) are recorded on the revenues side. The expenditures are classified as transfers, grants within levels of government and interest payments. In this case, wages and salaries of government employees are not recorded separately but included in the total amount of transfers.

In order to compile government finance statistics, data are required both for the institutions included in the budget and for other units classified to the government sector. The unit types that should be included in the statistics on the government sector are:

General government

- State (budgetary core unit)
- On-budget entities: budgetary institutions, budgeted funds
- Off-budget entities: budgetary institutions, extra-budgetary funds
- Public corporations and non-profit units, controlled and mainly financed from government sources

Public non-financial and financial corporations, controlled by government

- Central bank (only for central government)
- Public financial corporations, controlled by central, state/regional or local government
- Non-financial corporations, controlled by central, state/regional or local government

For Social security funds, treated as a separate subsector:

- Social security funds
- Fund managers

D.19.2.2. THE ANALYTIC FRAMEWORK

The complete public finance statistics comprise the balance sheet at the beginning and end of the year, as well as the accounts that record the changes of the balance sheets (flows) during the year. On the asset side, the value of financial and non-financial assets is presented. The liability side shows the value of government liabilities. Net worth is the difference between the value of assets and liabilities.

Example

The value of the stocks of government-owned buildings may change during the year due to:

- New buildings are constructed
- Existing buildings are sold or demolished
- The value of the buildings increases because of inflation
- The value of the buildings declines as a result of physical deterioration and of being obsolete.

Many countries are not yet able to compile the complete balance sheet, because it is a difficult process to value non-financial assets. In many developing countries, the problems may be even more basic: a first challenge and priority may be simply to have a comprehensive and up-to-date asset register available. A central issue in developing countries is to assure that the basics are in place and functioning.

Government debt

Government debt is the sum of all liabilities of the general government sector. It is valued at market value.

Usually, consolidated figures are reported: treasury bills and bonds held by local governments are consolidated and interest payments on them netted out. For analytical purposes, domestic debt and foreign/external debt should be distinguished. In statistics, foreign debt is defined as debt held by non-resident entities; *in practice*, debt is normally labelled according to the currency in which it is denominated. Debt should be classified also according to maturity: a high share of short term debt may cause difficulties in liquidity management.

In the case of negotiable debt, the difference between the nominal and market value may be significant.

Box 19.2: Capacity building and training in government debt statistics

The United Nations Conference on Trade and Development (UNCTAD) has established a [Debt Management and Financial Analysis System \(DMFAS\) programme](#), providing technical cooperation and advisory services in debt management. The programme helps governments to improve their capacity to manage debt and has worked directly with a large number of low and lower-middle income countries.

The DMFAS programme is a concrete example of how capacity is built at country level, in support of good governance, development and poverty reduction. It provides countries with the means to improve their management of public liabilities, and consequently public resources, through the strengthening of their institutional capacity in this area. The programme builds capacity not only through UNCTAD's DMFAS software, but also through increased human and institutional capacity to manage the operational, statistical and analytical aspects of debt management. The capacity-building is delivered through in-country and regional training, including debt validation, debt statistics and debt portfolio analysis. To formulate effective debt strategies, one must build a comprehensive debt database. On this basis, reliable reports and statistics can be produced and analysis carried out.

DMFAS encourages south-south cooperation and sharing best practices. It regularly uses proficient DMFAS users from developing countries to train new users in other developing countries.

Revenue and expenditure

Government finance statistics present government operations in the same way as they are presented in the budget.

Government revenue and expense are defined as:

- **Revenue** is all transactions that *increase* the net worth of the government sector
- **Expense** is all transactions that *decrease* the net worth of the government sector.

The main types of government revenue are: taxes, social security contributions, dividends from public companies, grants from abroad.

Taxes and social security contributions are defined as compulsory transfers to the government, without direct service in return. In fiscal analysis, tax revenue plus compulsory social security contribution as a per cent of GDP is called **fiscal burden**.

In ESA and GFS, the classification of taxes is different. The ESA has provisions for compilation of (i) taxes on production and imports; (ii) current taxes on income, wealth, etc.; (iii) capital taxes. The GFS classifies taxes according to the base on which the tax is levied. Six major groups are defined: (i) taxes on income, profits and capital gains; (ii) taxes on payroll and workforce; (iii) taxes on property; (iv) taxes on goods and services; (v) taxes on international transactions; (vi) other taxes.

The main types of government expense are: salaries and wages for government employees; purchase of goods and services for providing government services; social benefits paid to households; interest paid on government debt; subsidies to enterprises.

Social benefits are provided as social insurance or as social assistance. Whereas social insurance is a collective scheme that requires membership, social assistance is provided by government based on specified social needs (statistics on social protection is covered in more detail in [chapter D.28](#)). The social insurance system operated by the government is called social security. Employers or insurance companies may operate other forms of social insurance.

The contribution to and benefits from the social security system is divided between pensions and all other forms of insurance. Social security pensions are frequently funded on a pay-as-you-go basis; the contributions received in a period are used to fund the benefits paid in the same period. There is therefore no saving recorded, neither for the government nor for the individuals participating in the scheme. An important concern is that the benefits may exceed the contributions and that the situation will worsen when the population ages. There may be a great variety of other forms of pension schemes (see the [System of National Accounts 2008](#), Chapter 17, Part 2).

Balancing items

The balancing items are the difference between revenue and expense. Three core balancing items are used as measures for fiscal policy:

- **Net and gross operating balance** equals total revenue minus total expense. The gross operating balance excludes depreciation costs from the expense (the value of the depreciation of fixed assets is difficult to measure).
- **Net lending/borrowing** equals the operating balance minus the acquisition of non-financial assets. In other terms, net lending/borrowing also equals the difference between new financial assets and new debts.

- **Primary balance** equals net lending/borrowing minus interest paid on debts.

The ESA uses the category expenditure: expenditure includes all transactions that worsen net lending/borrowing. On other words, expenditure equals expense plus the acquisition of non-financial assets.

Revenue	Expense	Balancing item
Total revenue	Total expense	Operating balance
Total revenue	Total expense + acquisition of non-financial assets	Net lending / borrowing
Total revenue	Total expense + acquisition of non-financial assets - interest paid	Primary balance

Beside these core balances, a number of other balance concepts may be used for policy analysis. The most frequently used are:

- **Cash surplus/deficit:** the net cash inflow from operating activities, minus the net cash outflow from investments in non-financial assets;
- **Overall fiscal balance:** net lending/borrowing, adjusted by items that are for public policy purposes. For example, subsidies given in the form of loans would be recognised as an expense;
- **Adjusted overall fiscal balance:** overall fiscal balance, adjusted to exclude from the revenue any grants and other large and infrequent transactions that could distort the fiscal analysis.

A detailed classification of expenditure is crucial for fiscal analysis. Two classifications are used in combination: An economic classification and a functional classification.

The **economic classification** identifies the different types of expenses/expenditure for providing ‘non-market products’ (public services and goods) and for redistribution of income (taxes, social benefits, grants, subsidies).

The **functional classification** identifies the social or economic purpose of the expense/expenditure. The OECD has developed the **Classification of the Functions of Government (COFOG)** system. At the first level of COFOG, 10 divisions are distinguished:

- General public services;
- Defence;
- Public order and safety;
- Economic affairs;
- Environmental protection;
- Housing and community affairs;
- Health;
- Recreation, culture and religion;
- Education;
- Social protection.

Consolidation

Consolidation ignores (or nets out) certain flows and stocks between the units belonging to the same sector. As a general rule, the entries in the ESA are not consolidated. The GFS, on the other hand, prefers consolidation.

Consolidation usually involves the elimination of stocks and flows in debtor-creditor relationship. For example, that central government securities owned by local governments are not included in the consolidated government debt. Thus, intergovernmental interest payments are also excluded. Current and capital transfers paid between subsectors of government may also be netted out. For analytical purposes, consolidated figures for the government *as a whole* to the national economy. Consolidated figures for revenue and expense are significantly lower than unconsolidated figures.

Data for the *public sector* could be presented in two ways: public corporations as a separate sector, or consolidated with the general government.

D.19.3. Sources of data and metadata

With some minor exceptions, government finance statistics rely on administrative sources. Important sources are the annual and quarterly reports of budget units and the data of the report on execution of the annual budget. In developing countries, this may already be a challenge.

Data on taxes and social contributions come from the tax authorities. In most countries the State Treasury manages all cash transactions of the budget units. This data source is appropriate mainly for short-term statistics. Often, a special unit manages the financing of the government debt, providing data on government bonds and treasury bills and the interest paid on them.

Government finance follows the accounting principle of 'substance over form'. Thus, certain transactions in the budget are:

- Netted (e.g. netting of VAT flows of government units) or grossed (e.g. of the net cash flow of two transactions in different directions).
- Imputed (e.g. social benefits provided by government employers to their employees in a nature, similar to social security benefits);
- Re-routed (e.g. social security contributions paid by government employers are presented as if they were paid as wages and employees then pay them into the social security system).

These statistical adjustments require extra data collection if the budget accounting is on a pure cash basis. Fiscal transparency and public sector accounting standards require that the accounting rules and accounting basis attached are disclosed.

Data availability

A comprehensive set of fiscal data for developing countries is collected by the IMF. The **Statement of Government Operations (SOGO)** and supplementary tables are published in the **IMF Government Finance Statistics Yearbook**. SOGO provides the main aggregates of transactions, like revenue and current expenses and net acquisition of non-financial assets. Statistical discrepancy is presented, between the value of net-lending-borrowing compiled from current and capital accounts on one hand and as the balance of financial accounts on the other. The share of this discrepancy to total expenses may indicate the reliability of the estimates.

Most developing countries do not report a complete balance sheet for SOGO; data on the stock of non-financial assets are often missing. The amount of liabilities corresponds more or less to gross debt. **Data and methodological notes on IMF Government Finance Statistics (GFS)** are available on the IMF website.

Box 19.3: Metadata for government finance statistics

The IMF's **General Data Dissemination System (GDDS)** provides guidance for the overall development of macroeconomic, financial, and socio-demographic data. Through the GDDS framework, countries are encouraged to improve data quality, evaluate needs for data improvement and set priorities in this respect, and disseminate reliable statistics (see also **Box 5.9**).

One of the data categories covered by GDDS is government finance statistics. For many developing countries, key metadata for government finance statistics (e.g. who is responsible for compilation, accounting basis, key classifications, plans for improvements, etc.) can be found under 'Fiscal statistics' on the **IMF GDDS topics website**. However, this information may be out-of-date.

The **IMF and AFRISTAT GDDS project for West Africa** covered ten countries, including members of the West African Economic and Monetary Union (UEMOA). A program of activities on government finance statistics was developed in response to countries' requests, relating mainly to expansion of the coverage of government financial operations tables (TOFE) and its harmonization with regional standards, restoration of capacity to compile and disseminate GFS, and training of officials. Furthermore, courses and regional workshops on the implementation of the **2001 Government Finance Statistics Manual** were organised.

D.19.4. Analysing data quality and identifying problems

The quality of statistics on government finances and the public sector critically depends on the quality of government and public finance management (PFM) and the accounting principles and practices. PFM and frameworks for assessing and improving PFM are not the same as government finance statistics. However, government finance statistics use data from government budgets and accounts. Therefore, weaknesses and quality problems of PFM are directly reflected in government finance statistics, causing problems in preparing accurate and internationally comparable statistics. However, PFM and frameworks for assessing and improving PFM are outside the scope of this chapter.

Because fiscal policy plays a central role in promoting development, the methodology of fiscal management in developing countries is regularly scrutinised by international organisations. There are various diagnostic and assessment methodologies for Public Financial Management (PFM), specifically suited to developing countries. These methodologies do not concern the system of government finance statistics directly, but the quality of PFM does influence the availability, integrity, timeliness and other characteristics of the sources used to compile government finance statistics.

Box 19.4: The Public Expenditure and Financial Accountability methodology

The **Public Expenditure and Financial Accountability (PEFA)** methodology for assessing public finance management is a modern and up-to-date initiative. PEFA has been applied to more than 60 countries through collaboration of local authorities and donor institutions.

PEFA examines the country practices from the following dimensions:

- **Credibility of the budget:** the budget is realistic and implemented as intended;
- **Comprehensiveness and transparency:** the fiscal risk is highlighted and information available to the public;
- **Predictability and control in the budget execution:** the budget is implemented in an orderly manner;
- **Accounting, auditing and reporting:** adequate information is produced and disseminated to meet control, management and reporting purposes;
- **External scrutiny and audit.**

The **PEFA PFM framework** uses 28 indicators, scored on a scale from A (highest) to D (lowest). It is structured into the categories:

- Comparing actual expenses and revenues to the original approved budget;
- Comprehensiveness and transparency of the PFM system;
- Budget cycle: performance of key systems, processes and institutions within central government.

The framework also assesses donor practices and the extent to which they affect the PFM performance.

There are several indicators that have direct relevance for assessing the quality of public finance statistics. Using the codes of PEFA, some of the most important indicators are:

- (PI-5) Classification in the budget: whether the budget applies administrative, economic and functional classification and the content of the classes are documented;
- (PI-6) Comprehensiveness of information included in the budget: if all revenue and expense of budget units are covered;
- (PI-7) Extent of unreported government operations: It may happen that extra-budgetary funds are not included in the budget. Government finance statistics should cover those funds as well;
- (PI-8) Transparency of inter-governmental fiscal relations: the existence of regular information flows among budget units is a precondition of providing short-term and annual statistics;
- (PI-9) Oversight of aggregate fiscal risk from other public sector entities: such entities should either be classified to the government sector, or the transactions should be rerouted through the government sector;
- (PI-10) Public access to key fiscal information;
- (PI-24) Quality and timeliness of in-year budget reports;
- (PI-25) Quality and timeliness of annual financial statements.

The indicators PI-7, PI-9, PI-26 and D-2 cover in part activities of central government implemented outside the budget.

The **Heavily Indebted Poor Country (HIPC) programme** was a forerunner to PEFA. It was a joint initiative of the World Bank, IMF and regional development banks, launched in 1996. HIPC uses 15 benchmarks to assess the budget management and to what extent the country is able to plan and execute programs and report on results. These benchmarks assess:

- the comprehensiveness of the budget,
- the classifications used in the budget and to what extent poverty-reducing expenditure are identified,
- the quality of multi-year expenditure projections,
- the quality of internal audit, and
- the timeliness of reporting.

Another diagnostic tool to assess strengths and weaknesses in a country's PFM system is the **Country Financial Accountability Assessment (CFAA)**, developed by the World Bank. Its purpose is to assess and manage the risk that public funds may be used for non-intended purposes: identify the key risks, capacity gaps and constraints to progress; help the government develop a strategy for reform; and assist in designing a program to improve financial management capacity in the public and private sectors. The scope and level of the CFAA's coverage takes account of the country's size, stage of development, and relationship with development partners. The website of the African Development Bank contains a number of **CFAA country reports**, both for African and other countries.

IMF regularly assesses the quality of government finance statistics, concerning timeliness, completeness, reliability, accessibility and consistency with statistical methodology. For more information and for country reports, see IMF's **Special Data Dissemination Standard (SDDS)** website. However, SDDS mainly covers developed and countries and countries in transition. More information can also be found in [section B.2.4.1](#) and [section C.5.3](#) of this Guide.

Measuring productivity and efficiency of government services raises important quality challenges. One has to establish quality-adjusted output measures, expressed mainly in physical terms. **'Total output in constant value'** is defined as the sum of these quantity indicators, combined using weights that reflect the costs of producing them. The output indicators should be defined in sufficient detail to ensure that they are kept homogeneous in time. Health and education are the two areas where quantity indicators are most easily available.

Government accounts do not use outcome indicators, but for policy analysis they may be more relevant than output measures. The efficiency of government services is measured as the ratio of output to costs of production at constant prices. Labour productivity is the ratio of output to labour input. To measure total factor productivity (TFP), capital input should also be estimated. For more on measuring non-market output in national accounts, see **SNA 2008** paragraphs 15.111-

15.120 and the **OECD handbook on "Measuring Government activity"**.

Administrative data from the budget of government and other public entities are usually audited. Therefore, one normally assumes that these data are relatively accurate and reliable. However, in order to produce statistics they must be modified according to the statistical accounting rules. Which way the budget data should be modified depends on the accounting rules used in the budget and by the budget units. For example, ESA and GFS apply accrual accounting whereas national budgets, especially in developing countries, are usually compiled on cash basis. To produce internationally comparable statistics, data from the legal budget may have to be transformed from cash basis to accrual basis. Other associated issues may be the inclusion of non-monetary transactions and the exclusion of flows not regarded as revenue (e.g. payments received from privatisation or revaluation of assets, most of all on reserve assets held in foreign currencies). However, in many developing countries other more basic issues might be more pressing.

D.19.5. Improving sector statistics

Statistics on government finance and public sector is closely related to public finance management. The quality of the statistics is closely connected to the quality and definition of the data from government budgets, which form the basis for the statistics. Therefore, government finance statistics should be developed in coordination with budget support, activities to strengthen PFM and other administrative reform. Government finance statistics is important information for development planning, and is thus of vital interest both to governments in developing countries and to their development partners. A further aspect is whether funds are used efficiently and for the purposes intended.

PFM in each country is based on national legal and administrative traditions. Government finance statistics reflect this. It is therefore difficult to give advice for improvement of government finance statistics that will apply in each developing country. Instead, the approach must address the specific issues in the individual country, based on some general principles. First of all, the development of government finance statistics must go hand in hand with PFM development. In this process, the statistics should be developed in direction of compliance with the international statistical standards and concepts. A strategy should be devised for data collection and dissemination for the complete government finance accounts.

It is a key issue to bring together all stakeholders to discuss the information needs, core challenges and a common strategy. The stakeholders include the NSI, the Ministry of Finance and the central bank, as well as the treasury, line ministries and other key public institutions. The exact round of stakeholders is dependent on the national administrative system. The stakeholders also include donors. The strategy should be

developed within the frame of the NSDS and be integrated with any plans for administrative reform.

For statisticians, access to administrative budget data is important for developing good and comprehensive statistics. In this perspective, a number of issues should be addressed. However, the priorities critically depend on the national context:

- Clarify differences between budget concepts and government finance statistics concepts;
- The information system of the budget compilation should allow statisticians access to basic administrative data at a level as detailed as possible;
- Verify that all relevant transactions are registered in the budget data;
- Establish an asset register; if existing, update and assure maintenance;
- Establish a register of government units that are outside the budget coverage; if existing, update and assure maintenance;
- Assure that data from all relevant budget units are available; set up regular data collection on government units that are outside the budget;
- Assure that budget data are available within a reasonable time after the end of the budget year; if serious delays, develop strategy with responsible institutions to bring delay down;
- Investigate whether other sources, e.g. on financing, be used to cross-check and assess and calibrate data on government finance.

A close co-operation is required between the NSI, the ministry of finance and the central bank to establish and maintain good quality government finance statistics. Establishing a permanent forum of budget experts from these institutions is recommended. This forum should streamline cooperation, resolve conceptual problems and oversee development and maintenance.

The methodology of government finance statistics is sophisticated. Through statistical techniques and combination of data from multiple sources, government finance statistics may offer a fuller and more harmonised picture of government and public sector finances than budget data alone. However, government finance statistics require special knowledge and highly qualified staff. Specialised and tailored training courses are required to provide and keep up this knowledge. Furthermore, an active personnel policy for key staff is recommended in order to avoid 'brain drain' amongst key experts.

Box 19.5: How to build a statistical action in public finance in a former planned economy

Formerly planned economies inherited fairly developed statistical systems. However, these were tailored to the needs of central planning. For instance, no clear distinction was made between administrative sources and statistical surveys.

In Serbia and Montenegro, in the past the NSIs collected data on budget units in the same way as on business enterprises. The compilation of the budget execution relied on administrative sources. As it is very troublesome to regularly reconcile different data sources at micro level, a serious cause of data error is inherent in such data collections.

Within the EU funded national CARDS 2004 project on national accounts, a project component was devoted to provide estimates on the provision of government services and on their final consumption in compliance with the requirements of ESA95 methodology, taking into consideration the limited resources. For the production of GDP estimates, data on government output and on government final consumption are indispensable.

The project suggested not to constrain the efforts on the compilation of the government output and final consumption, but to set up a strategy on how to build a data collection and dissemination mechanism for the complete government finance accounts. The strategy included:

1. The establishment of a forum at management level for those government agencies that collect and use data on government transactions in their daily work. The NSI, the Ministry of Finance (MoF) and the National Bank (NB) are the core participants. The inclusion of other agencies – like the Treasury and line ministries – depends on how the institutional responsibilities are divided. Data on elementary revenue and expense transactions are managed in the MoF. Usually, the NB collects data on financial flows and stocks in the frame of monetary statistics. The NSI is engaged in national accounts and is responsible for submitting data on government accounts to international institutions.
2. The establishment of a permanent working group at expert level, including the staff of the relevant agencies engaged in data collection, processing and analysing. Good quality government finance statistics necessitates the continuous close co-operation of NSI, MoF and NB. It provides the opportunity to check data on government finance from "mirror sources"; data coming from the official budget can be checked with data on financing, usually collected by the NB. Government accounts should be reconciled with data of other national accounts sectors compiled by the NSI.
3. Organisation of training courses in government finance for the staff of statisticians and budget experts. Government finance is a sophisticated methodology, so to implement it requires special knowledge. Examples tailored to the situation in the beneficiary country: for instance clarify the differences of the budget concepts and the government finance statistics categories.
4. Initiating the extension of the information system of the budget compilation, so that the statisticians can have access to basic administrative data at a level as detailed as possible. The differences between the statistical methodology and the business accounting rules used by the budget units should be clarified.
5. Initiating regular data collections on government units which are outside the budget coverage. A register of such units should be maintained.

To find out more...**Methodological documents on government finance and public sector statistics**

- IMF: [Government Finance Statistics Manual 2001 \(GFSM 2001\)](#)
- IMF: [Government Finance Statistics \(GFS\) – Data, Companion Materials, and Research](#)
- Eurostat: [GFS methodology under ESA 2010 and ESA 2010 Manual on government deficit and debt](#)

Public Financial Management (PFM) assessment tools

- PEFA: [PEFA PFM framework](#)
- World Bank: [Country Financial Accountability Assessment \(CFAA\)](#)
- ADB: [CFAA country reports](#)

Databases:

- IMF: [General Data Dissemination System metadata – country reports and sector reports](#)
- IMF: [IMF Data Mapper](#)
- OECD: [Public governance and management](#)
- Eurostat: [Government Finance Statistics database](#)
- UN Statistics Division: [National Accounts Statistics database](#)

Methodological documents on budget compilation and presentation

- OECD: [International Budget Practices and Procedures Database](#)
- IMF: [Manual on Fiscal Transparency](#)
- IMF: [Reports on the Observance of Standards and Codes \(ROSCs\)](#)
- International Public Sector Accounting Standards Board (IPSASB): [International Public Sector Accounting Standards \(IPSAS\)](#)

Analyses on budget developments

- OECD: [Government at a Glance 2009](#)
- International Federation of Accountants (IFAC): [Reporting on the Long-Term Sustainability of Public Finances](#)
- European Commission – DG ECFIN: [Public Finances in EMU](#)

D.20

**Justice and crime
statistics**



D.20. Justice and crime statistics

The chapter in brief

This chapter covers statistics which relate to the nature and extent of crime and the operation of the criminal justice system, providing a short overview of the subject.

Justice and crime statistics cover a very wide area of actors including: the law enforcement agencies, the prosecution authorities, the courts, correctional institutions. The section begins with a short description of the various components of a typical criminal justice system. It then identifies the main policy areas for which justice and crime statistics are used. It continues with a description of the many different types of justice and crime statistics before providing links to some of the more important sources of existing statistics for illustrative purposes. It then turns to some quality issues. It concludes with a discussion of some of the main aspects which need to be considered in building a sustainable justice and crime statistics system.

The aim is to provide guidance on how to build up or strengthen the capacities for the establishment of meaningful and reliable statistics in the field of crime and criminal justice (for general aspects of statistical capacity building, see [chapter C.6.2.](#)) Because of the considerable differences in the forms of policing and criminal justice, it is possible only to provide a broad overview. A more detailed treatment of the subject is available in the [UN Manual for the Development of a System of Criminal Justice Statistics](#).

government is unitary, federal or confederate. Moreover, there are many informal systems of justice based on customary and indigenous traditions, which exist alongside the more formal systems.

A typical formal criminal justice system is made up of a complex system of actors dealing with crime, offenders and victims. The police component is often made up of national, regional and local police agencies and a variety of specialised policing bodies dealing with drugs, traffic, health and safety, business, tax and environmental violations. The prosecution component is usually composed of a separate public prosecutor's office and public prosecutors in various government departments. The court component is made up of a range of different types of courts with varying levels of jurisdiction, a number of specialised courts, such as juvenile courts, and appellate courts. The prison component includes all types of custodial institutions from pre- to post-trial. The non-custodial section embraces a range of organisations responsible for supervising measures, such as probation or community service. A comprehensive system of justice and crime statistics collects statistics on the decisions made and outcomes for all the separate components as well as capturing through-put information, monitoring case outcomes and conducting victim surveys.

D.20.1. Policy applications

D.20.1.1. THE CRIMINAL JUSTICE SYSTEM

History, customs and traditions, religious beliefs, civil conflict, economic and political factors, and values all play a fundamental part in the development of a country's criminal justice system. There are, therefore, a large variety of criminal justice systems in the world today. The two major models in the Western world are based on civil and common law traditions. ⁽⁵⁹⁾ The civil law tradition is the older and more influential and forms the basis of criminal justice systems in Europe, Latin America and African countries. It developed on the basis of Roman law and seeks to encourage rules of conduct linked to the ideas of justice and morality. It is inquisitorial and relies on a written code. The common law tradition has its origins in England and forms the basis of criminal justice systems in many former colonies of the British Empire. It is derived from precedent and custom although written laws are also important. Judges play a central role and the system is adversarial. A third important model is shari'ah law based on traditional Islamic thought and is derived from the divine revelations of the Qur'an and the examples and sayings of the Prophet Muhammad. Some countries have a mixture of different models of criminal justice and the picture is further complicated depending on whether the nation's

⁽⁵⁹⁾ For a more extended discussion of different models of criminal justice systems, see for example: Robertson, C. and Das, D.K. (2008) *An Introduction to Comparative Legal Models of Criminal Justice*, London: CRC Press.

D.20.1.2. WHAT THESE DATA ARE USED FOR

Justice and crime statistics have a wide variety of uses including:

- To provide a picture of the nature and extent of crime in society and the effectiveness of the response to it. Alongside other statistics on social harm, justice and crime statistics can serve as a social barometer on the well-being of a nation and the levels of harm and insecurity experienced by its citizens.
- To assess the extent to which the goals, objectives and targets of the whole as well as each part of the criminal justice system - the police services/law enforcement agencies, prosecution authorities, the courts and the custodial institutions - are being accomplished and whether the resources are being used efficiently and effectively.
- To plan for policy changes within different parts of the system or from outside the system. For example, if a law is passed to increase the severity of the sentence for a particular category of offence, it may be important to be able assess the impact on the size of the prison population.
- To inform budget and personnel decisions. For example, if the number of people being prosecuted decreases substantially, it may be necessary to reduce the number of people working in the courts and control institutions.

- To ascertain that all decisions and activities are compliant with international human rights obligations – including the duty not to wrongfully discriminate.
- To compare the nature and extent of crime and punishment across different countries.

D.20.1.3. TYPES OF JUSTICE AND CRIME STATISTICS

Many countries already collect a range of justice and crime statistics for each of the major agencies within the criminal justice system. Police statistics may include information on: recorded crime, ‘clear-up’ figures, and police use of selected powers, such as stop and search, arrest and detention. Prosecution statistics typically cover caseload data and show the number of cases not proceeded with, the total number of suspects prosecuted and outcome of cases. More sophisticated systems may collect statistics on specific issues, such as racially motivated offences or domestic violence as well as monitoring a range of performance indicators. Court statistics record the number of cases dealt with, the type of plea entered, the outcome of each case, any sentence given and some characteristics of those prosecuted such as age, sex, education and ethnic background. Punishment or disposal statistics record details of the number and characteristics of those sentenced to different forms of punishment such as imprisonment or probation. In addition, most systems collect a range of resource data on the number and characteristics of persons employed in each section and on levels of expenditure.

Box 20.1: Indicative list of information included in justice and crime statistics systems

Police

- Number of offences recorded, by type of crime, place, date and time, modus operandi
- Number of persons arrested, by age, sex
- Number of persons stopped, searched and detained, by age, sex
- Number of persons prosecuted or otherwise dealt with, by age, sex
- Number of racially or politically motivated offences

Prosecution

- Number of prosecution cases not proceeded with, by age, sex
- Number of persons prosecuted by type of crime, age, sex

Courts

- Number of persons who pleaded guilty, by type of crime, age, sex, level of education
- Number of persons found guilty, by type of crime, age, sex, level of education
- Number of persons acquitted, by type of crime, sentence, age, sex
- Number of persons sentenced to imprisonment, by type of crime, age, sex, level of education
- Number of persons sentenced to imprisonment by length of sentence
- Number of persons fined, by type of crime, age, sex
- Number of persons given a community sentence, by type of crime, age, sex, level of education
- Cases filed, disposed, pending
- Clearance rate
- Disposition time
- Total backlog
- Backlog resolution
- Number of persons sentenced to probation

Prisons and other disposals

- Average number of persons in prison by category (awaiting trial, awaiting sentence and sentenced)
- Average number of persons in prison by sex, age, education level
- Average number of persons incarcerated in other types of penal establishment, by age, sex, education level
- Average number of persons on a community sentence, by sex, age, level of education
- Average number of persons on parole, by sex, age, level of education
- Number of mentally ill incarcerated
- Prison population growth
- Recidivism rate

Resource statistics

- Number of police officers, police civilian personnel, prosecutors, judges (professional and lay), prison officers and other penal establishment staff by age, sex
- Total police, prosecution, court and penal institutions budgets

The criminal 'event' forms the key element of any system of criminal justice and of crime statistics. It involves three components: a criminal act, an offender and a victim. Criminal acts are defined within the criminal laws of each state. There are sometimes important differences between countries in the types of behaviour considered to be criminal. Every single criminal event may involve more than one criminal act, more than one offender and more than one victim or a series of acts against the same victim. The victim may not be an individual but an organisation such as a shop, bank or even the state itself. Classification schemes are used to categorise the legally defined behaviour groupings (see [section D.20.4.](#)) and clear and comprehensive instructions are required for recording criminal events involving a series of criminal acts and persons.

Information on the offender can be obtained at various stages in the criminal justice process. The most comprehensive information is normally collected on offenders in prison. As well as age, sex, residence, national origin – information which is normally routinely collected by the police – a range of detailed information, such as educational attainment, physical and mental health, membership of a criminal organisation, can also be collected on individual offenders. Thus, the further along the criminal justice process the richer the information which is typically obtained. However, information gathered at this stage is unlikely be representative of the offender population in general because of tendencies towards the differential treatment of specific groups in the population, such as the poor, mentally ill or those from ethnic minorities.

For crimes where the victims are individuals, the characteristics of victims and the type and severity of their experiences have been given much greater emphasis in recent times in common law systems. In a number of countries police now routinely collect victim information. The most important development, however, has been the introduction of victim surveys, in part because of the limitation of police recorded crime statistics (see [section D.20.3.](#)). These surveys are based on a random sample of the population and focus on ascertaining whether or not the respondent has been a victim of a crime over their life course or in the last year.

One of the most difficult decisions is whether or not to collect information on the ethnic origins of those who come into contact with the police or are subsequently dealt with in the criminal justice system. On the one hand, this information provides a means to monitor the performance of people working in the system in their duty to avoid discriminating against any persons on the ground of ethnicity. On the other hand, there are risks that the information collected could be misused. It is therefore imperative that if the information is collected there are measures to prevent misuse and stringent data protection measures built into the criminal justice statistics system (see [section D.20.5.](#)).

Box 20.2: Indicative list of information collected in victim surveys

- Victimisation in last five years and last year, by type of crime
- Victimisation in last five years and last year, by age, sex
- Attitudes towards police and crime prevention and punishment
- Attitudes towards crime and security
- Household and personal characteristics

Other agencies outside of the criminal justice system may also collect a range of statistics which enhance the understanding of criminal activity. They include, for example, statistics on drug production and consumption, trafficking of persons, arms and drugs, and money-laundering and insider trading.

D.20.2. Sources of Data and Metadata: Data available from international sources

A range of justice and crime data are available at international, national and regional level. A few of the main sources are provided here to provide an illustration of the type and range of criminal justice statistics which are routinely collected.

Since 1977 the United Nations has conducted periodic surveys on [Crime Trends and Operations of Criminal Justice Systems \(CTS\)](#) initially covering five yearly intervals from 1970. The aim of the surveys is to collect data on the incidence of reported crime and the operations of criminal justice systems with a view to improving the analysis and dissemination of the information globally. Over the years the content and focus of the questionnaires have altered but they have always covered the main components of the system – police, prosecution, courts and prisons. The time period was reduced from 5 to 3 years from 1995. Data from the [Tenth CTS survey](#) covering the period 2005-2006 is available for the 86 countries which had responded by 10 December 2008. The Eleventh CTS survey is currently being conducted for the period 2007-2008.

In 1989 the first [International Crime Victim Survey \(ICVS\)](#) was carried out in 14 industrialised countries. Further sweeps were carried out in 1992, 1996, 2002 and 2004-05. By the end of 2005 over 140 surveys had been completed in more than 78 different countries with over 300,000 people being interviewed. The aim of the international victim surveys is to move beyond the limitations of police recorded crime data to provide more robust comparative measures of the extent of crime and victimisation as well as people's perceptions of crime and attitudes towards the criminal justice system. A standard list of offences is used in each country surveyed overcoming the problem of attempting to compare police crime data which are based on different national definitions.

On how to carry out a victim survey, see the [UNODC-UNECE Manual on Victim Surveys](#), which will be published in 2010.

There has been increasing international awareness and concern about the extent of violence against women, so this has been a focus of data collection in recent years. In 1997 the [European Institute for Crime Prevention and Control, affiliated with the United Nations \(HEUNI\)](#) together with a number of international experts in the field started developing a comparative and standardised survey tool for measuring violence against women worldwide. The first [International Violence Against Women Survey \(IVAWS\)](#) was conducted in 2003. The survey covered women's experiences, the consequences of violence and background information. It used a number of screening questions to establish lifetime victimisation followed by more detailed questions on prevalence and incidence.

Crime and criminal justice statistics have been available for the European Union since the [Hague Programme](#) gave a specific mandate to Eurostat in 2005 'to establish European instruments for collecting, analysing and comparing information on crime and victimisation and their respective trends in Member States, using national statistics and other sources of information as agreed indicators'. A series of measures for developing such instruments was outlined in a Communication from the Commission on [Developing a comprehensive and coherent EU strategy to measure crime and criminal justice](#). The results obtained in the context of this development are published by Eurostat on its [website](#) and in several short publications in the series *Statistics in Focus*. In addition, a prototype EU survey on victimisation has been developed and successfully piloted in most of the EU Member States, which will lead to the implementation of a fully-fledged European Security Survey in 2013. A complete system of statistics on crime and criminal justice to include comparable data for all Member States is currently being put in place under the [Stockholm Programme](#). These EU developments provide a useful example not only of crime related statistics but also of their collection on a regional as opposed to merely on a jurisdictional basis.

Two important sources of information on organised and transnational crime are [Interpol](#) and [Europol](#). Interpol facilitates cross-border police co-operation to help prevent and combat international crime. It represents 188 member countries facilitating cooperation within the limits of the laws existing in the different countries and in the spirit of the '[Universal Declaration of Human Rights](#)'. It can help even where diplomatic relations do not exist between member states. Europol is a similar body encouraging and facilitating cooperation among European member states to prevent and combat terrorism, unlawful drug trafficking and other serious forms of organised crime.

D.20.3. Quality aspects

The concept of quality in statistics is extensively covered in [chapter C.5](#) of this *Guide* and in the European Statistics Code of Practice (see [section B.2.1.2](#)). Quality of statistics is often defined as 'the fitness for use' by end users. It covers the institutional and organisational environment, statistical processes and statistical outputs. Important institutional or organisational factors include: the extent of professional independence, the mandate for data collection, the adequacy of resources, the quality commitment, statistical confidentiality, impartiality and objectivity. In terms of statistical processes, consideration must be given to the utilisation or development of sound methodologies and appropriate statistical procedures. The burden on respondents should not be excessive and it should be cost-effective. In terms of statistical output, the statistics must be relevant, accurate and reliable, timely, coherent, comparable across regions and countries, and readily accessible by users.

The most important quality issue in justice and crime statistics relates to how well the statistics measure the nature and extent of crime and offending behaviour in society. The key problem is that criminal events are difficult to capture and both police recorded crime statistics and victim surveys have a number of important limitations. Similarly, prosecution and court statistics are a record of decisions taken rather than a representative picture of crime, victims and offenders. Therefore it is crucial to always be aware of the different limitations of and problems with each kind of crime-related statistics.

Police recorded crime statistics, for a variety of reasons, capture only a proportion of the total crimes committed. Many crimes are not reported to the police: the victim does not consider the crime to be serious; they do not want to be involved in the criminal process; they do not consider that the police could do anything about the crime; their previous contacts with the police have been negative and they have no confidence in them; the crime was humiliating and they do not want to add to their humiliation; they do not want to self-incriminate themselves as they were involved in the crime. Moreover, often for a variety of reasons the victim is unaware or unwilling to report that a crime had been committed. For example, women may be unwilling to report domestic abuse.

There are a growing number of 'new' types of crime including for example cybercrime, fraud, counterfeiting, human trafficking, money-laundering and terrorism. Many of these criminal activities are in fact not new but they have taken advantage of technological developments to assume different forms. Traditional methods of recording such crimes are often unsuitable for measuring their incidence, as victims are frequently unable (as in the case of sexual or labour exploitation) or unwilling (as in the case of financial crimes directed against businesses) to report them.

Such 'new' crimes typically display a high degree of criminal organisation, so they are sometimes categorised under the heading of 'organised crime'. This term is the subject of a formal **definition** by the United Nations, but it is difficult to implement for unsolved crimes as some of the criteria involved require a conviction to have been obtained. Another term met with in this context is 'transnational crime', reflecting the fact that many criminal organisations have adopted modern communication methods which make national borders largely irrelevant. It is precisely because of these characteristics that international bodies like the United Nations and the European Union are in the forefront of attempts to combat these crimes, and collaboration at international level is therefore important in the development of the appropriate statistical indicators and measurement instruments.

Another quality issue is that there will always be gap between the actual amount of crime committed and what becomes known to the police. This gap is often referred to as the 'dark figure'. But even if a crime is reported to the police it may not be recorded or proceeded with for a variety of reasons. The principal reason is that the police on further investigation do not consider that the reported behaviour is, in fact, a crime. Other possible reasons for non-recording include: the officer who received the information forgot or lost it or there is a police culture which discourages recording in order to hide the extent of crime in the area and to present the police in a good light.

Because of all these problems with police recorded crime, crime victimisation surveys have been developed to provide a complementary data source to police statistics. But victimisation surveys also have a number of limitations. Typically, surveys cover only people aged 16 and over and exclude those of no fixed abode. They rely on the memory of the respondent to recall criminal events. The format of the questionnaire, with its emphasis on crime harms, may compel the respondent to exaggerate or make up crime events or their fear of crime, to please the interviewer. Different cultures, classes and social groups both nationally and internationally report similar experiences differently suggesting that a respondent's understanding of victimisation may be very different. As with police recorded crime, victim surveys will seldom capture organised as well as many types of financial and economic crime.

Justice statistics relating to the police, prosecutions and the courts also have their limitations. They are basically records of decisions taken at different stages in the criminal justice process and are made in different social and legal contexts. They are products of interactions and demands within and beyond the system and subject to judgements, manipulations and disputes. They provide much useful information on the operation of discretion or the workload levels in different parts of the system, but how far they can be considered representative of criminal and offending behaviour, is very much a matter of debate among criminologists. There are two important difficulties with justice statistics. First, is the fact that a crime reported to the police and classified/qualified under the criminal code, is often subsequently

re-qualified by the prosecution service or later the court, with the consequence that it will figure under different qualifications in the police and the justice statistics, which are generally kept separate and where no cross-checking takes place. For example, a crime registered as a murder by the police might be re-qualified by the court as an involuntary homicide, but it will probably continue to stay in the crime statistics of the police as a murder. Second, the information recorded by the police in one year will relate to court cases in a following year making it difficult to make comparisons between police and justice statistics.

A broader concern with both policing and criminal justice statistics is that they may be misused. Levels of crime and the effectiveness of the police and the courts in preventing and detecting criminal behaviour are very sensitive issues in any society. There will therefore always be pressure to present the data in the best possible light and to play down or not publish trends which indicate deterioration in public security. It is therefore imperative that robust systems are put in place to prevent the misuse of these sensitive statistics. (see [chapter D.20.4](#). below).

D.20.4. Key issues in building a system

This subsection focuses on some of the broader issues involved in building a system of justice and crime statistics (for building statistical capacity in general, see [chapter C.6.2](#)).

Any system of justice and crime statistics must reflect the offences defined under the national criminal law, but also the needs and customs of the country and its system of governance. It must also take into consideration the availability of people with the necessary legal, statistical and computing skills, the level of technical resources and existing demands on public expenditure. In addition, international norms should be taken into consideration.

These elements will influence the type of organisational structure which is chosen. There is no standard structure. Some countries have a centralised approach, where one governmental agency has responsibility for the collection, processing and dissemination of all justice and crime statistics.

The agency may be part of the justice ministry or in the national statistics office or totally independent of government. Alternatively, the responsibilities may be devolved to agencies at regional level. This decentralised approach is often found in countries with federal structures. (For the organisation of statistical systems, see [chapter B.2.3](#).)

In making the decision on the form of organisational structure, it is important to consider which form will best achieve professional independence, statistical confidentiality and impartiality and produce the best quality data within the necessary resource constraints (see [section B.2.1.2](#).) To avoid any possibility of the misuse of crime and justice

statistics serious consideration should be given to placing the responsibility for their collation and dissemination in a totally independent agency. Whichever form is chosen a key aspect is the development of strong set of relationships between the statistical agency and all parts of the criminal justice system as well as with outside bodies, such research institutes and universities.

As the criminal justice system is made up of a complex system of actors it is essential to define the scope of justice system statistics. It is impossible to collect statistics on all aspects without considerable costs. First, it is necessary to define clearly the purposes of the system. Is it to cover administration, planning, policy, research and analysis or it is to have a more limited remit? Second, the users, both current and potential, need to be identified. Thirdly, decisions need to be taken about what types of information are to be collected and by whom and how the information is to be transformed into statistics and submitted to a central system. Finally, once the statistics have been collated, decisions need to be made about which government agencies should receive the data, how often, in what form and how and when the statistics should be published.

Most systems of criminal justice and crime statistics provide information on the following main substantive areas: the nature, extent and trends in crime; the characteristics of offenders and victims; the volume of activity in the system – crimes reported, stop and search, arrests, and summons, prosecutions, disposals and offenders in custody or under supervision; and resources deployed, including personnel and expenditure; and citizen's views and attitudes about crime and criminal justice. These statistics need to be related to social, economic and demographic information to produce rates of the phenomenon of interest. For example, it is normal practice to show the number of offences or the number of people in prison per 100,000 of the population. Similarly, criminal justice expenditure figures may be represented in relation to the size of the population in different areas.

At the heart of all systems of justice and crime statistics is a detailed legal definition of criminal offences which is used at all stages in the criminal justice process. Criminal laws generally first distinguish between categories of crime such as: violent crimes, property crimes, drug offences, traffic offences, etc. In each category are then included the specific legal definitions of each offence. For example, violent offences generally cover legal definitions for criminal offences such as: Homicide, Robbery, Kidnapping, Sexual Assault, Non-Sexual Assault. The way criminal behaviour is defined will depend on the country's legal system. Increasingly, defining crimes in terms of the gender of the offender and victim is viewed as important in order to assess the level of violence against women.

As all the segments in the criminal justice system are connected and the decisions taken at one stage in the process will affect the decisions taken at the next stage, it is important to develop statistics which are able to monitor the movement of suspects, cases, charges or crimes through the system. This involves making decisions about which to monitor. At each stage different information is collected. Typically, the police keep details on crimes, suspects, charges

and victims. The courts deal in cases, charges and convictions and prisons and non-custodial institutions collect information on inmates and offenders. A criminal act reported to the police may involve a number of crimes, offenders and victims. It may produce a number of cases in the court and a number of offenders sent to prison. People, provided the police suspect who committed the crime, form the most important common unit at all stages in the process. Through the use of a person identifier, it is possible to link the different parts of the system together. People are not, however, the only monitoring unit of interest. Crimes, charges, cases and disposals are also important.

Devising a criminal justice and crime statistics system is complex and requires an incremental approach and a detailed assessment of the cost and purpose of each data element. It also requires a careful analysis of the type of information which is already routinely collected by different parts of the system and how this could be adapted to meet broader requirements. Demands for more detailed information are often likely to exceed the resources available.

D.20.5. Data protection

The collection and processing of data on policing and criminal justice should only be carried out under suitable specific safeguards in order to eliminate errors, to prevent misuse of the data and to uphold the privacy rights of the individual. Data security needs to be built into the system at all levels and detailed protocols are required in terms of data use and exchange. Europe provides a model for the protection of data. Under the European Charter of Fundamental Rights, Article 8 states:

1. Everyone has the right to the protection of personal data concerning him or her.
2. Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the right of access to data which has been collected concerning him or her, and the right to have it rectified
3. Compliance with these rules shall be subject to control by an independent authority.

In 1981 the European Union strengthened individual rights with regard to automatic processing of personal information because of the increasing use of computers for administrative purposes. Under Article 6 of the [Convention for the Protection of Individuals with Regard to the Automatic Processing of Personal Data](#): 'personal data revealing racial origin, political opinions or religious or other beliefs, as well as personal data concerning health or sexual life, may not be processed automatically unless domestic law provides appropriate safeguards. The same shall apply to personal data relating to criminal convictions'. In 2001 the Convention was further strengthened with an [Additional Protocol](#) concerning supervisory authorities and transborder data flows.

To find out more...**Systems of criminal justice statistics**

- [European Sourcebook of Crime and Criminal Justice Statistics](#)
- [United Nations Office on Drugs and Crime \(UNODC\): Manual for the Development of a System of Criminal Justice Statistics](#)
- [Criminal Justice Assessment Toolkit \(CJAT\)](#)
- [Surveys on Crime Trends and the Operations of Criminal Justice Systems \(CTS\)](#)
- [Results of the Tenth CTS Survey \(2005-2006\)](#)
- [Eleventh CTS Survey Questionnaire, 2007-08](#)
- [Manual for the Measurement of Juvenile Justice Indicators](#)

Crime victim surveys

How to carry out crime victim survey:

- [UNODC-UNECE Manual on Victim Surveys](#)
- [International Crime Victim Survey \(ICVS\)](#)
- [Eurostat-United Nations Office on Drugs and Crime \(UNODC\) joint data collection on crime and criminal justice, and Crime and criminal justice statistics \(Statistics Explained\)](#)
- [Victimisation Surveys in Comparative Perspective](#) by K. Aromaa and M. Heiskanen (HEUNI)
- [Wetenschappelijk Onderzoeken Documentatiecentrum \(WODC\): Criminal Victimization in International Perspective, Key findings from the 2004-2005 ICVS and EU ICS](#) by J. van Dijk, J. N. van Kesteren and P. Smit

Violence against women

- [International Violence Against Women Survey \(IVAWS\)](#)
- [Expert paper on IVAWS](#) by S. Nevala (HEUNI)
- [Violence Against Women: An International Perspective](#) by H. Johnson, N. Ollus and S. Nevala, Springer

Prison populations

- [International Centre for Prison Studies: World Prison Population List](#)
- [HEUNI: World Prison Population: Facts, Trends and Solutions](#) by B. Tkachuk and R. Walmsley

Other references

- [European Institute for Crime Prevention and Control, affiliated with the United Nations \(HEUNI\): What does the world spend on Criminal Justice](#) by G. Farrell and K. Clarke
- [Criminal Justice Systems in Europe and North America 1995-2004](#) by Michael Jandl
- [Crime and Gender: A Study on how Men and Women are Represented in International Crime Statistics](#) by Markku Heiskanen and Anni Lietonen
- [Recording Community Sanctions and Measures and Assessing Attrition - A Methodological Study on Comparative Data in Europe](#) by Markku Heiskanen, Marcelo F. Aebi, Willem van der Brugge and Jörg-Martin Jehle (eds.)
- [International Statistics on Crime and Justice](#) by S. Harrendorf, M. Heiskanen, S. Malby (eds.)
- [United Nations Office on Drugs and Crime \(UNODC\): Crime and criminal justice statistics](#)

D.21

Living conditions, poverty statistics



D.21. Living conditions, poverty statistics

The chapter in brief

This chapter on living conditions and poverty statistics gives an insight on design and uses of statistics in the assessment of households' poverty situation in relation with the standard of living. It explains cross-cutting social issues – including multidimensional methods to measure poverty, living conditions in the broad sense, social inclusion/exclusion, social indicators, and social situation.

With the diversity of living standards, it is technically impossible to have one definition of poverty that applies to both industrialized and developing countries, as well as to rural and urban areas within a country. While international assessment of poverty levels generally focuses on the notion of absolute poverty, disparities in living conditions suggest to take different factors into account and to introduce a more realistic notion of relative poverty.

The broader sense of this concept requires the use of complex statistical surveys in order to gather information for poverty analysis. The concept of poverty depends on evolving economic, social and environmental factors affecting standards of living in a country. Therefore, what could be considered as a poverty situation in one part of a country may not be relevant for another part and, moreover, what is pictured as a poverty condition in country A may not apply to country B. Understanding the living conditions of populations involves in-depth assessment of their participation in economic activities and the benefits they gain from the country's wealth.

The first part of this chapter presents main uses of statistics on living conditions and poverty in terms of policy formulation. The second section defines concepts, notions, and indicators considered in poverty assessment. The last two sections cover data issues and ways to improve these statistics. The related topic of income and consumption statistics is covered in [chapter D.25](#). Social sustainability is also a pillar of sustainable development, which is covered in [chapter D.26](#).

D.21.1. Policy applications: what this data is used for

Poverty statistics play a significant role in policy formulation. They help orienting processes to identify and target recipients of poverty alleviation programs. In many areas of national planning, policy makers use statistics on income distribution to monitor living conditions of the population, and in particular the poor. Some of the key questions addressed by living conditions and poverty statistics are:

- Who are the poor?
- Where do they live?
- What do they do for a living?
- How do they use their resources?
- How can their living conditions be improved?

Living conditions and poverty statistics are used in a wide range of policy areas. Some of these are:

- Targeting beneficiaries of poverty reduction projects and programs: Many national and international projects are designed with a goal to alleviate poverty in a given geographical area. Identifying who the poor are and where they live is essential to target the poorest populations and channel resources to them for better impacts.
- Priority setting in project design or piloting: Knowing poverty characteristics of municipalities in a country provides a statistical base for deciding where to act first or which localities have the ideal conditions for piloting a poverty reduction project. By conducting poverty surveys, decision makers will have the necessary tools to identify priority issues to address and how to tackle them.
- Planning for local development is essential for improving living conditions of poor populations. Through poverty statistics, structural information on local populations set the base for planning future initiatives in targeted areas. Survey results on poverty related issues are used for budgeting, setting milestones for the implementation and evaluation of projects in favour of vulnerable populations.
- Monitoring and evaluation: With information on conditions of living of targeted populations, poverty statistics are necessary before, during and after a project is implemented. They help to identify areas of improvement in living standard where development projects are active, in comparison to similar places where such projects are not. They are crucial to evaluate how a specific policy impact on its beneficiaries.

A major international policy application of poverty statistics is the poverty map concept supported by a number of international organizations and governments around the world. More than half of the world population live in rural areas. It is estimated that one fifth of the world population live with less than a dollar a day. More than one third lives with less than two dollars a day. These analyses are provided by the [World Poverty Map](#) initiated by the [International Fund for Agricultural Development \(IFAD\)](#). The situation of individual countries may vary, but this global picture is the base to key poverty alleviation initiatives in many regions.

A concrete example of national use of poverty and living conditions statistics is given in [Box 21.1](#).⁽⁵⁷⁾

⁽⁵⁷⁾ For a further example of national use of statistics on poverty and living conditions, drawn from an African country, one may consult 'Poverty analysis in Kenya: Ten years on' by John Thinguri Mukui (2005).

Box 21.1: Use of poverty statistics in the Philippines

In 2009, the National Statistical Coordination Board (NSCB) of the Philippines carried out an analysis of the 'Actual policy uses of poverty statistics'. It was noted that the poverty statistics played a significant role, especially in policy formulation and targeting. In particular small area estimates of poverty, an output of an NSCB project funded by the World Bank, have been of high value to users. Key areas where poverty statistics is used in the Philippines include:

Targeting beneficiaries for programs and projects

Poverty statistics have been used to identify the poorest municipalities, collect data from residents and determine the beneficiaries of poverty reduction programs. They have been used for regional poverty-related programs to identify common priority areas and convergence municipalities. Poverty statistics have also been used for different livelihood projects, e.g. on management of agricultural resources and fishery communities. Further uses include delivery of social services, school sponsoring for indigent children, enrolment in sponsored health insurance programs and development of micro-enterprises.

Policy formulation and planning

The small area poverty estimates have been used in regional development programs, and in particular for studies of socio-economic reconstruction and development of conflict affected areas.

Poverty monitoring

Usage of poverty statistics at local level covered monitoring local MDG attainment, setting local MDG targets and preparing local MDG action plans. National authorities have used poverty estimates to assess interventions to the poorest municipalities and identify future targets for action to reduce poverty. The small area poverty estimates have also been used to assess the local nutritional situation.

Other uses

The intra-censal small area estimates of poverty have, amongst others, been used to set priorities in the [National Household Targeting System for Poverty Reduction](#) and the [Conditional Cash Transfer Program](#). They have also been used for a project to provide health care to the 1000 poorest rural municipalities by mobilising and training unemployed nurses.

A household is in a situation of absolute or extreme poverty when its members lack the basic necessities for survival. Such households may be starving, lacking of clean water, proper housing, sufficient clothing or medicines. In many developing countries a large part of the population struggle to live on a day-to-day basis. Pockets of poor populations can also be found in developed economies.

In 2000, United Nations designed the [Millennium Development Goals \(MDGs\)](#) with the objective of eradicating extreme poverty in the world by 2015. Eradicating extreme poverty is the first of the MDGs. In practical terms, it is translated into the target of reducing by half the proportion of people living on less than a dollar a day. Living with less than a dollar a day was the internationally agreed threshold for absolute poverty (poverty line) at the inception of the MDGs. An application of the one dollar poverty line in Malawi is shown in [Box 21.2](#).

Recent research shows that, given the heterogeneity of poverty situations, the global trend in inflation, and differentials in purchasing power around the world, the level of the poverty line should be increased. In 2011 it was adjusted to 1.25 dollar a day and in 2105 to **1.90 US dollars a day**. But what does it mean for an individual to live on 1.25 dollar a day in Soweto, Beijing or Stockholm? Can this threshold define the concept of absolute poverty without taking other factors into consideration? In wealthier economies, policy makers consider instead the concept of relative poverty in the assessment of social exclusion.

Relative poverty is a situation where people's disposable income level - which generally directly influences their standard of living - is too low compared to the general standard of living in the relevant country or region. This describes the status of people struggling to live a normal life and unable to participate in ordinary economic, social and cultural activities. With this definition, relative poverty may vary from country to country, depending on the income level enjoyed by the majority of citizens. While not as extreme as absolute poverty, relative poverty is still very serious and harmful in all countries. The EU's Social Inclusion Process uses a relative definition of poverty⁵⁹ to address vulnerability of population.

Given these different concepts, what are the most appropriate statistical indicators to be used to assess poverty around the world? Empirical analysis of poverty requires sound statistical measurement.

D.21.2. Concepts and definitions

Generally, economic growth is not always translated into improving citizens' lives. Without properly targeted policies, populations with relatively high level of wealth tend to accumulate more while conditions of vulnerable populations tend to worsen. However, definition and implications of poverty must be addressed in order to better understand the concept. What does it mean to be poor? Is there any universal concept of poverty? Should poverty be defined through studying conditions of living of populations? Is wealth or economic comfort a determining factor? Poverty is generally assessed under two different ways ⁽⁵⁸⁾: absolute (or extreme poverty) vs. relative poverty.

⁽⁵⁸⁾ See for instance 'Analysing and Measuring Social Inclusion in a Global Context' (UN, 2010) at: <http://www.un.org/esa/socdev/publications/measuring-social-inclusion.pdf>

⁽⁵⁹⁾ The leading indicator in the European Union, the at-risk-of-poverty rate, counts as poor individuals those living in households where equalised (i.e. per unit of consumption) disposable income is below the threshold of 60% of the national equalised median income.

D.21.2.1. MEASURING POVERTY THROUGH INCOME AND CONSUMPTION NEEDS

In this *Guide*, poverty is described under three main dimensions which are: poverty, inequality, and vulnerability. With respect to these factors, three questions need to be answered: 1. Do individuals have enough resources or ability to meet their daily needs of consumption of goods and services? 2. Are distribution of income, consumption or/and other attributes equal or rather unequal across the population? 3. What is the probability or risk of being in poverty today – or falling deeper into poverty – in the future? (For a more detailed discussion on statistics on income and consumption statistics, see [chapter D.25](#)) ⁽⁶⁰⁾

Box 21.2: Measuring poverty in Malawi – A multilateral statistical project

The first Millennium Development Goal aims at reducing by half the proportion of people living on less than a dollar a day. Three statistical indicators are agreed upon to measure the progress towards this goal: 1. The proportion of population below \$1 per day in Purchasing Power Parity (PPP) terms; 2. The [poverty gap ratio](#) ⁽⁶⁰⁾; 3. The share of the poorest 20% (quintile) of the population in national consumption.

Measuring the number of people who are living in extreme poverty may be challenging in countries with limited capacity of their statistical systems. Detailed information is needed about each household group income and expenditure, as well as about the prices of food and goods in the country.

A survey must cover enough households to generate reliable estimates. Questions need to be asked at different times of the year to take account of possible seasonal differences in household well-being. Many Sub-Saharan African countries do not have the funds or skills to undertake these surveys on their own.

In Malawi, the UK Department for International Development (DFID) has joined up with the World Bank, the Norwegian Embassy, Irish Aid and the German Agency for Technical Cooperation (GTZ) to support the [National Statistics Office of Malawi \(NSO\)](#) to deliver its third [Integrated Household Survey \(IHS3\)](#). The World Bank's [Living Standards Measurement Study-Integrated Surveys on Agriculture \(LSMS-ISA\)](#) (see [Box 17.5](#)) supports the design and implementation of the survey where 12,288 households in 768 enumeration areas - divided into cross-sectional and panel samples - were interviewed over a 12 month period as part of this survey, which kicked off on 23 March 2010.

The outcome will provide data on demographic characteristics, nutrition, labour force and employment, income, expenditure, assets, household enterprises and access to community services. This information is critical to the Government of Malawi's planning and decision making, and to monitoring progress against the Malawi Growth and Development Strategy and the Millennium Development Goals.

The data will also be used to update the Malawi national poverty line. Between the last two surveys, in 1997/98 and 2004/05, there was only a small reduction in the number of people living in poverty, from 54% to 52% of Malawi's population. Recent estimates suggest that the country has since made strong progress, with poverty falling to around 40% - but we won't know this for certain until we have the latest household survey results.

With only little time left until the 2015 deadline for achieving the Millennium Development Goals, this survey will give Malawi an up-to-date picture of its progress and indicate where efforts to reduce poverty should be focussed.

⁽⁶⁰⁾ The poverty gap is the mean shortfall of the total population from the poverty line (counting the 'not poor' as having zero shortfall), expressed as a percentage of the poverty line.

Having enough to meet daily needs requires setting a standard - or threshold - where we estimate that individuals fail to meet the definition of well-being ⁽⁶¹⁾. To define a poverty measure we need to know: a) What is the accepted poverty line? and b) What indicator shall we use to assess the poverty level? From these two notions one could count the number of people living with less than the poverty line, say one dollar a day (poverty count). In the context of relative poverty, people could be poor not only because they earn less than the national threshold, but also because they do not have an acceptable standard of living. Relative poverty is sometimes the only way to understand how people with a relatively high level of income – in comparison to other areas – may not be able to live a decent life in their environment. As an example, the lowest hourly pay in the metropolitan area of Washington DC is about seven dollars. On the basis of eight working hours a day and twenty working days a month, this translates into more than one thousand dollars a month. In some developing countries, this corresponds to the upper layer of monthly government pay.

Another concept associated with the measure of poverty relates to inequalities and the distribution of earnings across the whole population. The Gini coefficient is an interesting tool for this type of analysis. In the European Union, the preferred indicator for measuring inequality of income distribution is the income quintile share ratio. Also known as the [S80/S20](#), this ratio is calculated as the ratio of total disposable income received by the 20 % of the population with the highest income (the top quintile) to that received by the 20 % of the population with the lowest income (the bottom quintile).

Measuring vulnerability is the third dimension of poverty. The probability (or risk) of being in poverty today or to fall into deeper poverty in the future is known as vulnerability. This plays a key role in the notion of relative poverty. Uncertainty in future income, e.g. inability to cope with severe weather conditions such as droughts, is a basic aspect of vulnerability. In the EU, the indicator of vulnerability is the [at-risk-of-poverty rate](#).

For vulnerable people, the economic environment becomes a factor of poverty when today's participation in economic activities does not guarantee a decent standard of living conditions in the future. Therefore, there is a need to statistically assess living conditions.

⁽⁶¹⁾ United Nations University provides description of relationships between poverty, inequality, and well-being in a policy brief entitled [Measuring Human Well-being: Key Findings and Policy Lessons](#).

D.21.2.2. STATISTICS ON LIVING CONDITIONS

With diversity in definition and application of poverty concepts, income-related measures of poverty need to be analysed together with other measures of living conditions – such as **material deprivation** – in order to have a better understanding of poverty. Material deprivation rate expresses the inability to afford a fixed consumption basket of items considered by most people to be desirable or even necessary to live an adequate life.

The indicator distinguishes between individuals who cannot afford a certain good or service, and those who do not have this good or service for another reason, e.g. because they do not want or do not need it. Material deprivation rate provides a headcount of the number of people who cannot afford to pay for specific items. In the EU, the criterion is that one cannot afford at least three from a list of nine items (1. rent, mortgage or utility bills; 2. keeping their home adequately warm; 3. face unexpected expenses; 4. eat meat or proteins regularly; 5. go one week on holiday; 6. have television set; 7. have a refrigerator; 8. have a car; 9. have a telephone.). Those who lack four or more of these items are considered to be severely deprived ⁽⁶²⁾.

Another indicator of living conditions is the share of persons living in a household with low work intensity. The work intensity of a household is defined as the ratio between the number of months that all working age household members have been working during the income reference year and the total number of months that could theoretically have been worked by the same household members. **The share of persons living in households with low work intensity** is defined as the share of persons living in households with work intensity below a threshold set at 0.20. In other words, those active people (of working age) who work less than 20% of the potential annual working time in a year.

In June 2010, the European Council adopted the Europe 2020 strategy which includes social inclusion as one of its five headline targets. This was labelled *'promoting social inclusion, in particular through the reduction of poverty, by aiming to lift at least 20 million people out of the risk of poverty and exclusion'*. The reference population for this EU-wide policy target refers to the number of persons who are either at risk of poverty or in a situation of severe material deprivation or living in a household with low work intensity (both defined as above). Member States have adopted their own national targets based on the same or more appropriate indicators.

D.21.2.3. MEASURING SOCIAL INCLUSION/EXCLUSION

Poverty in developed countries is often seen as the inability to attain a decent standard of living. Hence, the lack of a subsistence level of nutrition, clothing and housing provides a standard for assessing the relative poverty situation of a

household. What is considered as adequate and what are generally perceived as needs will vary over time and differ across societies. Social inclusion/exclusion refers to the ability/inability for a household to meet the set standard at one point in time in a country.

In a broader geographical context, designing indicators to measure social inclusion may be more challenging than in the EU or in other developed countries. The United Nations Department of Economic and Social Affairs (UN DESA) report **Analysing and Measuring Social Inclusion in a Global Context** suggests that, given the diversity of country concerns and the differences in levels of development on a global scale, an international portfolio of social inclusion indicators has to be designed flexibly. The portfolio has to conform to agreed principles while recognizing the diversity of needs and priorities. One way in which this could be achieved is through the creation of a three-tier structure set up as follows:

- **Tier 1** would consist of a restricted number of lead indicators (no more than 10) for the main fields relevant to all countries, including income poverty, material deprivation, lack of education, lack of productive role, poor health, and poor housing. The lead indicators have to reflect the various key dimensions of social inclusion. This is important not only because it would serve to concretely recognize and emphasize the multidimensionality of poverty and social exclusion, but also because it helps countries' Governments to take action to tackle the issue of poverty of their citizens.
- **Tier 2** would contain supporting indicators, providing greater detail and describing other dimensions of the problem, and covering dimensions of social inclusion not (yet) included in the tier 1 list. It would also contain useful contextual information, both quantitative and qualitative. There would be no limit imposed on the number of tier 2 indicators and on the contextual information provided, but one should avoid unnecessary proliferation, since each additional indicator increases the statistical and other resources required. Topics covered could include, for instance: access to justice, social and political participation, civil rights, security and justice, well-being, information and communications, mobility, leisure and culture.
- **Tier 3** would consist of indicators and contextual information that individual countries themselves decide to include, in order to highlight specificities in particular areas and to help interpret the tier 1 and tier 2 indicators; no doubt, these national indicators will provide a source of ideas and experience about new indicators which may be adopted at tier 1 or tier 2, in time replacing those initially proposed.

Therefore, the rule in any international framework for analysing and measuring social inclusion is flexibility. This **Guide** follows this recommendation both for social inclusion/exclusion and for social indicators and development.

⁽⁶²⁾ Eurostat: [Statistics Explained – Material deprivation](#)

D.21.2.4. SOCIAL INDICATORS AND DEVELOPMENT

The need for quantitative evidence of social well-being rose from acknowledgement of the development community to include social dimension as part of the assessment of the level of development of countries. Depending on the organization, a list of social indicators is established to monitor the trend in social development across countries. Among the most used social indicators of development are the [European Union Social indicators](#), the OECD indicators as published in [Society at a Glance](#), and the [World Bank Labour & Social Protection](#) indicators.

Broadly, social indicators of development are a selection of indicators covering areas of development including employment and self-sufficiency, health, social cohesion including life satisfaction, and inequity indicators including poverty. Social situation statistics are also necessary to measure and address poverty issues in a country or region.

D.21.2.5. SOCIAL SITUATION INDICATORS

The social situation in the European Union is measured through indicators developed under the [Open Method of Coordination \(OMC\) in the field of social protection and social inclusion](#), a set of indicators on key aspects of social exclusion and poverty which was first agreed by the Laeken European Council in December 2001. A revised set of indicators was adopted by the Social Protection Committee in June 2006 and regularly revised afterwards. These indicators cover areas such as population; education and training; labour market; social protection; income, social inclusion and living conditions; gender equality, health and safety. The annual [Social situation report](#) has presented this set of indicators and their trends in EU Member States. From 2011 on, this report is being replaced by an annual report on employment and social situation.

D.21.3. Sources of data and metadata

Several scientific national and international initiatives are emerging as sources of data and metadata for poverty analysis. The World Bank has prepared poverty assessments in countries where it is active. In its database, the World Bank provides [statistical data on poverty, living conditions and poverty alleviation](#). In addition, [detailed poverty data by country](#) are available. The World Bank data include measures of both population living below the national poverty line and population living below the international poverty line. This international poverty line is adjusted to hold the real value of the line constant across countries and over time. The World Bank data also include income distributions and urban and rural poverty rates.

The World Bank was the initiator of the [Living Standards Measurement Studies \(LSMS\)](#), initiated in 1980 and the [1-2-3 Surveys System](#). LSMS is an important tool in measuring and understanding poverty in developing countries (see [section B.2.2.1.](#) and [Box 2.5](#)) and the 1-2-3 surveys measure consumption and source of income – namely employment and its origin, with focus on the informal sector. The World Bank has recently also established a [Poverty Reduction and Economic Management Network \(PREM\)](#). This source of information is not comparable with the source of information used in the European Union (EU-SILC) and the quality of the data collected is an issue.

Together with other social issues, poverty is in focus for many international organizations. Amongst these are the Organization for Economic Co-operation and Development (OECD) with its [database on inequality and poverty](#), the International Labour Organization (ILO) with its [compendium of statistics on poverty and income distribution](#) and [Key Indicators of the Labour Market \(KILM\)](#) and the United Nations Economic Commission for Europe's (UNECE) forthcoming [statistics on living conditions, poverty and cross-cutting social issues](#).

Further statistical initiatives exist, aiming at collecting data on living conditions and poverty, each one targeting specific objectives. For example, the UN's lead project on disaggregating poverty statistics through Poverty Maps is operational in [Africa](#), [Asia](#) and [Latin America](#).

The [World Income Inequality Database \(WIID\)](#) of the United Nations University – World Institute for Development Economics Research (UNU-WIDER) contains data on income inequality for developed, developing, and transition countries. The [World Development Indicators \(WDI\)](#) is a key international data source on development issues. WDI includes data on poverty, living conditions and income distribution.

National experiences are also used to assess poverty levels as well as structure of income, employment and welfare. An example of a national approach is given in [Box 21.3](#), presenting the determination of the poverty line in Dominica. ⁽⁶³⁾ As for sector statistics on poverty, the experience of the [Consultative Group on International Agricultural Research \(CGIAR\)](#) is interesting. This association of research institutes around the world have engaged significant levels of resources to assess the policy implications of poverty and food security. The organization has invested in [developing databases on agricultural poverty mapping](#) in Asia, Africa and Latin America.

⁽⁶³⁾ For a further example, see e.g. the analysis of 'Urban poverty in Nigeria: a case study of Agege area of Lagos state' by Tokunbo Simbowale Osinubi (2003).

Box 21.3: Determining the poverty line in Dominica

Dominica is small Eastern Caribbean island with an estimated population of 72,500 (July 2009). It has one of the lowest per capita GDP rates of the Eastern Caribbean states (2008). Dominica's economy is heavily dependent on tourism and agriculture. The agricultural sector is highly vulnerable to weather conditions and to external events affecting commodity prices. The macroeconomic situation is very volatile.

In 2002, Dominica conducted a Country Poverty Assessment. This assessment was aimed at determining characteristics, extent and causes of poverty in Dominica and to identify effective strategies, programmes and projects to reduce the incidence of poverty.

The Country Poverty Assessment had three (3) major components:

- Survey of Living Conditions;
- Participants Poverty Assessment;
- Institutional Analysis.

The Survey of Living Conditions was conducted by the National Statistics Office, based on a sample frame from the 2001 census. A systematic sample of one in every ten occupied households in May 2001 was drawn from this sample frame for every second Enumeration District (ED). The original sample size was 1,182 households from a Census household population of 24,000. The overall response rate was 80%, rising to 86% when vacant and closed dwellings were excluded.

For the Participants Poverty Assessment, seven communities were chosen. These represented different levels of deprivation, social and economic orientation and background and location. The community studies involved a range of techniques including direct observations and transect walks, group discussions with community members, social mapping, focus group discussions, key informant interviews with local experts and case studies of poor individuals.

The Institutional Analysis involved visits to institutions, interviews with key persons and review of relevant documents. This component was conducted to determine to what extent current policies, strategies, programmes and projects target the poor.

The Country Poverty Assessment was conducted mainly on the basis of a national poverty line. This poverty line was derived on the basis of a minimum cost food basket. This was constructed for an adult to achieve a diet of 2,400 calories per day, taking into account local dietary preferences and the need for a balanced diet. The total cost of this basket for an adult was EC\$ 2,000 per year. The indigence line is defined as the cost of the minimum cost food basket. Adults with total expenditure below this amount are classified as indigent or extremely poor, essentially unable to satisfy even basic food needs.

In addition to the minimum cost food basket, the poverty line includes a component for non-food expenditure. The non-food element was calculated as the average per capita non-food expenditure of the 40% of households with the lowest per capita total expenditure. From the 2002 Survey of Living Conditions, this was EC\$ 1,400 per year. The resulting adult poverty line was therefore determined at EC\$ 3,400 per year, corresponding to the annual costs of the minimum cost food basket (EC\$ 2,000) plus the non-food expenditure of the poorest households' (EC\$ 1,400).

Source: 'Disaggregating poverty statistics – The promise of poverty maps – Dominica' by S. Carrette (2004)

In the European Union, the main source of data and metadata for poverty and living conditions analysis is the [Statistics on Income and Living Conditions \(EU-SILC\)](#) instrument. EU-SILC is the EU reference source for comparative statistics on income distribution and social inclusion at European level. It provides cross-sectional data with variables on income, poverty, social exclusion and other living conditions, as well as longitudinal data on individual-level changes over time, observed periodically over a four year period. The EU-SILC methodology may serve as an inspiration for coordinated regional social surveys; it is based on the idea of a common "framework" rather than a common "survey". The common framework defines the harmonised lists of target variables; common guidelines and procedures; common concepts (household and income) and classifications aimed at maximising comparability of the information produced. It currently covers EU and EFTA countries plus Turkey, while Croatia, FYROM, Montenegro and Serbia are testing its implementation.

Box 21.4: The challenge of safeguarding the confidentiality of individual data

The concept of **confidentiality** is crucial to the operation of national statistical institutes. The quality of the information provided by individuals to the NSIs' surveys, indeed whether they respond to the surveys at all, is critically dependent upon the respondents' trust in the NSI to keep the information confidential and assure that it is not misused. Therefore, rules and safeguards on the confidentiality of individual data are normally included in the Statistical Law and other relevant legislation. The importance of this is obvious in the case of business statistics, where large economic interest can be involved. However, it is just as important in statistics on living conditions and poverty and other social statistics. For example, information on individuals' ethnicity or economic situation is highly sensitive.

In addition to legal restrictions on access to individual data (also called microdata), the security of technical systems such as IT networks and servers is important.

There is also the danger that NSIs inadvertently reveal individual information when publishing statistics, i.e. that individuals can be identified based on certain characteristics or that suppressed individual data can be recalculated on the basis of the other data published. To minimize the risk that individual data can be identified or recalculated, NSIs use so-called '**statistical disclosure control**'. Two strong software packages for this purpose, **μ-Argus** and **t-Argus**, have been developed by the NSIs of the Netherlands, Italy, Germany and Canada together with renowned academics. Both software packages are provided free of charge. **μ-Argus** is specialized for protection of microdata, whereas **t-Argus** is used to produce safe tables. The two main techniques used for this are global recoding and local suppression. In the case of global recoding several categories of a variable are collapsed into a single one. The effect of local suppression is that one or more values in an unsafe combination are suppressed, i.e. replaced by a missing value.

However, the value of collected statistics is critically dependent on their usability for analysis. Thus, most statistical legislation allows the use of microdata specifically for scientific analysis. However, researchers must comply with the same technical and statistical safeguards that apply to the NSIs, to guarantee that no individual data are disclosed. Generally, the research project and the specific purpose for the data access must be assessed by a confidentiality committee or similar authority. As an example, researchers may get access to [EU SILC microdata for scientific purposes](#) on strict conditions.

The European Social Survey (the ESS) is a social survey aimed at explaining the relations between Europe's changing institutions and attitudes, beliefs and behaviour patterns of its people. The ESS covers more than 30 countries in Europe, and is a good example of a well-designed - and organised - regional survey with stringent common methodology, including sampling strategy, translation of questionnaires and documentation. The survey includes a wide range of social variables, including media use; social and public trust; political interest and participation; socio-political orientations; governance and efficacy; moral; political and social values; social exclusion, national, ethnic and religious allegiances; well-being; health and security; human values; demographics and socio-economics. The methodology is documented on [the ESS's main web site](#) and the data are available through the [ESS Data website](#).

D.21.4. Analysing data quality and identifying problems

Living conditions and poverty statistics are new compared to many other areas of statistics compiled by national and international statistical agencies. Because of the specificity of this topic and the need for immediate action, living conditions and poverty analyses are generally based on survey data. Key quality aspects in this area are sampling and non-sampling errors. (General aspects of statistical quality are presented in [section C.5.3](#).) A good example of how specific quality aspects are handled for surveys on social inclusion, poverty and living conditions is EU-SILC, which is documented in the Eurostat Statistical Book on [Quality of Life in Europe](#).

The potential for statistical errors in poverty and living conditions data affects comparability across countries and over time. In-depth assessment of data quality will lead to better statistics in such surveys. More importantly, this will allow for better policy formulation in favour of the beneficiaries of projects designed to improve the living conditions of people. Measures of data quality are important for the evaluation and improvement of survey design and procedures. The respondents' trust in the confidentiality of information provided (see [Box 21.4](#)), as well as a continuous monitoring and improvement of the data quality of household surveys, is particularly important. A short typology of survey errors encountered on poverty statistics covers direct measure and estimation errors.

Direct measure errors arise from the fact that what is measured on the units included in the survey can depart from the actual (true) values for those units. These errors concern the accuracy of measurement at the level of individual units enumerated in the survey, and focus on substantive content of the survey: definition of the survey objectives and questions; ability and willingness of the respondent to provide the information sought; the quality of data collection, recording and processing. This group of errors can be studied in relation to various stages of the survey operation.

Estimation errors occur in the process of extrapolation from the particular units enumerated in the survey to the entire study population for which estimates or inferences are required. They originate from sample design and implementation, and include errors of coverage, sample selection and implementation, non-response, and also sampling errors and estimation bias⁽⁶⁴⁾.

⁽⁶⁴⁾ Data quality issues in household sample surveys are covered in "[Household sample surveys in transition economies – An introduction](#)", by Vijay Verma, University of Siena, Italy

D.21.5. Improving living conditions and poverty statistics

Living conditions and poverty statistics are important in national strategic planning as well as for channelling international cooperation projects to needy beneficiaries. They are used by international organizations but also by central and local government, especially in the context of implementing projects aiming at improving people conditions of life. Improving relevance, accuracy and timeliness of living conditions statistics to meet international statistical standards will increase their value to the users. It will critically improve the evidence used for policy formulation and monitoring by national and international decision makers. Many means can be used to improve living conditions and poverty survey estimates. The development of international standards, establishment of international experts groups and convening international workshops to share experience and discuss data quality issues are all valuable elements in this process.

Developing international standards for existing surveys is a major task to enhance comparability of data collected on poverty and standard of living. Development of sound metadata will give users necessary documentation to understand the issues covered by living conditions statistics, access to definition of indicators, and tools for interpretation and extrapolation of survey variables. A very valuable tool is the creation and animation of expert discussion groups to share experience and best practices on the issue of improving living conditions and poverty statistics at both national and international levels. An example of such initiatives is the UN-backed [Rio Experts Group on Poverty Statistics](#).

National or regional workshops should be encouraged to discuss survey methodologies, questionnaire design, data processing and analysis. A good example of such a workshop to discuss common challenges was the African Union and European Union joint workshop "[Social protection in Africa – Sharing Experience on the Informal Economy](#)", held in Nairobi in March 2011 (see also [Box 28.2](#)). Moreover, elaboration of household survey guides and standards are critical to ensuring robustness of income and consumption statistics (see [chapter D.25](#)). To assure the accuracy of poverty statistics, National Statistical Institutes are encouraged to explore ways to improve the response rate of their household surveys. It is critical that they guarantee the confidentiality of such data through national statistical acts and that they build the trust of the respondents in this confidentiality (see [Box 21.4](#)).

The preparation of the United Nations' [Handbook on Poverty Statistics](#) (see [Box 21.5](#)) was welcomed by poverty analysts, statisticians and policy makers. This Handbook gathers in one document information and guidelines on how to plan, implement, and evaluate poverty statistical surveys, whether in developing countries or elsewhere. The Handbook also proposes a questionnaire to assess poverty related surveys in selected countries.

Box 21.5: The United Nations' Handbook on Poverty Statistics

A major United Nations endeavour in the area of poverty statistics is the preparation of the [Handbook on Poverty Statistics](#) (2005), which is a key reference document for international poverty assessment. This publication discusses concepts, methods and policy use for harmonized poverty information gathering in developing countries as well as more fortunate economies. The handbook proposed a questionnaire comprising of five parts:

1. Assessing whether a monetary **poverty line** has been estimated for the country.
2. Exploring if additional resources and information are available on relative poverty using the Unmet Basic Needs (UBN) approach.
3. Discussing the **surveying method** of the latest household survey conducted in the country for the purpose of poverty estimations.
4. Describing the specificities of **measurement techniques and methods** used for poverty measurements other than or in addition to the Poverty Line and the Unmet Basic Needs approaches.
5. Presenting **data sources** for the available measurement categories and the latest available years of the given time scope.

To find out more...**Methodology**

- United Nations: [Handbook on Poverty Statistics \(2005\)](#)
- UN DESA: [Analysing and Measuring Social Inclusion in a Global Context \(2010\)](#)
- University of Siena: [Household sample surveys in transition economies – An introduction](#) by Vijay Verma
- [Rio Experts Group on Poverty Statistics](#)
- World Bank: [Inequality and Shared Prosperity](#)
- [European Social Survey \(ESS\) methodology](#)
- Eurostat: [Income and living conditions in Europe](#)

International initiatives on poverty and social exclusion

- World Bank: [Poverty Reduction and Equity](#)
- World Bank: [Poverty Reduction and Economic Management Network \(PREM\)](#)
- Eurostat: [Income, social inclusion and living conditions \(EU-SILC\)](#)
- [European Anti-Poverty Network \(EAPN\)](#)
- [SDG indicators](#)

Data sources

- World Bank: [Open Data Initiative including the World Development Indicators \(WDI\)](#), as well as [detailed poverty data by country](#)
- UNSD: [MDG Indicators](#)
- ILO: [Compendium of statistics on poverty and income distribution and Key Indicators of the Labour Market \(KILM\)](#)
- OECD: [database on inequality and poverty](#)
- United Nations University – World Institute for Development Economics Research (UNU-WIDER): [World Income Inequality Database \(WIID\)](#)
- University of Columbia: [Global Distribution of Poverty: Global Poverty Data Sets](#)
- UNECE: [Statistics on living conditions, poverty and cross-cutting social issues](#)
- Eurostat: [European Union Statistics on Income and Living Conditions \(EU-SILC\)](#)
- Eurostat: [Combating poverty and social exclusion – A statistical portrait of the European Union \(2010\)](#)

Poverty maps

- International Fund for Agricultural Development (IFAD): [World Poverty Map](#)
- Consultative Group on International Agricultural Research (CGIAR): [Case studies of developing poverty maps](#)
- World Resources Institute: [Where Are The Poor? Experiences with the development and use of poverty maps](#)

Recent and current research documents on measuring poverty

- World Bank: [Measuring Poverty portal](#), as well as [Poverty Measurement and Analysis](#) by Coudouel et al. (2002) in the [PRSP Sourcebook \(2002\)](#)
- UNSD: [Statistical issues in measuring poverty from non-household surveys sources](#) by G. Kamanou, M. Ward and I. Havingain the [Handbook on Poverty Statistics \(2005\)](#)
- UK Overseas Development Institute: [The Meaning and Measurement of Poverty \(2009\)](#)
- Princeton University: [Measuring poverty in a growing world \(2003\)](#)
- University of York: [Methodologies to measure poverty: More than one is best!](#) by Jonathan Bradshaw (2001)
- US National Research Council: [Measuring Poverty - A New Approach](#) by Constance F. Citro and Robert T. Michael (1995)
- OECD/University of Maryland: [Measuring Poverty, Income Inequality, and Social Exclusion: Lessons from Europe](#) (joint international conference, 2009)
- University of Antwerp: [How poverty differs from inequity – On poverty measurement in an enlarged EU context: Conventional and alternative approaches](#) by Ive Marx and Karel van den Bosch (34th CEIES seminar, 2007)

D.22

Population and migration statistics



D.22. Population and migration statistics

The chapter in brief

This chapter covers population and demographic statistics. The main challenge is to make available comprehensive vital statistics in low income countries. The data are used to prepare indicators in policy areas covered by the European Consensus on Development (see section B.1.5.1).

However, population was not itself identified as a key policy area by the Consensus. Improvement of population and demographic statistics has been made a priority in Africa by the UNECA.

The chapter starts by identifying the main policy areas for which these statistics are used. It continues by providing a user's view of the statistics involved. The chapter identifies the main sources of data and information about methods. The chapter presents the details of an exercise to project population statistics based on census data in a West African country. The chapter concludes by discussing how to analyse the quality of the statistics in these fields and provides pointers to mounting effective projects in key areas.

Statistics on births and deaths are used to analyse fertility and so to estimate the future size and structure of a population (population projections). These 'vital statistics' are also used for statistics of mortality, including, where possible, by cause of death. The data inform analysis of the health status of a population and provides the basis for epidemiological studies.

Population projections are also used to address long-term concerns. These include climate change and global and regional population pressures on resources, such as water and energy supplies. Food policies can also be informed by regional, national and global population projections.

Although the policy needs are different in their details, the demand for population and demographic data is remarkably similar between developed and developing countries. However, developed countries have easier ways to collect accurate data than do developing countries.

The private sector increasingly uses demographic data to analyse consumer trends. Political parties and interest groups use the information to analyse public opinion. These activities are increasing in developing countries, especially middle income ones.

D.22.1. Policy applications: the uses of this data

Population statistics and demography – the analysis of the population statistics – lie at the base of public or official statistics. Everyday comparisons are made between countries and over time by dividing economic and social indicators by the total population. Population statistics are used for planning, monitoring and evaluating public programmes in most social and economic fields. Population data are used to ensure an equitable regional and local allocation of government funds. Population statistics are used in most democracies to apportion electoral areas. ⁽⁶⁵⁾

Other policy uses of population statistics include the following:

- Analysis of population ageing and its effects on sustainability and welfare
- Evaluation of fertility as a background for family policies
- Evaluation of the economic impact of demographic change
- Development and monitoring of immigration and asylum policies

In major emergencies, population data helps rescue planning. The Introduction to this *Guide* asks:

'If you think that statistics are important but bread is more urgent, please ask yourself on what information you base your answers to these questions: 'How much bread?' and 'Where is it needed?'

Population statistics can provide some of these answers.

⁽⁶⁵⁾ See for example: http://en.wikipedia.org/wiki/Article_One_of_the_United_States_Constitution and http://fr.wikipedia.org/wiki/Circonscriptions_%C3%A9gislatives_%28France%29

D.22.2. Concepts and definitions

D.22.2.1 OVERVIEW

This chapter covers population and demographic statistics. The sector includes demography; vital statistics; population structures and growth; demographic projections; families and households (marriages, divorces and household size); and migration, refugees and asylum seekers. Other subjects covered include population density; urbanisation; and ethnic and cultural identities.

The chapter *excludes* causes of death; and the methodology and organisation of population censuses.

Two sets of statistics are needed to answer common policy questions:

- the numbers, age, sex, location and other characteristics of the population;
- the changes in the population: the numbers of births and deaths (vital statistics) and the numbers of people entering and leaving a country or region, migrants in particular.

Demography is the statistical study of human populations. It includes long-term projections of the structures of local, national and global populations. In most areas of statistics, statistical institutes carry out only very short-term projections.

Population statistics produced by Eurostat present the range of published statistics and demographic projections:

- Demographic data on population and various demographic events (births, deaths, marriages and divorces) broken down by several characteristics such as age, gender, legal marital status and educational attainment;
- Demographic indicators such as total fertility rate, life expectancy at birth, age-dependency ratios, crude rates of births, deaths and population growth;
- Statistics on the population and housing censuses, offering regional detail and several cross-tabulated data, are available every ten years from the censuses conducted in EU Member States;
- Population projections at national and regional level, providing information on the likely future size and structure of the population, according to different what-if scenarios
- Migration and citizenship, including information on population stocks by citizenship and country of birth, on migration flows by citizenship, country of birth and country of previous/next residence, and on acquisition of citizenship;
- Residence permits granted to non-EU citizens, disaggregated by citizenship, length of validity and reasons for the permit being issued;
- Asylum statistics, including data on asylum applicants, first instance and final decisions on applications, taking back or taking charge of asylum seekers;
- Statistics on the enforcement of immigration legislation, providing data on non-EU citizens refused entry at the EU external borders or found to be illegally present, and on removals of non-EU citizens whose presence was unauthorised.

The section on migration explains why differences exist between the statistics produced by migrant origin and destination countries.

Population and demographic data come from a number of sources:

- population censuses;
- population registers;
- civil registration;
- other administrative records;
- social and demographic surveys.

In most countries, using a census to count the number of people present is still a main method of collecting population statistics. It is the main or only data source in many developing countries. The population census gives information about the numbers of people, their gender, age and location.

The population census also provides the sample frame from which representative samples of the population are drawn for surveys. Surveys permit more frequent and detailed statistical analyses at lower cost than census questions. The description of the people in the population census provides the information used in setting up the sample frame.

Correct response to the census is a legal requirement, in order that the population can be described accurately. Censuses may include questions about relationships, education, citizenship, previous residence, place of birth, ethnicity, language use and religion. Especially sensitive census questions may in certain circumstances be non-mandatory. Each extra question increases the census cost.

The population census is the most likely statistical operation to be challenged politically, whether rightly or wrongly. It is therefore essential that the census is undertaken in a manner that is correct, coherent and transparent.

For international comparison purposes, international recommendations exist for the conduction of censuses. A web portal has been set up for the **2010 World Population and Housing Census Programme** to assist countries to share knowledge and information on census taking. This website also contains a **Census Knowledge Base** which provides guidance to countries. The global Marrakech Action Plan for Statistics (MAPS), discussed in [section B.1.3.3](#), provided support to the 2010 census round. Key elements were:

- Develop an overall strategy for funding and conducting censuses in low income countries.
- Research methods to estimate population regularly
- Assist national statistical offices in census advocacy
- Build national technical and management capacity

The 2010 World Population and Housing Census Programme website presents the outcome of these actions.

D.22.2.2. DATA SOURCES: POPULATION REGISTERS; CIVIL REGISTRATION AND VITAL STATISTICS; AND OTHER DATA SOURCES

A vital statistics system is defined as the process of:

- A. collecting information by civil registration or enumeration on the frequency of occurrence of vital events, as well as relevant characteristics of the events themselves and of the person or persons concerned, and

- B. compiling, processing, analysing, evaluating, presenting and disseminating these data in statistical form.

The vital events of interest are: live births, adoptions, legitimations, recognitions; deaths and foetal deaths; and marriages, divorces, separations and annulments of marriage.

Civil registration is defined by the United Nations Statistics Division as:

'... the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events pertaining to the population Civil registration is carried out primarily for the purpose of establishing the legal documents provided by the law. These records are also a main source of vital statistics. Complete coverage, accuracy and timeliness of civil registration are essential for quality vital statistics.'

A civil registration system refers to all institutional, legal, technical settings needed to perform the civil registration functions in a technical, sound, coordinated, and standardized manner throughout the country, taking into account cultural and social circumstances particular to the country.'

The core document for vital statistics and civil registration is the United Nations Statistics Division publication [Principles and recommendations for a vital statistics system, Revision 2](#). Its preface notes that:

'Civil registration is a major foundation for a legal system for establishing the rights and privileges of individuals in a country. Where it is comprehensively maintained, it is the main source of vital statistics.'

A population register records information, drawn from civil registers, about each member of the resident population. The population register can provide timely information about the size and characteristics of the population. In some developed countries, particularly in Scandinavia, population registers are accurate enough to be used to replace the population census.

Although civil and population registers can be held on computers, few if any low income countries manage to maintain accurate records. Citizens may not comply with or even be aware of their obligation to register births and deaths. Registration is often impractical, especially for those who live in rural areas.

Alternative data sources can be added to a vital statistics system. These include questions on fertility and mortality in population censuses or household sample surveys. Other sources are vital records from sample registration and health records. In some countries, indirect techniques of demographic estimation have been applied to these data sources. The resulting statistical indicators are used for planning purposes, mainly at the national level.

Box 22.1: Improving civil registration and vital statistics in Africa

In 2010, improving civil registration and vital statistics became a continental priority for statistics in Africa. Political support was given to the development and implementation of practical solutions through the United Nations Economic Commission for Africa (UNECA).

A workshop on civil registration and vital statistics took place in Tanzania in 2009. In August 2010, the [First Conference of African Ministers Responsible for Civil Registration](#) was convened. The ministers agreed that a functional civil registration system is the basis for building modern legal and public administration systems. It is the first step in collecting reliable vital statistics that are necessary for evidence-based policies for national development. Vital statistics compiled from civil registration systems are the building blocks to establish sustainable demographic and health statistics databases. The resulting information can be used to measure and monitor development results, including the [Sustainable Development Goals \(SDGs\)](#) (see [section B.1.1.](#)). Civil registration and vital statistics information are needed to implement the [Reference Regional Strategic Framework for Statistical Capacity Building in Africa](#) and the [Marrakech Action Plan for Statistics](#).

At the [6th Africa Symposium on Statistical Development \(ASSD\)](#) in November 2010, the National Statistical Offices of African States resolved to strengthen National Civil Registration and Vital Statistics Systems over the five years beginning in 2012. The Africa Centre for Statistics is supporting the [improvement in African Civil Registration and Vital Statistics Systems \(CRVS\)](#). A medium term plan and work programme is being carried out.

Box 22.2: The importance of cartography for the 2010 Census in Cape Verde

The Census Cartography phase of the Cape Verde 2010 Census, i.e. the mapping operation for statistical purposes, identified and accurately located all living quarters of Cape Verde. The aim was to divide the country into Enumeration Areas. The Enumeration Areas comprise small areas properly delimited by territorial units. They support the work of enumerators and facilitate the information gathering from the population. The Enumeration Areas defines the working areas of the enumerators.

It was possible to create a Geographic Database using a Geographic Information System (GIS). This was the first comprehensive and consistent coverage of the entire national territory, and served as an infrastructure to support the implementation of the 2010 Census. The use of GIS for census mapping enabled summarising and representing areas at all possible geographic levels, in any part of the country: Enumeration Areas, Parishes, Municipalities and Groups of Municipalities, Regions or any other combination these, thus establishing study areas through aggregation of statistical units. The use of GIS for census mapping advanced the treatment and analysis of spatial information, representing a huge gain for the country.

Due to the data and information available, all institutions in the country can benefit from the mapping with the support of GIS. This initiative contributed to the universal access to geographic information, with clear benefits for different sectors of activity, not only for various levels of public administration but also for different areas of the private sector.

The data mapping was a valuable tool because it allowed INE Cape Verde to have all information gathered and integrated on a geographical basis, which will allow different kinds of analysis and visualisation of results in a very clear and perceptible way. INE Cape Verde is able to do various analyses using geographic and alphanumeric data, useful for instance for civil protection services.

Reference: Instituto Nacional de Estatística Cabo Verde - *Metodologia do CENSO 2010 website (in Portuguese only); "Nouvelle technologie en 2010 ronde des recensements : le cas du « Personal Digital Assistant » (PDA) au Cap-Vert" (New technology in the 2010 round of censuses: the case of Personal Digital Assistant (PDA) in Cape Verde), presented at the 6th African Population Conference (2011)*

D.22.2.3. DEMOGRAPHY

Demography covers the compilation, analysis and publication of statistics on issues such as:

- Population size, composition and projections
- The location of the population: urbanization and population density
- Births, deaths, marriage and divorce
- Household characteristics and housing
- Ethnic, language, religious and cultural characteristics of the population
- International migration

Key indicators include:

- Total fertility rate
- Life expectancy at birth
- Age-dependency ratios
- Crude rates of births and deaths
- Rates of population growth or decline

We have already looked at the data sources for the size composition and characteristics of the population. We now look at the purpose and methods of demographic analysis.

Indirect methods are used to model population processes in order to interpolate data to replace missing observations. These methods provide estimates of local populations from partial data so that population numbers and locations can be projected⁽⁶⁶⁾. The basic United Nations text from 1983 is '[Manual X: Indirect Techniques for Demographic Estimation](#)' provides a series of techniques for population estimation. More recent resources for demographic modelling include the [joint Eurostat and UNECE Work Sessions on Demographic projections. Population Europe: The European Population Partnership](#) provides a network for demographic research.

Box 22.3 shows an exercise to forecast national and regional population in West Africa.

⁽⁶⁶⁾ The [Wikipedia demographics page](#) gives an idea of the range of approaches

Box 22.3: National and sub-national population projections Burkina Faso 2007-2020

The project ARC-SSN produced NATIONAL and sub-national population projections for Burkina Faso for the years 2007-2020. The project was supported by the European Development Fund (EDF) and was carried out by the Institut National de la Statistique et de la Démographie (INSD) of Burkina Faso in co-operation with Dr Fassa Daniel Tolno.

The basic dataset consisted of the general population censuses of 2006 and of 1996. Two sets of projections were carried out: national and regional /provincial. The *Spectrum Demproj software*, which had been developed for the USAID Health Policy Initiative, was used for the projections.

The 2006 census was used to estimate the population in mid-2007, keeping the values for births, deaths and migration. This was the starting point for the national projections. Fertility estimates were derived using Bongaarts fertility differential model. This is based on indices of marriage, contraception, induced abortion, and fertility after childbirth (postpartum fecundability). Contraceptive prevalence was estimated using the *Burkina Faso 2003 Demographic and Health Survey*. Future projections for contraceptive prevalence assumed values for increasing prevalence and effectiveness. Similarly, assumed values were imposed for marriage and fertility after childbirth. In the absence of data, abortion was assumed to be zero. The increase in life expectancy was imposed. The figure for migration was taken from the 2006 census.

The regional and provincial population projections were based on the national projections. This was partly because these exist and partly because internal migration movements are difficult to model. The ratio method was used: this method projects forward the relative ratio or weight of each sub-national area. These ratios were then used to reconstruct the corresponding forecasts. This process required six steps:

1. Projection of ratios and derivation of total numbers by region, based on the census values of 1996 and 2006;
2. Derivation of the total numbers by sex and by region;
3. For both sexes, derivation of numbers by age and by region;
4. Combination of the forecasts for both sexes;
5. Projection of ratios and derivation of total numbers by province, based on the census values of 1996 and 2006;
6. For both sexes, derivation of numbers by age and by province on the basis of the regional gender ratios.

Reference: Projections Démographiques de 2007 à 2020 par Région et Province, Institut national de la statistique et de la démographie (INSD), Burkina Faso

D.22.2.4. INTERNATIONAL MIGRATION STATISTICS

The core reference document is the *Recommendations on Statistics of International Migration, Revision 1*. This was published in 1998 by the United Nations Statistics Division in co-operation with Eurostat. The publication was a response to the growing size and importance of international migration. Governments wish to identify migration flows, measure the number of migrants and monitor changes over time. The statistics are intended to provide governments with a factual basis on which to formulate and implement sector policy. The 'Recommendations' recognise that migration statistics are currently often either non-existent or hard to interpret.

Implementing the 'Recommendations' is needed to publish conceptually sound and comparable statistics. The document itself notes that this 'will take time'.

The range of government policies that can be affected by international migration is wide.

Policy in reception countries tends to regulate immigration and manage migrants' stay, focusing on integrating migrants into the economy and society. The main interest in reception countries tends to be in the number of new arrivals and in the total number of foreigners present. There is usually less interest in the numbers of foreigners departing, unless this is a specific policy objective. Reception countries may therefore wish to collect statistics about:

- The numbers, characteristics and location of migrants.
- The utilization of local services such as schools, health facilities, welfare services, accommodation, etc.;
- The effect of migration on local employment and the national labour market;
- The impact on the social security and pension systems and their future liabilities.

Tracking studies can be used to analyse the integration process.

To protect their citizens abroad, countries of origin may wish to monitor migrants' arrangements prior to departure and living conditions afterwards. These countries may also want to collect information about intending and actual migrants and whether their stay is likely to be temporary or permanent; historically, they were less interested in their returning citizens. Emigration countries may also wish to collect information about migrants' remittances and their impact on savings, investment and local development.

These policy considerations also apply to non-permanent migrants who work for defined time periods ranging from a few months to many years in reception countries, and who may or may not gain residency rights. These are often groups of workers organised on a bilateral basis between the origination and reception countries. Although these people are, by definition, usually not permanent migrants, the migration statistics framework needs to identify them correctly.

The policy objectives of reception and emigration countries are therefore very different. This means that the two groups of countries are likely to collect different data. Nevertheless, there is a common interest in comparable and reliable migration data, as there is a common need to forecast the future actions of migrant populations and to understand the relation between migration and development.

The ‘[Recommendations on Statistics of International Migration](#)’ identify (page 10) many of the key questions of interest to governments that migration statistics aim to answer. Not all of these questions will be relevant to each country but they provide a framework for the development of comparable statistics:

- A. What is the overall annual net gain or loss of population through international migration?
- B. How many international migrants are admitted annually? Which are their countries of origin?
- C. In countries having free establishment provisions for the citizens of selected States, how many migrants exercise such a right over the course of a year? What are their countries of origin?
- D. How many citizens emigrate every year? Which are their countries of destination?
- E. How many emigrant citizens return every year? From which countries are citizens returning?
- F. How many migrant workers are admitted annually? How many leave the country for good every year?
- G. How many persons in search of asylum arrive annually? How many international migrants are admitted on humanitarian grounds (including refugees)?
- H. How many persons are admitted for family reunification over a year?
- I. How many persons who do not qualify as tourists are admitted for periods shorter than a year? Among them, how many are allowed to work in the receiving country?
- J. What is the total number of international migrants in the country? How many of those international migrants are economically active?
- K. How many foreign citizens acquire citizenship of the reception country?

Countries do not use the same criteria to determine who is an international migrant. This situation has long been recognized as a key source of inconsistency in international migration statistics. [Box 22.4](#) presents the recommended definitions of short and long-term migrants and of the country of usual residence.

Whereas migration flows can be defined in terms of the numbers of people changing their country of residence, stocks of migrants within the overall population can be defined according to citizenship or country of birth.

Wherever possible, citizenship and country of birth should not be used as proxies for each other.

Box 22.4: Definition of country of usual residence, of long-term international migrant and of short-term international migrant

Country of usual residence

The country in which a person lives, that is to say, the country in which he or she has a place to live where he or she normally spends the daily period of rest. Temporary travel abroad for purposes of recreation, holiday, visits to friends and relatives, business, medical treatment or religious pilgrimage does not change a person's country of usual residence.

Long-term migrant

A person who moves to a country other than that of his or her usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes his or her new country of usual residence. From the perspective of the country of departure the person will be a long-term emigrant and from that of the country of arrival the person will be a long-term immigrant.

Short-term migrant

A person who moves to a country other than that of his or her usual residence for a period of at least 3 months but less than a year (12 months) except in cases where the movement to that country is for purposes of recreation, holiday, visits to friends and relatives, business, medical treatment or religious pilgrimage. For purposes of international migration statistics, the country of usual residence of short-term migrants is considered to be the country of destination during the period they spend in it.

Source: ‘Recommendations on Statistics of International Migration’, Revision 1, United Nations

Citizenship is widely recorded in administrative systems as this frequently impacts on a person's rights to enter, reside and work in a country. However, migrants can and often do change citizenship, often being granted the right to acquire the citizenship of the new country of residence after a number of years or following marriage to a national citizen. Depending on the specific national rules for acquiring citizenship, national citizens of the reporting country may also include many people who are foreign born and who were previously recorded as foreign citizens. It is therefore useful to collect statistics on acquisition of citizenship.

Defining migrant stocks according to country of birth has the advantage that a person's place of birth is fixed and will not change. However, country of birth may not be well recorded in some administrative data sources. It should be noted that native-born persons might be foreign citizens – as many countries do not automatically grant citizenship to children born in their territory, with children instead taking the citizenship of their parents.

Section 2.A of the ‘Recommendations’ (pages 19-24) provides ‘A taxonomy of international inflows and outflows of people’. This defines 18 categories of migrant inflows and outflows according to the entry status established by the receiving state. [Box 22.5](#) is based on this categorisation; the basic concepts for migration statistics are those that are presented in [Box 22.4](#).

Box 22.5: Taxonomy of international inflows and outflows according to entry status established by receiving state

Citizens		Foreigners		Relevance
Outflows	Inflows	Outflows	Inflows	
Border workers departing daily or weekly to work in a neighbouring country	Border workers returning daily or weekly to their home	Foreign border workers entering daily or weekly to work	Foreign border workers departing daily or weekly to go home	<i>Not relevant to migration</i>
Departing citizens in transit	Arriving citizens in transit	Arriving foreigners in transit	Departing foreigners in transit	<i>Not relevant to migration</i>
Departing excursionists	Returning excursionists	Arriving foreign excursionists	Departing foreign excursionists	<i>International tourism</i>
Departing tourists	Returning tourists	Arriving foreign tourists	Departing foreign tourists	<i>International tourism</i>
Departing business travellers	Returning business travellers	Arriving foreign business travellers	Departing foreign business travellers	<i>International tourism</i>
Departing diplomatic and consular personnel + dependents	Returning diplomatic and consular personnel + dependents	Arriving foreign diplomatic and consular personnel + dependents	Departing foreign diplomatic and consular personnel + dependents	<i>Excluded from migration statistics</i>
Departing military personnel + dependents	Returning military personnel + dependents	Arriving foreign military personnel + dependents	Departing foreign military personnel + dependents	<i>Excluded from migration statistics</i>
Nomads	Nomads	Nomads	Nomads	<i>Excluded from migration statistics</i>
Citizens departing to study abroad + dependents	Citizens returning from studying abroad + dependents	Arriving foreigners admitted as students + dependents (if allowed)	Departing foreign students + dependents	<i>Relevant to migration statistics</i>
Citizens departing to be trained abroad + dependents	Citizens returning from being trained abroad + dependents	Arriving foreigners admitted as trainees + dependents (if allowed)	Departing foreign trainees + dependents	<i>Relevant to migration statistics</i>
Citizens departing to work abroad + dependents	Citizens returning from working abroad + dependents	Arriving foreigners admitted as migrant workers + dependents (if allowed)	Departing foreign migrant workers + dependents	<i>Relevant to migration statistics</i>
Citizens departing to work in an international organization abroad + dependents	Citizens returning after having worked in an international organization abroad + dependents	Arriving foreigners admitted as international civil servants + dependents (if allowed)	Departing foreign international civil servants + dependents	<i>Relevant to migration statistics</i>
Citizens departing to establish themselves in a country where they have the right of free establishment	Citizens returning from a country where they exercised their right to free establishment	Arriving foreigners having the right of free establishment	Foreigners departing having exercised their right of free establishment	<i>Relevant to migration statistics</i>
Citizens departing to settle abroad	Citizens returning after having settled abroad	Arriving foreigners admitted for settlement without limits on duration of stay	Foreign settlers departing	<i>Relevant to migration statistics</i>
Citizens departing to form a family or join their immediate relatives abroad	Citizens returning after having migrated for family formation or reunification	Arriving foreigners admitted for family formation or reunification	Departing foreigners originally admitted for family formation or reunification	<i>Relevant to migration statistics</i>
Citizens departing to seek asylum	Repatriating refugees	Foreigners admitted as refugees	Departing refugees	<i>Relevant to migration statistics</i>
Citizens departing to seek asylum	Returning former asylum seekers	Foreigners seeking asylum	Departing former asylum seekers (not granted asylum)	<i>Relevant to migration statistics</i>
Citizens departing without the necessary admission permits	Citizens being deported from abroad	Foreigners whose entry is not sanctioned	Deported foreigners	<i>Relevant to migration statistics</i>

Source: 'Recommendations on Statistics of International Migration', Revision 1, United Nations

The following potential data sources for migration statistics are identified by the Recommendations:

- Population registers
- Registers of foreigners
- Issuance of residence permits
- Issuance of work permits
- Official clearance of departing migrant workers
- Processing of requests for asylum
- Records from regularization drives
- Border statistics
- Censuses
- Household surveys
- Reports to tax or social security authorities
- Establishment business surveys
- Registration of individuals in special insurance schemes
- Reports from labour recruitment agencies
- Apprehension and deportation statistics
- Administrative statistics on foreign citizens acquiring the citizenship of the destination country

These can be summarised as:

- Administrative registers
- Other administrative sources
- Border collection
- Household based field enquiries

The 'Recommendations' do not guide the user on how to obtain acceptable measures of undocumented or irregular migration. Involuntary migrants are usually undocumented. They are unlikely to leave a statistical trace such as by registering, sending remittances or using health facilities. Some national statistics institutes publish data on irregular migration. These should be considered to be estimates rather than statistics.

D.22.3. Sources of data and metadata

The key global source on population statistics and forecasts is the UN [World Population Prospects database, 2008 revision](#). This is produced by the UN Population Division. It provides indicators and projections of total population and major demographic measures for the period 1950-2050 for all countries and regions.

The [United Nations Demographic Yearbook](#) is produced by the UN statistics division. It provides more demographic variables than the Population database. Population projections are limited to two years. Occasionally, special topics are covered. Most recently this was the 2000 census round.

Other global demographic publications are available from the [UN Statistics Division's Demographic and Social Statistics website](#). Examples are the biannual vital statistics data and the World's Women reports.

Data on the [international migrant stock](#) is also available on the UN Population Division website. Other global population and urbanisation data series and metadata can also be found on this website.

The '[Recommendations on Statistics of International Migration](#)' note that African statistics on migration are often missing, unavailable or not comparable. The World Bank's '[Leveraging Migration for Africa](#)' (2011) makes the same point ⁽⁶⁷⁾. Properly carried out, the initiatives discussed in [section D.22.5](#) below should start to address the absence of data.

A key objective of the [International Organization for Migration \(IOM\)](#) is to enhance the capacity of governments to collect reliable and comprehensive statistics and data on migration and to advance understanding of migration issues more generally. The [IOM also compiles migration statistics](#) on issues such as resettlement, emergency and post-emergency repatriation, assisted voluntary return, health of migrants, and trafficking.

The [Population statistics portal on Eurostat's website](#) provides a standard for demographic and migration data dissemination. It also contains a [database of annual population, migration and other demographic data](#) for the EU and about 25 other countries and territories.

D.22.4. Analysing data quality and identifying problems

The key question for population and demographic data is whether the terms used correspond to the usual international classifications. One example is whether the standard five-year age groups are adhered to: 0-4; 5-9; 10-14 etc.

As we have seen, demographic data is of much higher quality if it is based on a universal and up to date population register. The source(s) of demographic data should be ascertained. The number of entries in the population register might be compared with the estimated population.

In looking at international migration statistics, data concepts should be compatible with those laid out in the relevant recommendations. However, one should not look for completeness, as it is understood that most countries will only produce a subset of the migration statistics framework that suits their own and their partners' needs. A potential tool for validating results is to use mirror techniques between the two sides of international migration flows.

⁽⁶⁷⁾ see '[Leveraging Migration for Africa](#)', box 1.1 'Problems with Data on African Migration'

D.22.5. Improving sector statistics

Historically, EU support for population and migration statistics has focused on the central issue of census funding. A high profile example was the support for the [2005/06 Nigeria Census Support Initiative](#), which had a budget of EUR 116.5 millions. A common implementation mechanism has been a contribution agreement with UNDP/UNFPA. The recent debate has focused on reducing census costs and on improving the dissemination and use of census data. Current aims are also to obtain better population statistics between censuses and to increase the availability of data on international migration. These objectives can be seen as complementary to support for population censuses.

An important theme of census improvement has for some time been cost limitation⁽⁶⁸⁾. This is because the cost of carrying out population censuses in developing and middle-income countries is high relative to other statistics activities. Low- and middle-income countries sometimes have difficulty in financing their census. The [2001 UNFPA/PARIS21 International Expert Group Meeting on Censuses](#) included a critical appraisal of census costs, backed by examples in many developing countries. The objective of increasing both efficiency and census quality is carried through the MAPS objectives and activities referred to in [section D.22.2](#).

A second area of action has been on census dissemination and increased exploitation of census data. This was brought into focus by a [2003 UNFPA/PARIS21 International Expert Group Seminar](#), whose objectives were:

- review census data dissemination and use in the 2000 round of censuses;
- establish partnerships between users and producers to maximize use of census data;
- ensure quality population-based data are disseminated and used for national planning, poverty reduction strategies, monitoring of national and international development goals

PARIS21 has also prepared an advocacy video on population statistics:

- [Population Census Dissemination: the African Perspective part 1](#)
- [Population Census Dissemination: the African Perspective part 2](#)

Improving civil registration and vital statistics systems in low income countries, in particular in Africa, is becoming a major issue. There is little prior experience in supporting this type of action. The objective is to provide improved statistics between censuses and to reduce or eliminate the need for large-scale inter-censal surveys. Analysis should look at whether the information recording system proposed is realistic. Will the system be accessible to the citizens who need to record vital events? Will the resulting statistics be consistent with international recommendations? Utilising regional experience could help ensure that planned actions can be sustained. The current focus on civil registration and vital statistics in Africa is discussed further in [Box 22.1](#).

New technologies including mobile telephone based technologies - are starting to be applied in censuses and vital statistics. A seminar on '[New Technologies in Population and Housing Censuses: Country experiences](#)' linked to the 42nd session of the UN Statistical Commission was held in February 2011. The paper by the Brazilian Institute of Statistics and Geography (IBGE) on '[IT in the Brazilian 2010 Census](#)' is of particular interest.

In supporting demographic analysis, the outputs and the main data sources available need to be defined in the terms of reference. The analyst will need to justify not only the selection of an appropriate demographic tool but must also make clear how the model parameters are arrived at.

EU support for developing migration statistics in other countries presupposes that there is a mutual interest in monitoring migration flows between the two parties. Both sides need to be clear what statistics can be produced to meet the data needs. In any case, the resulting statistics should be designed to follow international definitions.

⁽⁶⁸⁾ See in particular the UNFPA papers '[Population and Housing Censuses - strategies for reducing costs](#)' and '[Counting the people: Constraining Census Costs and assessing alternative approaches](#)' and the Census Knowledge Base papers

To find out more...**Recent and current initiatives and activities**

- UN Economic Commission for Africa (UNECA): [Initiative on civil registration and vital statistics \(CRVS\) systems in Africa](#)
- First Conference of African Ministers Responsible for Civil Registration: [Improving Civil Registration and Vital Statistics in Africa \(Declaration\)](#) and the [Recommendations of the Experts' Group Meeting on Civil Registration and Vital Statistics](#)
- [ACP Observatory on Migration](#)
- [Population Europe](#)

Further strategies and methodologies

- United Nations Statistics Division: [Principles and recommendations for a vital statistics system, Revision 2 \(2001\)](#)
- United Nations Statistics Division: [Recommendations on statistics of international migration, revision 1 \(1998\)](#)
- United Nations: [Handbooks on Civil Registration and Vital Statistics Systems](#)
- United Nations Statistics Division: [2010 World Population and Housing Census Programme](#)
- Asian Development Bank: [Administrative data sources for compiling Millennium Development Goals and related indicators \(reference handbook on using data from education, health and vital registration systems\)](#)
- Eurostat's [Metadata](#) and [RAMON metadata server](#)

Data sources

- United Nations Statistics Division: [Demographic and Social Statistics](#)
- United Nations Statistics Division: [Demographic Yearbook](#)
- United Nations Population Division: [International Migration Stock, 2008 revision](#)
- United Nations Population Division: [World Population Prospects, 2008 Revision](#)
- Development Research Centre on Migration, Globalisation and Poverty (Migration DRC): [Global Migrant Origin Database](#)
- World Bank: [Migration and Remittances Factbook](#)
- [Integrated Public Use Microdata Series \(IPUMS\) International](#): census data for 55 countries worldwide
- [Integrated European Census Microdata \(IECM\)](#): database containing anonymised microdata samples from more than 40 European countries
- Eurostat: [Population statistics portal, with database](#)

Other background

- European Commission and United Nations: [Joint Migration and Development Initiative](#)
- United Nations Population Division: [Papers and reports](#)
- World Bank: [South-South Migration and Remittances \(Ratha and Shaw, 2007\)](#)
- World Bank: [People move \(blog\)](#)
- [Global Forum on Migration and Development](#)
- PARIS21 videos on Population Census Dissemination: the African Perspective [part 1](#) and [part 2](#)
- International Organization for Migration: [Activities on Migration Data: an overview](#)
- European Commission - DG EuropeAid Development and Co-operation: [Public forum on migration and asylum](#)

D.23

Education statistics



D.23. Education statistics

The chapter in brief

This chapter covers education statistics as defined by section 1.3 of the UNECE Databases for International Statistical Activities (DISA 2010) (see also [section B.4.3.](#) of this *Guide*). The data are educational participation, illiteracy, educational institutions and systems, human and financial resources invested in education, lifelong learning, vocational training and adult learning, impact of education, assessments of student performance. Due to the complex role of education statistics for social and economic development planning, national and international agencies are actively seeking to improve them in order to obtain a robust means for decision-making, monitoring and evaluation. The main issues of the education statistics centres on the quality of national statistics received as well as the quality of the internal systems for collection, processing, analysis and dissemination of the data and metadata.

The chapter covers a wide range of education statistics. The chapter starts by identifying the main policy areas for which these statistics are used and continues by providing a user's view of the statistics involved. The chapter then identifies the main sources of data and information about methods, continues by discussing how to analyse the quality of the statistics in these fields and concludes with information on complementary sources.

The education statistics are used mainly to: (i) distinguish between the actors in the education systems (individual learners, instructional settings and learning environments, education service providers, the education system); (ii) measure learning outcomes for individuals and countries; and (iii) identify the policy issues (quality of educational outcomes, equity and opportunities, adequacy and effectiveness of resources management). Specifically, education statistics allow for an assessment of the:

- access to and participation in education;
- demand for and supply of educational opportunities (students, teachers,...);
- individual learning outcomes;
- impact of education on personal growth;
- well-being of all education beneficiary (individual, community, country)
- study of the causes in disparities, and their effect on social and economic development.
- quality of the teaching and learning process;
- internal efficiency of the education system;
- concern for equity in education,

D.23.1. Policy applications: what education data is used for

The education sector plays a complex role in a country's social and economic development, presenting both a challenge and an opportunity for sustainable development. A country's successful social and economic development depends notably on a robust and sustainable education system as skilled human capital is seen as a key factor to reduce unemployment and improve people's welfare. In addition, there is empirical evidence that shows that the education level of a country is positively linked with economic growth. Therefore, the design and implementation of an effective education system and reforms in the education sector are a priority of governments. Hence, national education statistics, as well as international ones, are instrumental to inform adequately these policy reforms.

Education statistics are collected mainly by Governments and international institutions to design, implement, monitor and evaluate education policies. These statistics are used to assess the alignment of the capacity and performance of the education system to the national education program and also to assist in planning for further development of the education sector.

Box 23.1: Links between Education and the Sustainable Development Goals

Building on the achievements towards reaching the Millennium Development Goals, in September 2015 the UN Sustainable Development Summit adopted the ‘Transforming our world: the 2030 Agenda for Sustainable Development’, also known as the Sustainable Development Goals (SDGs). The Sustainable Development Goals comprises a framework consisting of 17 goals with 169 specific targets and 230 indicators to measure progress towards these (see section B.1.2.). The environment dimension of the Sustainable development agenda is covered by the following goal, targets and indicators:

Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Target 4.1: By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.

- Indicators: 4.1.1 Proportion of children and young people:
 (a) in grades 2/3;
 (b) at the end of primary; and
 (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex

Target 4.2: By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.

- Indicators: 4.2.1 Proportion of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being, by sex.
 4.2.2 Participation rate in organized learning (one year before the official primary entry age), by sex

Target 4.3: By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.

- Indicators: 4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex.

Target 4.4: By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.

- Indicators: 4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill.

Target 4.5: By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.

- Indicators: 4.5.1 Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflict affected, as data become available) for all education indicators on this list that can be disaggregated.

Target 4.6: By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.

- Indicators: 4.6.1 Percentage of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex.

Target 4.7: By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development.

- Indicators: 4.7.1 Extent to which (i) global citizenship education and (ii) education for sustainable development, including gender equality and human rights, are mainstreamed at all levels in: (a) national education policies, (b) curricula, (c) teacher education and (d) student assessment.

Target 4.a: Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all.

- Indicators: 4.a.1 Proportion of schools with access to: (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single sex basic sanitation facilities; and (g) basic handwashing facilities (as per the WASH indicator definitions).

Target 4.b: By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.

D.23.2. Concepts and definitions

The education statistics discussed here include data on educational participation, illiteracy, educational institutions and systems, human and financial resources invested in education, lifelong learning, vocational training and adult learning, impact of education, assessments of student performance, etc.

In order to promote common definitions and concepts of education statistics and enable international comparisons, UNESCO designed the [International Standard Classification of Education \(ISCED\)](#) and the current classification is the [ISCED 2011](#) adopted in 2011. In addition, a [comprehensive list of education indicators](#), their definitions, purposes, calculation methods, and formulae have been developed and maintained by the [UNESCO Institute for Statistics \(UIS\)](#). This guide is available in four languages (Arabic, English, French, and Spanish). In addition, the UIS also maintains a [multilingual glossary of education statistics](#) that provides just the translation of the main education concepts in the same four languages.

Education, according to the ISCED 2011, is defined as “organised and sustained communication designed to bring about learning”. The [OECD Handbook of Internationally Comparative Education Statistics](#) presented the ISCED 2011 education classification under the following categories:

- **Pre-primary education (ISCED 0):** Early Childhood Development Programmes (ECD) cover pre-primary education corresponding to ISCED level 0, and also all other school- or centre-based programmes involving organized activities aimed at encouraging children (before age of 5) to learn and for their emotional and social development. The aim of education at this level is fourfold: (i) to provide to children a first contact with the education system; (ii) to better prepare entry into primary school; (iii) to provide opportunities to introduce other programmes such as health, hygiene and nutrition; and (iii) to allow women to return sooner to the labour market or go back to their studies.
- **Primary education (ISCED 1):** Primary education usually begins at age 5 and generally lasts for 4 to 6 years. Generally no previous formal education is required before entering primary education. This is generally one component of “basic school education”, which in many countries corresponds to compulsory education. These programmes are normally designed to give students a sound basic education in reading, writing and mathematics along with an elementary understanding of other subjects such as history, geography, natural science, social science, arts and music.
- **Secondary education (ISCED 2 and 3):** Secondary education is divided into two main programmes: lower secondary (ISCED 2) and upper secondary (ISCED 3). The lower secondary generally pursues the basic programmes of the primary level, although teaching is typically more subject-focused. Lower secondary education may be either “terminal” (i.e. preparing students for direct entry into working life) and / or “preparatory” (i.e. preparing students for upper secondary education). This level can range from 2 to 6 years of schooling. The upper secondary education typically begins at the end of full-time compulsory education for those countries that have a system of compulsory education. More specialization may be observed at this level than at ISCED 2 and often teachers need to be more qualified or specialized. The entrance age to this level is typically 15 or 16 years. The educational programmes included at this level typically require the completion of about 9 years of full-time education (since the beginning of level 1) for admission or a combination of education and vocational or technical experience, with minimum entrance requirements the completion of level 2 or demonstrable ability to handle programmes at this level.
- **Post-secondary non-tertiary education (ISCED 4):** Post-secondary education is generally designed to provide short (6 months to 2 years) technical or vocational training courses. Sometimes these programmes can also be intended as a preparation for tertiary education for students leaving secondary school without getting the normal certificate.
- **Tertiary education (ISCED 5 and 6):** Tertiary education at level 5 programmes have an educational content more advanced than those offered at levels 3 and 4. Entry to these programmes normally requires the successful completion of secondary education level. Programmes at level 5 must have a cumulative theoretical duration of at least 2 years from the beginning of level 5 and does not lead directly to the award of an advanced research qualification. The level 6 is reserved for tertiary programmes that lead directly to the award of an advanced research qualification. The theoretical duration of these programmes is 3 years full-time in most countries (for a cumulative total of at least 7 years FTE at the tertiary level), although the actual enrolment time is typically longer.

Numerous statistical indicators are collected in order to give a complete overview of education system. The main indicators are:

- **Adult Literacy Rate (ALR):** The ALR is the percentage of total population aged 15 years and over who can both read and write with an understanding of a short simple statement on his/her everyday life. Generally, ‘literacy’ also encompasses ‘numeracy’, which is the ability to make simple arithmetic calculations. The ALR shows the accumulated achievement of primary education and literacy programmes in imparting basic literacy skills to the population, thereby enabling them to apply such skills in daily life and to continue learning and communicating

using written words. Literacy represents a potential for further intellectual growth and contribution to the economic-socio-cultural development of a society.

- **Youth Literacy Rate (YLR)** or - Literacy rate of 15-24 year-olds: The YLR is defined as the percentage of the population aged 15 to 24 years old who can both read and write, with understanding of a short, simple statement about their everyday life. YLRs are increasingly used to assess the impact of primary education as well as the speed with which illiteracy can be eradicated. In general, literacy data can measure the achievement of literacy programs and primary education.
- **School-Life Expectancy (SLE):** The SLE is a measure of how many years of education the average population of a country receives in their lifetime. It is used to compare and assess the development of a country.
- **Transition Rate (TR):** The TR conveys information on the rate of access (or transition) from one cycle of education to a higher one. This is expressed as the percentage of pupils who graduate from one level of education and move on to the next higher level (from primary to intermediate; or from intermediate to secondary).
- **Net Enrolment Rate (NER):** The NER is defined as the enrolment of the official age-group for a given level of education expressed as a percentage of the total population from the same age group. A high NER implies a high degree of participation of the official school-age population.
- **Gross Enrolment Ratio (GER):** The GER is defined as the total enrolment, regardless of age, expressed as a percentage of the official school-age population for a given level. The GER shows general levels of participation in education. When net (aged-based) enrolment data are not available, gross enrolment can be used as a substitute indicator. This data can also be compared to net enrolment figures to indicate the extent of over- and under- aged enrolment. A GER of 100% or more indicate that a country is, in principle, able to accommodate all of its school-age population.
- **Repetition Rate (RR):** The RR is the proportion of pupils who enrol in the same grade/year more than once to the total number of pupils/students enrolled in that grade/year during the previous year. The RR helps to measure the effect on the internal efficiency of educational systems.
- **Dropout Rate by Grade (DR):** It is the proportion of pupils from a cohort enrolled in a given grade at a given school year, but who are no longer enrolled in the following school year. The DR measures the trend of pupils leaving school without completion, and its effect on the internal efficiency of educational systems. In addition, it is one of the key indicators for analysing and projecting pupil flows from grade to grade within the educational cycle.
- **Survival Rate (SR)** - It is the percentage of pupils enrolled in the first grade of a given level or cycle of education in a given school year who reach the final grade at the end of the required number of years of study. The SR measures the retention capacity and internal efficiency of an education system. It illustrates the situation regarding retention of pupils (or students) from grade to grade in schools, and conversely the magnitude of dropouts by grade.
- **Public expenditure on education as % of total government expenditure:** It is the total public expenditure on education (current and capital) expressed as a percentage of total government expenditure (current and capital) in a given financial year. This indicator assesses a government's policy emphasis on education relative to the perceived value of other public investments. It reflects also the commitment of a government to invest in human capital development.
- **Public current expenditure per pupil as % of GNP per capita.** It represents public current expenditure per pupil (or student) at each level of education, expressed as a percentage of GNP per capita in a given fiscal year. This indicator contributes to assess a country's investment in its human capital development and to measure the relative emphasis placed by the country on a particular level of education
- **Pupil-Teacher Ratio (PTR):** The PTR is the average number of pupils (students) per teacher at a specific level of education in a given school year. It measures the level of human resources input in terms of the number of teachers in relation to the size of the pupil population.
- **Percentage of female teachers:** it is the number of female teachers at a given level of education expressed as a percentage of the total number of teachers (male and female) at the same level in a given school year. This indicator shows the gender composition of the teaching force. It helps also in assessing the need for opportunities and/or incentives to encourage women to participate in teaching activities at a given level of education.
- **Gender Parity Index (GPI)** - Ratio of girls to boys: The GPI is the ratio of female to male values of a given indicator. It measures progress towards gender parity in education participation and/or learning opportunities available for women in relation to those available to men. It also reflects the level of women's empowerment in society.

Box 23.2: The Education for All Development Index (EDI)

While each of the six Education For All (EFA) goals adopted in 2000 matters in its own right, the commitment undertaken by governments at the World Education Forum in Dakar (Senegal) was to sustain advances on all fronts. The [Education for All Development Index \(EDI\)](#) provides a composite measure of progress, encompassing access, equity and quality. Because of data availability constraints, it includes only the four most easily quantifiable goals, attaching an equal weight to each:

- universal primary education (goal 2), measured by the primary adjusted net enrolment ratio (ANER);
- adult literacy (first part of goal 4), measured by the literacy rate for those aged 15 and above;
- gender parity and equality (goal 5), measured by the gender-specific EFA index (GEI), an average of the gender parity indexes of the primary and secondary gross enrolment ratios and of the adult literacy rate;
- quality of education (goal 6), measured by the survival rate to grade 5.

The EDI value for a given country is the arithmetic mean of the four proxy indicators. It falls between 0 and 1, with 1 representing full EFA achievement.

$$\begin{aligned} \text{EDI} = & 1/4 \text{ primary adjusted net enrolment ratio (ANER)} \\ & + 1/4 \text{ adult literacy rate} \\ & + 1/4 \text{ gender-specific EFA index (GEI)} \\ & + 1/4 \text{ survival rate to grade 5} \end{aligned}$$

For example, results for goals on which a country has made less progress can offset its advances on others. Since all the goals are equally important for Education for All to be achieved as a whole, a synthetic indicator such as the EDI is thus very useful to inform the policy debate on the prominence of all the Education for All goals and to highlight the synergy among them.

Calculating the EDI: Let's assume a country with a primary adjusted net enrolment rate, adult literacy rate, GEI and a survival rate to grade 5 of values 0.998, 0.979, 0.971 and 0.998, respectively. The resulting EDI would then be 0.987:

$$\text{EDI} = 1/4 (0.998) + 1/4 (0.979) + 1/4 (0.971) + 1/4 (0.998) = 0.987$$

D.23.3. Sources of data

Education statistics are collected from two main sources:

(i) Administrative data and periodic school surveys; and (ii) Population censuses and household surveys. Administrative data are the primary country's source of education statistics and cover the whole country on an annual basis. These data are based on school reporting, generally at the beginning of the school year. School-based surveys focus on pupils only with no information on household characteristics and children who do not attend school. The shortcomings of these data are their quality in terms of coverage, which is often incomplete, thus impairing the accuracy of the statistics, and their comparability between countries, which is limited when the statistical definitions used are not in line with the agreed international standards.

Population censuses and household surveys provide a good complement to administrative data. Indeed, individual and household information collected through these surveys are instrumental to better analyse education data. Also, information on children's background and schooling decision can also be assessed. However, these data refer to the resident population and not to the education system; it may be difficult to relate these data to other education statistics for two reasons. The first is that the situation of the resident population concerning education may reflect the education system of another country, in case of immigrants, while missing some of the persons who were educated in the country, emigrants. This is as relevant as the migration flows are significant. The second reason is that the results of general population surveys refer to an age cohort of the population which may have been subject to the educational systems in very different moments in time, while statistics on the educational systems refer to their situation in one specific school or academic year.

Internationally comparable education statistics are mainly administrative data, collected through data collections run by international institutions. The [UNESCO Institute for Statistics \(UIS\)](#) uses a questionnaire to collect, annually, these data with the relevant national authorities of 200 countries (for example, Ministries of Education, Ministries of Finance or the National Library). The [UIS education database](#), with more than 200 countries and territories, is the most comprehensive education data set in the world. It covers all education levels and a range of issues such as gender parity, teachers and financing. Worldwide statistics on education are collected through three major data collections:

- **UIS survey:** The [UIS education survey](#) questionnaires are sent to UNESCO Member States/Countries annually. The questionnaires are based on international standards, classifications and measures that are regularly reviewed and modified by the UIS in order to address emerging statistical issues and improve the quality of data.
- **UOE survey:** [UNESCO-UIS, the OECD and Eurostat \(UOE\)](#) have jointly administered this annual data collection since 1993. The UOE questionnaire compiles data from high- and middle-income countries that are generally members or partner countries of the OECD or the European Union. The UOE survey gathers more detailed education statistics and allows for production of a wider set of indicators.
- **WEI programme:** The [World Education Indicators \(WEI\)](#) programme provides a platform for middle income countries to develop a critical mass of policy-relevant education indicators beyond the global core set of education statistics. This also allows for direct comparisons to countries participating in the UOE survey as the collection of data from the countries included in the WEI programme is based on the same common set of definitions, instructions and methods agreed by UIS, OECD and Eurostat for the UOE.

Literacy statistics for adults aged 15 years and older and for youth aged 15 to 24 years are available from national population censuses, household surveys and estimates using the UIS Global Age-Specific Literacy Projections Model (GALP). The methodology to implement this survey is discussed in the report [“Global Age-Specific Literacy Projections Model \(GALP\): Rationale, Methodology and Software”](#).

Statistics on educational attainment for the population aged 25 years and older are based on national population censuses or surveys. Population data are based on the [World Population Prospects](#) by the United Nations Population Division (UNPD). Data on economic indicators such as gross domestic product (GDP) can be obtained from the World Bank and education public expenditure from the UIS.

Data on **teachers and the curriculum** have been collected since the early 1990s by the OECD through its “Teachers and the Curriculum” survey. Data cover: (i) Compulsory and non-compulsory intended instruction time for students; (ii) Teachers working time and teaching time; and (iii) Annual statutory teacher compensation.

Box 23.3: Overview of ISCED 2011

Each country's education system is dynamic and changes frequently in structure and curricular content. International comparison is thus difficult for policy makers. The international initiatives to facilitate comparisons of education statistics and indicators of different countries, on the basis of uniform and internationally agreed definitions, are coordinated by the UNESCO since it first designed the [International Standard Classification of Education](#) in the 1970s (ISCED 76). However, as education systems are constantly evolving, the ISCED framework is periodically updated.

The current version, ISCED 2011, is an improved, integrated and consistent statistical framework for the collection and reporting of internationally comparable education statistics. The coverage of ISCED 2011 extends to all organised and sustained learning opportunities for children, youth and adults, including those with special educational needs, irrespective of the institutions or organisations providing them or the form in which they are delivered. In particular, ISCED 2011 takes into account the many significant changes in education systems worldwide since the last ISCED revision in 1997.

In ISCED 2011, the first level (ISCED 0) has been expanded to include a sub-category of the increasingly popular education programmes designed for children under three years old. At the same time, the classification of tertiary levels of education has changed substantially. ISCED 2011 has four levels of tertiary education, compared to two categories in the previous version. A main reason for this is to better reflect the tertiary education structure (Bachelor, Master and Doctorate), in particular in view of the implementation of the Bologna Process in Europe. ISCED 2011 also introduces educational attainment into the framework. Thus, ISCED offers a system to classify qualifications into educational attainment levels. Another novelty is the introduction of ISCED Fields of Education and Training (ISCED-F), enabling examination of fields of education in a separate process.

The mapping of country (national) data to those of the ISCED 2011 is critical to ensure the meaningfulness and comparability of the education data. A special [“Questions and Answers about ISCED 2011”](#) section is available on UNESCO-UIS's website.

Data on **educational attainment** of the adult population are collected as part of the [Annual Labour Statistics](#) data request, which is conducted by the OECD in February/March each year. The National Statistical Offices provide data on employment, unemployment and population by National Educational Attainment Categories (NEAC), by gender and age groups. Data are derived from National Labour Force Surveys. They are mapped to ISCED-97 levels of attainment using the agreed mapping from NEAC to ISCED-97 standardized levels of attainment established by the Network B of the OECD education indicator project after consultation with country representatives. Work status is reported according to the International Labour Organization (ILO) guidelines and definitions of employment and unemployment.

In addition to public examinations at the end of educational cycles, some countries implement national assessments to have a comprehensive view of the learning standard and the system performance. These national assessments are sometimes linked with regional or international evaluations which allow comparisons of education systems. Beside these sources of general statistical data, several initiatives assess general or specific learning outcomes, including:

- **The Monitoring Learning Achievement (MLA)** is a project developed by UNICEF and UNESCO in nearly 50 countries in areas of Literacy, Numeracy and Life Skills. The MLA is part of the [Education For All \(EFA\)](#) assessment.
- **The Southern Africa Consortium for Monitoring Education Quality (SACMEQ)**. Fifteen ministries of education in Southern and Eastern Africa share experiences, monitor and evaluate the conditions of schooling and the quality of education with technical assistance from UNESCO International Institute for Educational Planning (IIEP).
- **The Programme d'Analyse des Systèmes Educatifs (PASEC)**. Created in 1991, this programme aims to assess learning skills in Francophone Africa and Indian Ocean.
- **The Trends in International Mathematics and Science Study (TIMSS)**. Since 1995, TIMSS reports every four years on the achievement of fourth and eighth grade students. It is an international assessment of student achievement in mathematics and science involving more than 60 countries all around the world. The evaluations are organized around two dimensions, a content dimension specifying the domains or subject matter to be assessed (number, algebra, geometry, data, biology, chemistry, physics, and earth science) a cognitive dimension specifying the domains or thinking processes to be assessed (knowing, applying, and reasoning)...
- **The Progress in International Reading Literacy Study (PIRLS)** assesses the reading comprehension for students in their fourth year of formal schooling for 40 countries.
- **The Laboratorio Latino-Americano de la Evaluación de Calidad de la Educación (LLECE)**. Since 1994 with the support of UNESCO, the LLECE organises regional evaluations on teacher policies and pedagogical practices in the Latin America and Caribbean Region.

- **The Programme for International Student Assessment (PISA)**, collected for the first time in 2000, is a three-yearly survey of the knowledge and skills of 15-year-olds in the main industrialised countries. It assesses young people's capacity to use their knowledge and skills in order to meet real-life challenges and, specifically, assesses literacy in reading, mathematics and science. The assessments are conducted through students sitting pencil and paper tests in their schools. The students and principals of the schools also answer questions about themselves and their schools allowing analysis of the factors that influence good and bad performance.

Other sources of education data include:

- World Bank: [EdStats - Education Statistics Database](#)
- OECD: [Centre for Educational Research and Innovation \(CERI\)](#)
- European Commission: [Eurydice - European Network for Information in Education](#)
- UNESCO: [International Bureau of Education \(IBE\)](#)
- [International Labour Organization \(ILO\)](#)

Regarding the dissemination of education statistics, various international organisations publish education statistics for their member countries.

The [UNESCO Institute of Statistics \(UIS\)](#) has the mandate to monitor progress towards [Education For All \(EFA\)](#) and education-related MDGs. The statistics, which are updated twice a year, are used by diverse partners, including governments, donor agencies and other UN organizations. In particular, the UIS is the primary education data source for the [Education for All Global Monitoring Report](#), the [World Development Indicators](#) and the [Human Development Report](#).

The UNESCO Institute for Statistics' [Global Education Digest \(GED\)](#) presents a rich set of cross-nationally comparable data compiled by the UIS as well as information from household surveys and assessments of learning achievement that capture different dimensions of gender disparities. The GED also introduces several new indicators, such as the adjusted net intake rate and the adjusted net enrolment rate that have refined or replaced existing indicators as part of an ongoing effort by the UIS to ensure more reliable and accurate measures.

The OECD publishes on an annual basis [Education at a Glance: OECD Indicators](#) that enables countries to compare themselves in terms of other countries' performances. It provides a rich, comparable and an up-to-date array of indicators on systems and represents the consensus of professional thinking on how to measure the current state of education internationally.

Box 23.4: Case study: Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ)

The SACMEQ is an international non-profit developmental organisation of 15 Ministries (Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia and Zimbabwe) of Education in Southern and Eastern Africa.

The SACMEQ’s mission is “To undertake integrated research and training activities that will expand opportunities for educational planners and researchers to: (a) receive training in the technical skills required to monitor, evaluate, and compare the general conditions of schooling and the quality of basic education; and (b) generate information that can be used by decision-makers to plan the quality of education.” Two key targets are drawn from this mission statement. Firstly, the main target audiences for SACMEQ’s activities were “educational planners and researchers”. Second, the substantive content of SACMEQ’s activities was divided into two main areas: “training” (in technical skills) and “information generation” (for use by decision-makers).

The Evolution of SACMEQ and Its Research and Training Programmes have evolved over the past 20 years in harmony with the increased scope and complexity of the four research and training projects in which it has been involved. This evolution has four phases: (i) an “Innovate” phase (1989-1994) in which the IIEP worked with a single country on an innovative experimental educational research and training project designed to address a major educational challenge related to planning the quality of education; (ii) the “collaborate” phase (1995-2004) where the IIEP encouraged several countries in the same region to work together on a mutually beneficial multi-country replication of the earlier experiment that drew upon lessons learned; (iii) the “consolidate phase” (1995-2004) where the control of participating countries over the whole of the research and training process is strengthened; and (iv) Finally there was the “Launch” (began in 2005) phase in which the participating countries assumed overall control of research and training directions, and began to make their own professional decisions about who assisted them and how they were to be assisted.

The use of SACMEQ research and training resources by ministries, international organizations, bilateral organizations, universities, and individual researchers and planners is increasing. A couple of examples are presented below:

Use of SACMEQ By Ministries of Education. The research reports from SACMEQ’s first two educational policy research projects (see References) have been used extensively within the participating countries as a resource for education sector studies and as baseline information that can be employed in policy discussions and debates about the conditions of schooling and the quality of education. Murimba (2005), Nzomo and Makuwa (2006), and Oduol (2006) have provided reviews of the use of these reports by the SACMEQ Ministries of Education.

Use of SACMEQ by International/Bilateral Organizations. SACMEQ’s Data Archives and reports have been used by organizations such as UNESCO (2004; 2005; 2006; 2007; and 2008), the World Bank (2006), the Asian Development Bank (Hirosato, 2001), and the DFID Edqual Project (Yu and Thomas, 2007) in order to discuss and evaluate policy options related to the quality of education.

Use of SACMEQ by Universities. In 2005 the IIEP arranged seminar presentations for professors and graduate students in African universities in order to demonstrate how to use the SACMEQ Data Archive for the preparation of master theses and doctoral dissertations. Since that time there has been a steady flow of postgraduate work based on SACMEQ data at institutions such as the University of Bourgogne, Bristol University, the University of Cape Town, the University of Gothenburg, the University of Melbourne, the University of Pretoria, the University of Stellenbosch, the University of Western Australia, and the University of the Western Cape.

Use by Individual Educational Planners and Researchers. The SACMEQ Data Archive and SACMEQ Website are very popular with educational planners and researchers from many countries. Both of these resources contain valuable research data, research tools, publications, software, and training materials. It is estimated that hundreds of downloads of the modules have occurred – by users in universities, teachers colleges, and research units located in both developed and developing countries.

Source: Adapted from <http://www.sacmeq.org/about.htm>

D.23.4. Analysing data quality and identifying problems

The main education data used at the international level are national administrative data. These data are frequently combined with data from national surveys on educational institutions, compiled and further processed by international institutions. The quality of these data depend on several factors: the quality of national statistics received, as well as the quality of the internal systems for collection, processing, analysis and dissemination of the data and metadata. In addition, the comparability of education data may be impacted by differences between countries’ educational systems.

Each of these factors needs to be adequately addressed in order to obtain quality education statistics. While the first factor depends principally on the country, the second one relies on the relevant international institutions (OECD, UNESCO, World Bank, ...).

At the national level, the quality of education statistics is linked to the adequacy of national data sources and the

extent to which international data definitions and guidelines are correctly applied. Hence, the challenges of education statistics at the national level are three-fold:

- A mismatch between the coverage of the national sources and the ISCED definition;
- A difference between the school/academic year to which the statistics refer, the point in time that the data were collected and the date on which the count of students is taken, may all differ from the international requirements.
- National data item definitions (e.g. a teacher, a graduate, a programme) and their classifications (e.g. programme level, type of educational personnel) may be different to those required internationally.

Another challenge at the national level may come from the difficulty of comparability of the statistics over time for the following reasons: (i) changes in the educational system (such as the implementation of reforms that lead to an increase in the stock of students); (ii) changes in the coverage of the data collection (inclusion/exclusion of programs,...); and (iii) changes in the methodology used.

Box 23.5: The Education statistics Data Quality Assessment Framework

The UNESCO Institute for Statistics (UIS) has been working for several years in Africa on improving the Data Quality Assessment Framework (DQAF) for education statistics. The 'Education statistics Data Quality Assessment Framework' (Ed DQAF) has been developed by UIS and the World Bank, based on the IMF's generic DQAF structure. The Ed DQAF is used to diagnose data quality in education, evaluating the quality of countries' production and management systems for education statistics and the decision making information available on the education sector.

The Ed DQAF identifies practices relevant to assess quality, classifying them into dimensions, sub-dimensions and indicators. The six dimensions span the whole information value chain:

0. Pre-requisites of quality

Evaluation and understanding of the institutional context in which the statistical processes exist and which is essential to the other quality dimensions; how statistical laws, human resources and technical resources impact on other quality dimensions.

1. Integrity

Objectivity in the collection, compilation and dissemination of statistics. This covers institutional arrangements that ensure professionalism in statistical policies and practices, transparency, as well as ethical standards.

2. Methodological soundness

The methodological basis for statistics should be sound, following internationally accepted standards, guidelines and good practices. This is dataset specific, reflecting different methodologies for different datasets. This covers: concepts and definitions; scope; classification/sectorisation; basis for recording.

3. Accuracy and reliability

Whether data give an adequate picture of the education sector in the country. This is dataset specific, reflecting the specificity of the sources and treatments. This covers: source data; statistical techniques; assessment and validation of source data; assessment and validation of intermediate data and statistical outputs; revision studies.

4. Serviceability

To which extent statistics are useful for planning or policy purposes, referring mainly to periodicity, timeliness and consistency.

5. Accessibility

Data and metadata should be presented in a clear and understandable way and should be easily available to users. Metadata should be relevant and regularly updated. Assistance to users should be available, efficient and performed in a reasonable time.

Each practice is scored according to whether it is 'Observed'; 'Largely observed'; 'Largely not observed' and 'Not observed'.

UIS and the World Bank have developed a dedicated [Wiki](#) knowledge portal, with information about the UIS Education DQAF, covering statistical data quality in general and education data quality in particular. The Wiki contains a [presentation of the Ed DQAF framework](#), the methodology used to apply it ([UIS DQAF manual](#)), country validated reports, events, and a number of associated topics and references. The objective is to provide an interactive platform for anyone interested in contributing to the development of this repository of knowledge about the **Education DQAF** and the quality of education data in general.

Source: UNESCO Institute for Statistics' and the World Bank's 'Education statistics Data Quality Assessment Framework Wiki' [<http://www.poledakar.com/dqaf>]

Addressing the above-mentioned challenges is not an easy task and requires the implementation of several actions as follows:

- Ensuring that countries are provided with detailed data definitions and data reporting advice and guidance;
- Allowing for data collection tools to include sufficient disaggregated levels of sub-classifications in areas where it is known to be difficult for countries to provide the required data;
- Providing clear guidance on the reporting of missing data;
- Requesting the data providers, whenever possible, to provide metadata;
- Mapping countries' national educational programs to the ISCED levels;
- Including automated verification checks if the questionnaires are electronic;

D.23.5. Improving sector statistics

There is no rule-of-thumb for building a statistical action in the education sector of any developing country; in other words each country will have its own challenges, which will need to be addressed accordingly. Nonetheless, the overarching goal of any statistical task in the education sector should be to improve the quality, accuracy and timeliness of the statistics. In most developing countries, **Educational Management Information Systems (EMIS)** are established to collect, process and analyse statistical data on the educational system to improve planning within the sector and guide the formulation of educational policy reforms. Thus statistical actions in the sector should focus on strengthening the EMIS in order for the education statistics to meet the requirements of the end-users.

The design and implementation of an effective EMIS are expensive and complex. Thus, it is instrumental to take into consideration the needs of all the groups that will provide and/or use these statistics (Ministry of planning, Finance, regional and district education offices, donors and NGOs). To be effective, an EMIS should be driven by national needs and not donor requirements.

Education statistics provided by any EMIS should be timely and complete in order to ensure a good quality and for the data to be useful. Hence, there is a need to strengthen these EMIS. Several roadmaps can be implemented to improve education data collection. One of these roadmaps consists of the following steps:

1. Ensure the collection and analysis of educational data, as possible.
2. If not in place, establish a data collection unit within the education authority to co-ordinate data collection at all levels.
3. Assess the status of EMIS nationally. Consider any needed improvements and seek assistance as appropriate to strengthen national capacity in this area.
4. Conduct data analysis to produce indicators to guide policy makers and provide recommendations for practitioners to improve the quality of educational provision.
5. Educational authorities should seek, obtain and share statistical data concerning nationals

Box 23.6: Suggestions for the estimation of missing data

There are broadly five situations in which missing values might arise:

- **Data not collected for a variable:** It may be possible to generate an estimate by formulating assumptions with data available. For example, if the students' age distribution is not available but the grade distribution is, it is a logical to assume that all students in the same grade are of the same age.
- **Data not available for the desired level of aggregation:** A feasible approach may be to scale up the sub-national figures to national level using a scaling factor derived from a different, but related dataset. For example partial student enrolment numbers could be scaled up on the basis of student data from labour force surveys or from the results of an ad-hoc survey.
- **Data may be available only for certain sub-populations:** Similar to the previous situation where the same potential solution could be applied. For example, certain data may be available for public schools and government-dependent private schools but not for independent private schools and they could be scaled up as described above.
- **Data not available for the desired level of disaggregation:** For example, expenditures data may not be available for each level of education separately but can be apportioned to the corresponding levels based on student enrolments in the respective levels.
- **Data may not be available for the year of the data collection:** In this case, it may be possible to estimate the data on the basis of data from previous years.

In all cases, when choosing a technique to estimate missing data, thought needs to be given to the use to which the data will be put, particularly in indicator calculations. For example, using student numbers as a basis for estimating missing expenditure data would be inappropriate if the estimated expenditure data were then to be used calculate expenditure per student.

Specific data items which most commonly require estimation are: (i) Retirement expenditure (particularly in unfunded or partially funded schemes); (ii) Household expenditures on education (these are most commonly derived from national household expenditure surveys); (iii) Private employer expenditure on training of apprentices and other combined school and work-based training programmes.

Source: UNESCO Institute for Statistics' and the World Bank's 'Education statistics Data Quality Assessment Framework Wiki'

To find out more...**Methodology**

- UNESCO: [ISCED 2011 Operational Manual](#)
- OECD: 'Classifying educational programmes: Manual for the implementation of ISCED-97 in OECD countries' (1999) and the [OECD Handbook for internationally Comparative Education Statistics](#) (2004)
- SADC: [Regional capacity building strategy for EMIS in the Southern African Development Community](#) (draft; 2009)
- Conference of Ministers of Education of the African Union: [Plan of Action for the Second Decade of Education for Africa](#) (2006-2015)
- Asian Development Bank: [Administrative data sources for compiling Millennium Development Goals and related indicators](#) (reference handbook on using data from education, health and vital registration systems)

Data sources

- UNESCO: [Education For All \(EFA\)](#)
- UNESCO Institute for Statistics (UIS): [Database](#)
- UNESCO: [International Bureau of Education \(IBE\)](#)
- UNECA African Centre for Statistics: [StatBase data on education](#)
- World Bank: [EdStats - Education Statistics Database](#)
- OECD: [Centre for Educational Research and Innovation \(CERI\)](#) and [Online Education Database](#)
- European Commission: [Eurydice - European Network for Information in Education](#)
- International Labour Organization (ILO)
- International Association for the Evaluation of Educational Achievement (IEA)
- Southern Africa Consortium for Monitoring Education Quality (SACMEQ)
- Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS)
- Programme d'Analyse des Systèmes Educatifs (PASEC) des Etats et gouvernements membres de la CONFEMEN (Conférence des ministres en Education des pays ayant le français en partage)
- African Development Bank: [Country Education Profile](#)

Metadata

- UNESCO Institute for Statistics (UIS): [Glossary of education terms](#)

Classifications registries

- UNESCO Institute for Statistics (UIS): [International Standard Classification of Education \(ISCED\); ISCED 2011](#)

D.24

Health statistics



D.24. Health statistics

The chapter in brief

This chapter covers the full range of health statistics and their direct uses in indicators such as those of the SDGs. The relationship between data collection and policy formation is covered.

The chapter proceeds by using the SDG indicators and health accounts as the frameworks for health statistics publications and use. The chapter continues by covering administrative and survey-based statistics in some depth. The difficulties of coordinating health statistics collection and publication are also covered.

An example of improvement in the coverage of administrative health statistics is provided. A check-list to analyse statistical quality is shown. Indicators for improving health statistics are given. An example of the application of mobile telephone technology to data collection is provided.

D.24.1. Policy applications: what this data is used for

The health statistics presented in this chapter have a variety of uses, notably:

- Analysing the health situation of the people and identifying and quantifying health care activities and resources and the causes of death as a basis for policy preparation;
- Assessing the outcome of health policies;
- Enabling health expenditure to be distributed between regions so that people can have similar expectations for health and longevity;
- Ensuring output of health expenditure;
- Assessing links between health care and social structures to inform social policies;
- Assessing links between health and individual behaviour to inform public health education;
- Quantify, locate and monitor epidemics to provide early warning systems (locally, nationally and globally) and support emergency response;
- Providing information to vital statistics (birth and death recording) systems for population statistics (see [chapter D.22 on population statistics](#));
- Providing international comparisons through the Sustainable Development Goals indicators (see [section B.1.2](#));
- Preparing and monitoring sector health programmes.

This list shows that health statistics have a wide range of demands within health and social policy areas. Timely and relevant statistics are essential to formulate, implement and monitor health policy actions. In the absence of this data, it is easy to misdirect limited health funds. In many developing countries, the challenge to meet these policy needs is overwhelming. Other statistics collectors have intervened, such as donor-supported international agencies and charitable organisations. Therefore, an important policy objective regarding health statistics is to ensure effective coordination of the various interventions.

D.24.2. Concepts and definitions

D.24.2.1 OVERVIEW

Health statistics cover a wide range of health-related topics. These include life expectancy, health status, health and safety, health determinants (including lifestyle, nutrition, smoking, alcohol abuse), health resources and expenditure, health care systems, morbidity and mortality (including infant and child mortality), hospital admission, causes of illness and death, specific diseases (e.g. AIDS), disabilities, pharmaceutical consumption and sales, health personnel, remuneration of health professions, environmental health status, health inequality, health accounts.

The first basic type of health statistics consists of **administrative statistics**. These consist of the records produced in the course of admitting, treating and discharging patients from hospitals, doctors' surgeries and other health centres; and the records produced in the course of the management of health institutions.

Other health statistics are based on **health surveys**, directly collecting information about health status and determinants from a random sample of the target population.

As record keeping and data provision to statistics agencies improves, survey-based data tends to be replaced by statistics from administrative sources. However, even in developed countries, health surveys are rarely completely replaced. The two types of data sources are in principle complementary and can be used to validate other results.

Health indicators, such as life expectancy and child mortality, are usually based on a number of data sources. However, in low income countries, the data are often based on the results of single surveys, making these critically important to decision making. The best known of these in a global setting are the **SDG indicators**.

The System of Health Accounts (SHA) has been developed to analyse the adequacy of resource levels for health care and the way that those resources are used.

Box 24.1: Classifications and nomenclatures relevant to health statistics

The [International Classification of Diseases \(ICD\)](#) is the standard to categorize diseases.

The World Health Organization (WHO) has developed a [Handbook on monitoring and evaluation of human resources for health](#) and several other tools for monitoring and developing [human resources for health \(HRH\)](#). WHO uses 9 occupational categories for the health workforce (18 occupational categories are available for some countries, differentiating some categories according to skill level and specialization):

- physicians;
- nursing and midwifery personnel;
- dentistry personnel;
- pharmaceutical personnel;
- laboratory health workers;
- environmental and public health workers;
- community and traditional health workers;
- other health service providers; and
- health management and support workers, that is, those who do not provide services directly but are critical to the performance of health systems.

The [International Classification for Health Accounts \(ICHA\)](#), developed by the OECD, covers three dimensions of health care:

- Health care functions (ICHA-HC);
- Health care service provider industries (ICHA-HP);
- Sources of financing of health care (ICHA-HF)

in health levels of a population. The resulting statistics permit the study of disease rates in a specific cohort, geographic area, population subgroup, etc. to estimate trends in the larger population. The WHO [International Health Regulations \(IHR\)](#) require notification of health events defined by specific diseases and according to a set of criteria.

Biometric information and patient history information collected systematically from patients can be considered as part of the health administrative dataset.

The vital statistics system, based on the register of births and deaths, is a key potential source of administrative information on cause of death. However, this data source is rarely reliable in low income countries (see [section D.22.2](#)). Records of attended births and deaths in health facilities, especially hospitals, may be more reliable but cannot be used as unbiased indicators for the population as a whole.

Administrative health data are often combined with data from other sources, notably population data, to obtain indicators based on ratios. These ratios include number of doctors, community health workers or hospital beds available per 10 000 population, nationally or within a province / region. Health indicators may also be derived from combining two administrative data series, such as percentage hospital bed occupancy.

Health facility expenditure data, the source of financing of treatment and of facilities are key components of the national health accounts. This information may be drawn from administrative data sources, such as hospital financial records. National Health Accounts are discussed below in [section D.24.2.5](#).

The WHO [World Health Statistics Indicator Compendium](#) provides detailed definitions of the health related data series collected from national agencies, usually Ministries of Health, and used in its own publications. The preferred data sources and alternatives to them are identified.

In recent years, private health facilities in many low and middle income countries have greatly increased in number and in the range of treatments offered, from pharmacies through to hospitals. Facilities supported and organised by external non-governmental organisations may also consider themselves as operating outside the national health system. Data collection from these facilities may be difficult. Such difficulties were observed during data collection for Malawi's national health accounts, discussed in [Box 24.3](#) below.

Administrative data on health are primarily collected for current treatment and management of the health facility, not statistical analysis. This may lead to a number of problems for using these data for health statistics. Data definitions may not follow current classifications. Public health reporting systems may under-report infectious diseases and private institutions may not report at all. Transmission of data may not be consistent and timely. Health district boundaries may differ from provincial/regional boundaries and any location data may be insufficient to compensate for this. Ministry of Health

D.24.2.2 ADMINISTRATIVE DATA ON HEALTH

Administrative data on health consists of all the data that is regularly collected by hospitals and other health facilities. It covers data on the available beds and other medical facilities, the numbers of doctors and paramedical staff, the numbers of patients admitted, treated and discharged and records of births and deaths within health facilities. Records of cases of notifiable diseases and health situations are also included. These data are usually reported to the Ministry of Health or a similar agency, to provide information on health issues and for management purposes.

Health facility assessments cover the number of hospital beds and other health facilities in use. These data are often collected infrequently, such as annually, since changes are comparatively rare. Health staff numbers are also collected and classified: the numbers of doctors, dentists, nurses, paramedical staff, community health workers, pharmaceutical personnel and so on.

Hospitals and other health facilities maintain records of consultations / inpatient admissions, medical condition according to classification, length of stay and discharge.

Surveillance (sentinel) systems monitor the occurrence of specific medical conditions to assess the stability or change

officials may not have the skills to compile and validate the basic statistics nor to calculate indicators. In addition, the NSI may produce 'competing' publications to those of the Health Ministry.

Statistical analysis, particularly epidemiology, is a major use of administrative data. If these data are insufficient, incorrectly collated or not present, such analysis is not possible. Demands for increased statistical collection are both continual and costly, in developing countries as in developed countries. Nevertheless, examples of the successful analytic exploitation of administrative health data can easily be found. ⁽⁶⁹⁾

D.24.2.3 SAMPLE SURVEYS ON HEALTH

A number of international methodologies exist for sample surveys that include a major health component. In principle, the methodology of these surveys should be incorporated into the national practice, so that a nationally organised survey may follow the methodology. A major survey is ideally conducted once every five years. An interim survey is sometimes conducted, considering a specific issue and providing updated data.

- The WHO **World Health Survey** provides a global system of health surveys.
- **Demographic and Health Surveys (DHS)** aim to collect and disseminate accurate, nationally representative data on fertility, family planning, maternal and child health, gender, HIV/AIDS, malaria, and nutrition. Other surveys carried out by the Measure DHS programme include the **AIDS Indicator Survey** and subject specific surveys. Primary funding is from USAID; other donors include the UK DfID.
- **Multi-indicator cluster surveys (MICS)** are supported by UNICEF which assists countries in collecting and analyzing data on the situation of children and women. The MICS aim at enabling countries to produce statistically sound and internationally comparable estimates of a range of indicators in the areas of health, education, child protection and HIV/AIDS. The current survey round, MICS4, is carried out during 2009-2011. It aims at monitoring progress toward national goals and global commitments, including more than twenty of the Sustainable Development Goals (SDGs). MICS4 survey questions and modules are harmonized with DHS to ensure a coordinated approach to survey implementation, in order to provide comparability across surveys and to avoid duplication of efforts.

⁽⁶⁹⁾ For example, 'Cancer control in developing countries: using health data and health services research to measure and improve access, quality and efficiency' by Timothy P Hanna and Alfred CT Kangolle, BMC International Health and Human Rights 2010, 10:24

- The World Bank **Core Welfare Indicators Questionnaire (CWIQ)** survey contains only a limited number of health questions. The primary interest in this survey is in its frequency: it is intended for annual operation with a large sample size.
- The World Bank **Living Standards Measurement Study (LSMS)** aims to improve the type and quality of household data collected by statistical offices in developing countries. Specifically, the LSMS develops new methods. These monitor progress in raising levels of living, identify the consequences for households of past and proposed government policies, and improve communications between survey statisticians, analysts, and policy makers. The LSMS website provides:
 - tools to managers who would like to design new surveys
 - tools to users to help in the analyses of the household survey data
 - users with actual household survey data for analyses
 - links to reports and research done using LSMS data

A health module exists within LSMS. Relatively few recent LSMS-based surveys use this module but the ones that do can be identified from the website and the questionnaires, methodologies, results and analytic papers found.

- The population census (see [chapter D.22.](#)) is sometimes used to analyse health questions, notably death rates and causes of death. Although a useful source of data, the population census has a low frequency (usually once every ten years). Limitations on the census arise from a limited number of health questions (due to cost) and inherent difficulties in accurately recalling the dates of births and deaths.

The mission of the **International Household Survey Network (IHSN)** is to foster the improvement of the availability, accessibility and quality of survey data in developing countries. Furthermore, IHSN encourage the analysis and use of survey data by national and international development decision makers, the research community, and other stakeholders. Intermediate objectives to achieve these goals are:

- Improved coordination of internationally-sponsored survey programs, with emphasis on timing, sequencing, frequency and cost-effectiveness;
- Provision of harmonized technical and methodological guidelines by the international community, in particular related to data collection instruments;
- Availability of a central survey data catalogue to better inform users of the availability of survey and census data from all sources;
- Provision of tools and guidelines to data producers, to foster documentation, dissemination and preservation of microdata according to international standards and best practices.

The **Accelerated Data Program** (ADP) (see [Box 5.2](#)) provides technical and financial support to the documentation and dissemination of survey data and to the improvement of survey methods.

The **Global Fund to fight AIDS, Tuberculosis and Malaria** has commissioned a number of studies to evaluate the impact of its actions and those of its partners. This includes a study on country progress in the fight against AIDS, TB, and malaria, with special attention to health systems. This evaluation examined trends in health outcomes, coverage, and risk behaviour; access and quality of services; and funding. Data collection in eight countries included national health accounts, district facility censuses, household surveys, civil society organization surveys, record reviews, and follow-up studies of patients. Special efforts were made to evaluate data quality, analyze subnational data, and assess the state of health services. The evaluation report, methodology and data are presented in the website section of the **Global Fund's Technical Evaluation Reference Group**.

D.24.2.4 COORDINATION: HEALTH INFORMATION SYSTEMS

Some health policy objectives that require a coordinated system of health information can be stated as follows:

- o Manage available health resources efficiently and effectively to obtain measurable and comparable health outcomes throughout the country
- o Respond rapidly and appropriately to serious events
- o Communicate the national health status to international organisations and partners in a timely manner, especially about serious health situations
- o Prepare and monitor a sector health programme.

When health funds are limited, the case for a health information system is that scarce resources need to be directed to where they are needed in appropriate amounts.

A health information system aims to produce and disseminate a comprehensive national and local picture of the current health situation and its development. Coverage should include the immediate health priorities. The system should transmit health statistics that follow international standards to the relevant regional and global organisations in a timely manner, in particular on reportable diseases. The health information system should be sustainable, both technically and in terms of resources.

In operation, a health information system needs to present information from different sources consistently. Information needs to be available at national or at area level – the locality or area needs to be clearly defined. Data should be as up to date as users reasonably require. The need for consistency and to communicate with international organisations and

partners means that statistics must be compatible with international standards.

'Country health information systems include a range of population-based and health facility-based data sources. The main population-based sources of health information are census, household surveys and (sample) vital registration systems. The main health facility-related data sources are public health surveillance, health services data (also sometimes referred to as health management information system or routine health information system) and health system monitoring data (e.g. human resources, health infrastructure, financing). Lastly, national health accounts can provide a comprehensive picture of health financing. ⁽⁷⁰⁾

Health statistics are produced by both administrative sources and from surveys. The classifications used, for example classifications of diseases, need to be compatible between these two types of data sources. Geographical definitions also need to be aligned. For example, health districts often do not coincide with the regional or provincial boundaries that are used to report survey results. This is because health districts are often designed to reflect the catchment area (current or historic) of a health facility. Statistics need to be disseminated on a compatible geographical basis, preferably following legal boundaries, such as provinces or regions.

Data from externally financed surveys that are not integrated into the national survey programme also need to be incorporated into a health information system.

In administrative terms, the Ministry of Health or a related agency usually collects administrative data, while survey statistics are usually the responsibility of the NSI. Effective communication and a clear and agreed division of responsibilities between the two organisations may require formal coordination. The minimum aim is to publish a single set of data on each topic. The next step is to coordinate so that data from different sources are published using the same classifications, so that comparable at the national level.

The World Health Organization (WHO) has reported on the work of a Health Metrics Network that has produced case studies and standards for health systems performance monitoring ⁽⁷¹⁾. Further, the WHO has approached the issue of developing a common monitoring and evaluation framework for strategies to strengthen national health systems, working through a **country health systems surveillance (CHeSS)** platform. This aims to improve availability, quality and use of data needed to monitor health progress and performance and inform country health sector reviews and planning processes. There are five components to this strategy, two of which concern health statistics:

⁽⁷⁰⁾ World Health Organization <http://www.who.int/healthinfo/systems/en>

⁽⁷¹⁾ <http://www.who.int/healthinfo/systems/healthsystemmetrics/en/index.html>

- o Support for country health “observatories” in which data from all relevant sources are publicly accessible and synthesized to monitor the country health progress and performance;
- o Harmonization and alignment of global partners with the CHES platform

The **System of Health Accounts (SHA)** (see [section D.24.2.5](#), below) is designed to compare health care expenditure data among countries. As shown in the case study in [Box 24.3](#), implementing a national health account in a low income country requires the analysis of health statistics from all sources and clearly illustrates the difficulties in obtaining and comparing data. In this respect, the SHA can be regarded as an important element of the framework for health care statistics.

What should be clear from this discussion is that a health information system is not necessarily a computer-based system that collects and disseminates data from and to local health offices, although this is the ideal. At its most basic, it is an approach that aims at delivering a consistent indicator set that can be used to monitor a health system or plan and implement a sector health plan, at national or local level. Coordination between statistics producers and users is the key element.

D.24.2.5 HEALTH STATISTICS AND THE SDG INDICATORS

Data, definitions, methodologies and sources on the SDG indicators can be found at the [Sustainable Development Goals Indicators](#) website. This was developed by the Inter-Agency and Expert Group (IAEG) on SDG Indicators and coordinated by the United Nations Statistics Division. (See [chapter B.1.1](#).)

A good presentation of child health statistics in the context of these indicators can be found in the [presentation of Hans Rosling to the 2010 TEDxChange conference](#).

As with other SDG indicators, data on the global website may not match national data on the same indicators. This situation can arise for a variety of reasons. These include delays in transmitting data and metadata; non-acceptance of the survey methodology by the global agency; differences in indicator definition and methodology; and adjustments made by global agencies in the interest of comparability. In this kind of situation, conflicting viewpoints often arise. It is usually necessary to analyse the difference in each indicator on a case by case basis. In some situations there is no resolution, since the country can make a good case that its own indicator definition better represents the evolution in the SDG target. At the same time, the global agency is required to ensure comparability between countries.

[Box 24.2](#) presents the SDG health-related goals, targets and indicators, together with some surveys that potentially can be used as data sources. This table is based on an initial analysis performed in 2006, updated to reflect recent developments in the methodology and scope of these surveys. The paper from which this overview is drawn aimed to illustrate the importance of sample surveys data. The lack of coverage of indicator 6.1 on HIV/AIDS should be understood as underlining the importance of the targeted surveys such as the [Measure DHS AIDS Indicator Survey](#) and the surveys carried out by the [Global Fund to fight AIDS, Tuberculosis and Malaria](#).

D.24.2.6 SPENDING ON HEALTH: SYSTEM OF HEALTH ACCOUNTS

The **System of Health Accounts (SHA)** has been developed by the OECD. Its purpose is to analyse the adequacy of resource levels for health care and the way that those resources are used in order to answer questions such as:

- o What are the main drivers accounting for health expenditure growth?
- o What factors explain the observed differences between countries?
- o What are the main structural differences in health spending between countries?
- o How are changes in the structure of health spending and performance of health systems related?

Other issues include the need to monitor the impact of rapid technological change, the influence of the private sector and the provision of care to an ageing population.

To respond to the needs of policy-makers and researchers for more detailed and comparative information on health care expenditure, the OECD '[A System of Health Accounts \(SHA\) manual](#)' provides a standard framework for producing a set of comprehensive, consistent and internationally comparable accounts. It is aimed at the needs of public and private-sector health analysts and policy-makers. Since 2005 Eurostat, the OECD and the WHO are collecting annual health care expenditure data following a Joint Questionnaire that is based on the SHA 1.0 manual.

In order to improve and adapt that manual to user needs the three international organisations formed an International Health Accounts Team (IHAT) and revised that SHA manual by March 2011. The pre-edited version of that revision is available as [Version 2.0 of the System of Health Accounts](#) on the IHAT-OECD website.

Box 24.2: Health-Related SDGs, targets, indicators and survey data sources

	IS/ LSMS	DHS	MICS	CWIQ	PC
Goal 3: Ensure healthy lives and promote well-being for all at all ages					
Target 3.1: By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births					
3.1.1 Maternal mortality ratio	⊙	●	●	○	●
3.1.2 Proportion of births attended by skilled health personnel	○	●	●	⊙	○
Target 3.2: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births					
3.2.1 Under-five mortality rate	⊙	●	●	○	●
3.2.2 Infant mortality rate	⊙	●	●	○	●
Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases					
3.3.1 Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations	○	⊙	○	○	○
3.3.2 Tuberculosis incidence per 1,000 population	⊙	○	○	○	⊙
3.3.3 Malaria incidence per 1,000 population	⊙	○	○	○	⊙
3.3.4 Hepatitis B incidence per 1,000 population	○	○	○	○	⊙
3.3.5 Number of people requiring interventions against neglected tropical diseases	⊙	○	○	○	⊙
Target 3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being					
3.4.1 Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease	⊙	○	○	○	○
3.4.2 Suicide mortality rate	○	○	○	○	○
Target 3.5: Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol					
3.5.1 Coverage of treatment interventions for substance use disorders	○	○	○	○	○
3.5.2 Harmful use of alcohol, defined according to the national context as alcohol per capita consumption	○	○	○	○	○
Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents					
3.6.1 Death rate due to road traffic injuries	○	○	○	○	○
Target 3.7: By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes					
3.7.1 Proportion of women of reproductive age who have their need for family planning satisfied with modern methods	○	●	●	○	○
3.7.2 Adolescent birth rate (aged 10-14 years; aged 15-19 years) per 1,000 women in that age group	⊙	●	●	⊙	●
Target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all					
3.8.1 Coverage of essential health services	⊙	●	●	⊙	●
3.8.2 Number of people covered by health insurance or a public health system per 1,000 population	○	○	○	○	○

Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination					
3.9.1 Mortality rate attributed to household and ambient air pollution	○	○	○	○	○
3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene	○	○	○	○	○
3.9.3 Mortality rate attributed to unintentional poisoning	○	○	○	○	○
Target 3.a: Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate					
3.a.1 Age-standardized prevalence of current tobacco use among persons aged 15 years and older	○	○	○	○	○
Target 3.b: Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all					
3.b.1 Proportion of the population with access to affordable medicines and vaccines on a sustainable basis	⊙	●	●	⊙	○
3.b.2 Total net official development assistance to medical research and basic health sectors	○	○	○	○	○
Target 3.c: Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States					
3.c.1 Health worker density and distribution	⊙	○	○	○	○
Target 3.d: Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks					
3.d.1 International Health Regulations (IHR) capacity and health emergency preparedness	⊙	○	○	○	○
Key:					
●	Indicator can be measured with this survey				
⊙	Indicator can be measured with this survey but changes to methodology may be required				
○	Indicator would not normally be measured with this survey				
IS/LSMS	Integrated Survey/Living Standards Measurement Survey (World Bank)				
DHS	Demographic and Health Survey (USAID / MeasureDHS)				
MICS	Multiple Indicators Cluster Survey (UNICEF)				
CWIQ	Core welfare indicators survey (World Bank)				
PC	Population and Housing Census				
Source: 'An Accelerated Data Program Building on the Marrakech Action Plan for Statistics' by Dupriez and Fantom (Forum on African Statistics Development (FASDEV-II), 2006)					

The SHA manual establishes a conceptual basis of statistical reporting rules that are compatible with other economic and social statistics. It proposes an [International Classification for Health Accounts \(ICHA\)](#), which covers the three core classifications used in the SHA: who pays (financing agents), for which goods and services (functions of health) and who produces these services (providers):

- Health care functions (ICHA-HC);
- Health care service provider industries (ICHA-HP);
- Sources of financing of health care (ICHA-HF)

The [World Health Organisation](#) produces its own methodological guidelines and comparable estimated National Health Accounts (NHAs) for most countries in the world, using the most recently available data. The website contains a '[Guide to producing national health accounts:](#)

[with special applications for low-income and middle-income Countries](#)'. Methodology and data are presented for specific Reproductive Health Accounts as sub-accounts of national health accounts. Further technical support for developing NHAs is available from the [WHO Africa regional office website](#). A case study of the application of the NHA framework in Malawi is presented in [Box 24.3](#).

The NHA framework allows for further analysis of funding flows by disease and by intervention clusters. These analyses are of particular interest in developing countries where they permit the analysis of malaria and HIV/AIDS and reproductive health, child health care, etc., respectively.

Box 24.3: Health financing in Malawi: Evidence from National Health Accounts

This case study summarises three national health accounts exercises covering financial years 1998/99 to 2005/06. It describes the flow of funds and their uses in the health system and derives recommendations relevant to a comprehensive health financing policy and strategic plan. The methodology was based on SHA as presented in the WHO 'Guide to producing national health accounts: with special applications for low-income and middle-income Countries'.

The study describes the data sources used in the National Health Accounts exercises:

1. All the public sector institutions providing and receiving health funds, and providing health care goods and services. The interviews were complemented with secondary data collection from government budget books, consolidated annual appropriation accounts, audited accounts, expenditure print-outs and ledgers.
2. Since no database exists for donor expenditures on health, a special donor survey was undertaken to capture donor contributions for health.
3. A list of all NGOs, community based organisations (CBOs) and implementing agencies working in the health sector and HIV/AIDS sub-sector was obtained and reviewed. Key informant interviews were used to select a total of 120 NGOs/CBOs.
4. Data on employer and employees premium contributions to the only non-profit health insurance organisation was obtained using a specially designed questionnaire.
5. Employers and employees in Malawi contribute to health expenditures through provision of on-site health facilities; reimbursements to employees; employer/employee contribution to an outside health insurance scheme; and in-house health insurance scheme. A list of companies was obtained from the Malawi Chamber of Commerce. Key informant interviews were held and a comprehensive list of all firms involved in health and HIV and AIDS financing and delivery was prepared.
6. Surveys of purposely selected providers by different levels of care, ownership and region were carried out to collect information on utilization of services. Surveys covered HIV/AIDS, reproductive health and child health (children age 0-5 years) and expenditure figures by source of finance/financing agent and function.
7. In order to estimate household out-of-pocket spending, national Integrated Household Survey results for 2004/05 were used. The figures were distributed to providers and functions using the household health expenditure and utilization survey of 2000.
8. A 'People Living with HIV/AIDS' (PLWHA) survey was conducted, targeting confirmed HIV positive persons in Malawi age 15 years and older at the time of the survey. The major types of information obtained included utilization of health care services, household assets and expenditures for inpatient and outpatient care. Location sampling was used to identify the target population. The locations identified for the survey were: (a) PLWHA receiving anti-retroviral drugs in health centres and hospitals; and PLWHA receiving prevention of mother-to-child transmission treatment. A sample of 900 individuals throughout the country was selected.

Data sources often provided conflicting data, requiring value judgments to be made. The response rate from donors and NGOs was poor and other sources were used to estimate their spending. Essential data on outpatient visits and inpatient admissions data by disease and facility type were unavailable in the national Health Management Information System (HMIS). Indicators such as bed occupancy rates, average length of stay, bed turnover rates, utilization by age, gender, type of facility-central hospital, district hospital, health centres are not reported to HMIS. It did not contain data by private-for-profit health sector.

Funding and health services delivery are integrated at health facility level, making it difficult for providers to disaggregate expenditures by source, function (curative, rehabilitative, ancillary services etc.) and disease type, e.g. HIV/AIDS. Most for-profit facilities were unwilling to provide expenditure and revenue data. Data on reported cause of morbidity or care seeking, number of bed days, discharge etc. were available in patient registers but were in a poor state.

Source: "Health financing in Malawi: Evidence from National Health Accounts" by E. Zere, O. Walker, J. Kirigia, F. Zawaira, F. Magombo and E. Kataika (BMC International Health and Human Rights 2010, 10:27)

D.24.3. Sources of data and metadata

The [World Health Organisation](#) is the primary global source for comparable country health data. The WHO Statistical Information System (WHOSIS) has been integrated into the [Global Health Observatory \(GHO\)](#). In addition to the WHOSIS database and the World Health Statistics Report, the WHO also produces its own methodological guidelines and comparable estimated national health accounts for most countries in the world. WHO data may not replicate data from national sources, as common methodologies are applied to ensure data comparability. There may also be delays in transmitting and analysing new data.

Measure DHS provides a website that details current and past [Demographic and Health Surveys](#) and related surveys that have covered most developing and transition countries. This is a primary resource for country level health data.

The [UNICEF ChildInfo](#) website provides statistics from the Multi-Indicator Cluster Surveys (MICS) and other data related to child and maternal health.

Comparable indicators, definitions, methodologies and sources on the SDGs can be found at the [Sustainable Development Goals Indicators](#) website.

Eurostat's health statistics provide a guide to the types of data and indicators that can be made available. In particular, Eurostat, the OECD and the World Health Organisation (WHO) are collecting data on health care expenditure statistics based on SHA 1.0 as well as on health care non-monetary data on health care employment and physical and technical resources via Joint Questionnaires. [Box 24.4](#) summarises Eurostat's main health statistics datasets and publications as a guide as to what can be made available.

Box 24.4: Eurostat health statistics

The objective of the [Eurostat health statistics](#) is to ensure high quality and comparability of health data for evidence-based policy decisions at EU level. Eurostat's health statistics are divided in the main domains Health status and determinants, Health care, Disability, Causes of death and Health and safety at work. These domains contain free datasets and pre-defined data tables.

The Statistics explained article [Healthcare expenditure statistics](#) presents data according to the three core classifications used in the System of Health Accounts, i.e. who pays (financing agents), for which goods and services (functions of health) and who produces these services (providers). It is based on a joint EUROSTAT/OECD/WHO questionnaire on current health expenditure.

The [Atlas on mortality in the European Union](#) describes mortality by age and gender, by main causes of death and by 272 regions of the EU Member States, Candidate countries (except Turkey) as well as EEA/EFTA countries. The methodology chapter of the 'Atlas on mortality in the European Union' bears reading; it underlines the difficulties in achieving complete, timely, comparable health data even in developed countries.

D.24.4. Analysing data quality and identifying problems

Amongst others, the quality of data depends on the coverage, the timeliness of the published figures and their compliance with the agreed methodology (see [section C.5.3](#) on statistical quality). For comparisons and analyses, international standards and classifications should be respected.

The potential problems with health surveys are the same as social surveys generally. The most common problem is a lack of timeliness; the data takes too long to collect, process and publish, so that the data is no longer current when it finally appears. This is often the result of a poorly planned survey. Common problems include:

- Logistics problems slow the sending out and return of questionnaires;
- Questionnaire design gives rise to coding problems;
- Data entry and validation is not matched to questionnaire arrival;
- Insufficient budget exists to disseminate the results.

A badly drawn sample often is coupled with an excessive sample size at province/regional level and for target groups, resulting in too high survey costs. The number of people who are able to design an efficient and effective sample is often limited in developing countries. One good indicator of a well designed sample is a clear methodological text.

In administrative health statistics in developing countries, problems may include some or all of the following:

- Non-adoption of current international definitions and classifications;
- Incomplete returns from health facilities, especially private companies and in particular concerning notifiable illnesses;
- Insufficient process management to ensure full data coverage;
- Key indicators not calculated;
- Limited and late publication of basic tables without analysis;
- 'Competitive' publications of different data for the same series

The fundamental problems are usually:

- Lack of capacity to manage data collection and processing effectively;
- Lack of capacity to identify, prepare, present and analyse key indicators;
- Lack of formal coordination between the health and statistics institutes.

Coverage of the private health sector, such as clinics and pharmacies, is also of considerable importance for the completeness and information value of the statistics. This will require an effort to explain the use of the statistics and the safeguards put in place to protect respondents. Achieving a good quality response from the sector will also usually require the existence of effective sanctions for non-response.

A key quality issue is that the NSI at least implements basic credibility and consistency checks on the data between different sources. In particular, classifications, methods and coverage should be compatible between the organisations that collect these different data.

Externally financed surveys that are not integrated into the national programme complicate the situation further (although in some cases they may use NSI resources to carry out the survey). The epidemiological and/or social justification for such surveys may mean that they cover only a part of the country. The geographical units used may not match regional / provincial boundaries and there may be little or no attempt to improve statistical capacity. On the other hand, the resulting data may be more accurate and timely than official figures. From the perspective of the organisation carrying out the survey – especially if the funds are charitable donations – the survey can only be carried out cost-effectively if it focuses on the target region. Their responsibility is to produce an analysis to address their mandated priority issues and not address general health statistics issues for the nation. Such organisations may make efforts to coordinate with Ministry of Health and NSI officials but may not be prepared to make a costly effort to do so. At worst, this lack of coordination can result in non-comparable data being published outside of the country concerned and not being readily accessible for purposes other than the direct objectives of the survey.

D.24.5. Improving sector statistics

The key system objective is to produce a consistent set of health indicators that can be used to monitor a health system or plan and implement a sector health plan, at national or local level. The means by which this data can be delivered are through the development of a health information system and its major component, a national health account. The usual major difficulty is in coordinating the various health statistics producers and users around a common system that uses international statistical standards and classifications and common geographical boundaries. This approach can provide the framework for coordinating and improving surveys, making administrative data more useful and integrating data from censuses and improved vital statistics systems.

The basic quality criteria is whether the statistics are 'fit for use', in other words whether they meet the information needs of the users. Interventions should address any critical points in the data chain, from data collection and processing to the publication of statistics. (See also [section C.5.3](#) on the concepts of statistical quality).

An efficient use of resources requires that data collections are not duplicated. It is therefore vital to establish a close cooperation between the institutions concerned. Whether the NSI should publish statistics based on the administrative data or the health administration should publish the data themselves depends on the structure of the national statistical system (see [chapter C.5](#)). A formal service-level agreement or memorandum of understanding, especially for statistical activities not covered by legislation, is often necessary to align the interests of the two services.

Given the needs for effective inter-ministerial coordination, there must be a clear demand and support for improved health statistics. It may be that the increased demand for health statistics is brought about by decentralisation of decision making, meaning that the data will need to reflect provincial / regional boundaries. Normally, such undertakings will be identified in the National Strategy for Development of Statistics (NSDS), as described in [section C.6.1.2](#), and resources planned accordingly.

Sufficient capacity to produce and disseminate the improved statistics will be needed. This entails, in addition to the means of communication between the health and statistics authorities, a structure within the Ministry of Health that is responsible for statistics and planning, including an appropriate number of trainable staff and their training.

Improving localised data according to political boundaries will require knowledge of the location of health facilities as well as good information about the location of the population, usually drawn from the population census. Information will also be needed about the residence of patients using the health facility, normally drawn from their administrative records. A GIS system can be used to manage, map and provide excellent dissemination products for all of this information, and is being considered in several developing countries (see for example the NSDS of Ethiopia). However, in many countries consistent management of GIS data will be a further challenge to a limited numbers of skilled personnel; other solutions are possible and should be considered.

The key issue in developing a programme of improvement will be to involve the users in determining the key indicators and thus the key data to be collected and developed. At the same time, international demands for core data and indicators according to standard classification must be met, in particular the demands for data for the SDG indicators. This prioritisation exercise should produce a medium term plan for developing sector statistics, e.g. as part of the NSDS.

One way to execute this plan in the area of administrative statistics is to focus on achieving progressive improvements in a core statistics publication, such as a yearbook. This approach would focus on improving data collection and thus the number of facilities reported on, as well as improving data compilation and tabulation. This procedure should be planned to improve the identification of location, so that provincial / regional statistics can be published. Basic indicators and graphs are presented in a summary document.

Such an approach leaves the preparation of further indicators and graphs and the consequent analysis to a later stage. The improvements would be accompanied by widespread dissemination of the results by internet and on CD-ROM. An example of implementation of such a strategy was the [development of health statistics in Burkina Faso](#) through the EDF programme ARC-SSN.

As with any social survey, some basic requirements need to be respected in improving health survey statistics:

- The survey outputs – the tables and graphs of results – need to be discussed and defined with stakeholders at the start of the process;
- The sample needs to be defined correctly to enable the results to be statistically valid, especially at sub-national level or for specific target groups. A risk exists in many countries of defining an excessively large and costly sample size that nevertheless may not deliver statistically valid results at sub-national level or for target groups. Nevertheless, social distinctions and target groups often need to be taken into account in designing the sample;
- The international classifications described in [Box 24.1](#) should be respected;
- Localised results should be planned to the extent that these can be realised by an affordable and feasible survey plan. Preferably, results should be presented according to regional / provincial government boundaries;
- The survey plan, processing and associated logistics need to be designed, costed and presented as part of the survey preparation;
- A training plan should accompany the survey plan;
- Budget for dissemination of results needs to be included in the survey preparation;
- Responsibility for release of the results should be clearly defined to lie with the agency responsible for the survey, rather than at a political level.

Box 24.5: Using new technology

The [KoBo project](#), based at University of California Berkeley Human Rights Centre, has developed Mobile Technology for Secure Data Collection. Originally developed for interviewing the population in post-conflict zones, the technology has been applied to health related surveys such as the impact of impact of water access on waterborne disease prevalence in Ghana.

The [Demographic and Health Survey](#) (DHS) has long used GPS to identify the location of health facilities, for example. Local interviewers are being trained to use hand-held GPS units to collect geographic coordinates in the field, indicating the location of surveyed communities and/or health facilities. Using GIS, DHS data can be linked with routine health data, health facility locations, local infrastructure such as roads and rivers, and environmental conditions. Linked DHS and geographic data are e.g. being used to improve planning for family planning interventions, to assess the correlation of malaria prevalence and anaemia in children in West Africa, and to analyze the effects of environment on early childhood mortality.

Localising information is a very desirable element of a health information system. Geographical Information Systems can make health information more useful at the local level if they are applied correctly and continuously. An interesting survey of health oriented GISs can be found in the paper 'Software Programs for Mapping and Spatial Analysis in Epidemiology and Public Health'. The paper originally appeared in [Epidemiological Bulletin](#), Vol. 25 No. 4, December 2004.

To find out more...**Recent and current initiatives and activities**

- OECD: [System of Health Accounts \(SHA\)](#)
- WHO: [National Health Accounts \(NHAs\) and the 'Guide to producing national health accounts: with special applications for low-income and middle-income Countries'](#)
- The [International Household Survey Network \(IHSN\)](#)
- The [Accelerated Data Program \(ADP\)](#)
- Hans Rosling: [Child health statistics in the context of the MDG indicators](#) (video)
- [Forum on African Statistical Development \(FASDEV II\)](#) (2006)

Further strategies and methodologies

- WHO Africa regional office: [National Health Accounts](#)
- WHO: [Country Health Systems Surveillance \(CHeSS\)](#)
- WHO: [World Health Statistics Indicator Compendium](#)
- Eurostat: [Health Statistics](#)
- World Bank: [Core Welfare Indicators Questionnaire \(CWIQ\)](#)
- World Bank: [Living Standards Measurement Study \(LSMS\)](#)
- [Global Fund to fight AIDS, Tuberculosis and Malaria](#)
- WHO: [Handbook on monitoring and evaluation of human resources for health](#); regional health workforce observatories include e.g. the [Africa Health Workforce Observatory](#), the [Eastern Mediterranean Region Observatory on Human Resources for Health](#), the [Latin America and Caribbean Observatory of Human Resources in Health](#) and the [Observatorio Andino de Recursos Humanos en Salud](#)
- Asian Development Bank: [Administrative data sources for compiling Millennium Development Goals and related indicators](#) (reference handbook on using data from education, health and vital registration systems)
- Health Metrics Network and PARIS21: ['HMN and PARIS21 working together'](#) (leaflet)

Data sources

- WHO: [Global Health Observatory \(GHO\)](#) and its [global database](#), incorporating the WHO Statistical Information System (WHOSIS), the [World Health Statistics report](#), [World Health Survey results](#) and [World Health Report](#)
- Measure DHS: [Demographic and Health Surveys \(DHS\)](#) and [AIDS Indicator Survey](#)
- UNICEF: [Multiple Indicator Cluster Surveys \(MICS\)](#) results
- [Millennium Development Goals Indicators website](#)
- The [Eurostat health statistics portal](#)
- [Global Fund to fight AIDS, Tuberculosis and Malaria: Technical Evaluation Reference Group](#)

D.25

Income and consumption statistics



D.25. Income and consumption statistics

The chapter in brief

Income and consumption statistics tell how people earn and use their money. Though the concept could be put that simple it should not disguise the complexity of the process necessary to collect information on or monitor household income and consumption.

From the income side, these statistics include simple concept like salary or regular pays to individuals. It is intuitive that payroll and light household surveys could be used to collect this information. But they also cover statistics on transfers received and paid from/to other households, government at central and sub-national levels, or nongovernmental organisation such as Non Profit Institutions Serving Household. Accuracy of these data requires specific instruments for their collection and validation.

Within the borderlines between income and consumption analysis these statistics are more elaborate indicators on income/expenditure-based measures of poverty, consumer protection, and household consumption patterns. They inform policy makers on social distribution of economic wealth of a country. For their comparability over time and space, main issues in these areas are definition, methodology and consistency.

From the consumption side emphasis is put in this chapter on how households acquire and consume goods and durables. The chapter finally presents statistical measures of the gap between income and consumption. That is household wealth when there are leftover resources after consumption and debts otherwise.

Beyond the conceptual framework for collecting statistics on household income and consumption, this guide presents available data sources, addresses data quality issues and provides ways and means to improve income and consumption statistics. [Chapter D.21](#) of this *Guide* covers the related topic of living conditions and poverty.

From purely conceptual point of views, statistics on household income can be approached from the standpoint of its use for policy analysis as the best proxy for economic well-being of individuals and households. That is in terms of those receipts that contribute to economic well-being of individuals by increasing their potential to consume or to save. Emphasis is then on those receipts that individuals consider as being of direct benefit to themselves as well as on the distribution of income across households.

A different perspective is from the aggregated macroeconomic level, e.g. within the system of national accounts where the total income accruing to households is described in relation to other aggregate components of this system. ⁽⁷²⁾

While undoubtedly there are several overlaps between these two perspectives, there are nevertheless important differences arising from their different objectives and methodologies. Users of statistics, especially decision makers are invited to bear these differences in mind while acting in light of income and consumption statistics.

Whatever the perspective, trends in economic analysis show that developing countries are often characterized by uneven distribution of income within the country and generally fairly low average income levels compare to others. For example, empirical data from a case of Philippines indicated that distribution of income and consumption by families in the country appeared to be stably unequal over a generation. ⁽⁷³⁾

D.25.1. Policy applications: what this data is used for

Decision makers at all levels, whether national, regional or international, need information on their people well-being. They use it to address issues related to economic and social conditions, and shape the future of communities. More specifically, for policy formulation and evaluation purposes, statistics on income and consumption inform on the magnitude and structure of household resources and expenditures.

Consumption expenditure statistics are necessary for monitoring and evaluation of national policies related to poverty alleviation and effectiveness of household related information system, business orientation and wealth distribution. They are the base for measuring inflation in economies and estimating purchasing power of national currencies. Household consumption expenditures give important signals on future trends in economic opportunities in a country.

D.25.2. Concepts and definitions

This guide retains the definition of the [Canberra Group](#) for which income includes all payments received by individuals as a result of their current or former involvement in paid economic activity or self-employment. Conceptually three principles usually discussed in connection with the definition of income for a specified reference period are:

1. Receipts should be expected to recur regularly to be considered as "income";
2. To be considered as "income", receipts should contribute to current economic well-being – Receipts deferred for future uses are savings or investment;
3. Receipts arising from a reduction in net worth should be excluded from the concept of income. ⁽⁷⁴⁾

In another concept from an economic theory referred to as the Haig-Simons', income is defined as the sum of consumption expenditure and change in net worth in a period.

⁽⁷²⁾ Reference: [1993 System of National Accounts \(1993 SNA\)](#)

⁽⁷³⁾ As reported in a study by Albert Berry from University of Toronto, Canada entitled [Income and Consumption distribution trends in the Philippines, 1950 – 1970](#).

⁽⁷⁴⁾ Cf. ILO Report II of the Seventeenth International Conference of Labour Statisticians held in Geneva, 24 November-3 December 2003 on [Household income and expenditure statistics](#).

The **System of National Accounts (SNA)** has recommendations on the definition of income for use in preparing national accounts (see [chapter D.11](#) for more information on national accounts). In the **1993 SNA** version, the proposed definition of disposable income is *“the maximum amount that a household or other unit can afford to spend on consumption goods or services during the accounting period without having to finance its expenditures by reducing its cash, by disposing of other financial or non-financial assets or by increasing its liabilities”*.

The **Eurostat draft manual on income measurement** adopts the definition of income proposed in the Canberra Report: *“In broad terms, income refers to regular receipts. ... Large and irregular receipts from inheritances and the like are considered to be capital transfers because it is unlikely that they will be spent immediately on receipt and are ‘one-off’ on nature.”*

The **Organisation for Economic Co-operation and Development (OECD)** considers household consumption as the use of personal or family income and revenue from investment and pecuniary activities. In a more practical way, from household perspective, the income concept refers to the one of **equivalent disposable household income** per individual. The income unit is the household, defined as a group of persons sharing a set of common resources. Incomes are recorded on an annual basis and all possible types of cash income have been grouped into four categories:

4. Gross earnings: the salary income of the household from dependent employment (excluding employers' contributions to social security, but including sick pay paid by social security).
5. Gross capital and self-employment incomes: financial gains, real estate rents, occupational pensions and all kinds of private transfers as well as self-employment incomes (but not including imputed income from owner occupation).
6. Social security transfers: all kinds of cash transfers from public sources.
7. Taxes: direct income taxes and employee social security contributions paid by households.

Household disposable income is defined as total market income (i + ii) plus transfers from general government (iii), less income taxes and social security contributions (iv). In the next paragraphs of this chapter we will provide detailed definition on these concepts at macro and household economics levels.

D.25.2.1 GROSS DOMESTIC PRODUCT, INCOME AND EXPENDITURE APPROACH

In macroeconomics perspectives the size of the economy can be estimated in many different ways. The two most popular methods for the computation of the Gross Domestic Product (GDP) are the Aggregate Expenditures Approach and the National Income Approach.

The Expenditures approach measures national output (GDP) indirectly by estimating how the GDP is purchased. As such the major purchasers of goods and services are: households,

businesses who buy capital goods and equipment, government, and the world economy.

Households buy final goods and services, and these purchases are categorized as consumer purchases. Businesses buy many intermediate goods and services to make the final goods and services that households, government, other businesses, and the world economy buy. This is intermediate consumption (C).

Many of those intermediate goods and services become part of the final product or services and are not included as separate purchases. The only exceptions are those purchases related to capital goods and equipment which do not become part of the final product. For this reason, a separate category measured in the expenditures is capital and equipment purchases, otherwise known as business investment (I). The public sector purchases final goods and services as part of Government consumption (G).

Finally, goods and services sold to foreigners, or exports (X), as well as goods and services bought from foreigners (Import or M), are included in the expenditures measure of GDP as net exports, i.e., exports minus imports, X-M. Adding up these spending components yields aggregate expenditure or GDP. Therefore, the following equation gives an estimate of GDP using the expenditures approach:

$$\mathbf{GDP = C + I + G + (X - M)}$$

An alternative approach, the income approach, measures GDP by adding up the different types of income that are generated in the GDP production process. To measure GDP in this manner the following categories are added up: Wages and Salaries, Net interest (interest received minus interest paid), Rental income, Proprietor's Income, and Corporate Profits.

The sum of these five categories, known as Net Domestic Product at Factor Cost, does not yet give GDP. To arrive at GDP from this sum requires the addition of two other elements that, while included in the expenditures approach, are not included in any of the five income categories. Those two elements are: indirect business taxes (which can be thought of as sales taxes) and depreciation.

In developing economies and in most industrialized countries, households are the core part of the economy as they contribute to the most extent to the formation of the above equation either by their revenues or their purchases known as individual consumption.

Though it is important to know about the magnitude of income in a country – usually through GDP, the structure of income (income distribution) says who earns what. Description of the **Family Income and Expenditure Survey (FIES)** conducted in the Philippines and the **1-2-3 survey system** in selected African countries is presented in this chapter. The reference for income and consumption statistics in the European Union is the Statistics on Income and Living Conditions known as EU-SILC (see [Box 25.1](#) below).

Box 25.1: Selection of household income and expenditure surveys**1. The 1-2-3 Survey System**

The 1-2-3-type mixed surveys system is used in order to achieve two objectives, one with macroeconomic and the other with microeconomic perspective: 1. It provides interesting information to both economic modellers and national accountants concerned with defining a good method for including the informal sector in national accounts. This objective is achieved by measuring employment and informal production together with consumption of goods and services provided by the informal sector; 2. It describes the conditions under which informal activities are carried out, thus making it easier to devise policies in support of small or micro-enterprises as part of national or international projects. This analysis also makes it possible to relate this informal activity with poverty analysis.

Three types of modules are used to achieve these two objectives. They are distributed one after the other to households living in the area being studied:

- the first module measures employment, stating whether it is formal or informal;
- the second module measures production generated by the informal activities which were detected during the first stage;
- the third module analyses household consumption in relation to its origin and once again makes a distinction between demand on the informal sector and demand on the modern (or formal) sector .

Results of 1-2-3 Surveys (LFS, informal sector, consumption and poverty) are available for selected African countries. In the case of Madagascar 1-2-3 surveys were conducted between 1995-2004, covering capital, urban (2000, 2001), and rural areas. In West Africa 2001/2003, these surveys were conducted in 7 West African Economic and Monetary Union capital cities (Herrera, Razafindrakoto and Roubaud (2008) and the *African Statistical Journal* vol. 9 (2009)).

2. The European Union Statistics on Income and Living Conditions (EU-SILC)

The European Union *Statistics on Income and Living Conditions (EU-SILC)* is an instrument aiming at collecting timely and comparable cross-sectional and longitudinal multidimensional microdata on income, poverty, social exclusion and living conditions. This instrument is anchored in the European Statistical System (ESS). The EU-SILC project was launched in 2003 on the basis of a 'gentleman's agreement'; it covers the EU Member States, the EFTA countries (except Lichtenstein), and is being expanded to also cover EU candidate countries.

The instrument aims to provide two types of data:

- Cross-sectional data pertaining to a given time or a certain time period with variables on income, poverty, social exclusion and other living conditions, and
- Longitudinal data pertaining to individual-level changes over time, observed periodically over, typically, a four year period.

3. The Family Income and Expenditure Survey (FIES) - Philippines

The *Family Income and Expenditure Survey (FIES)* is a nationwide survey of households undertaken every three years by the National Statistics Office (NSO) of Philippines. It is the main source of data on family income and expenditure in the country, which include among others, levels of consumption by item of expenditure as well as sources of income in cash and in kind. The results of FIES provide information on the levels of living and disparities in income of Filipino families, as well as their spending patterns. It covers the whole country and follows a national multi-stage stratified random sampling methodology. The FIES is a sample survey designed to provide income and expenditure data that are representative of the country and its 17 regions. The last FIES was conducted in 2009.

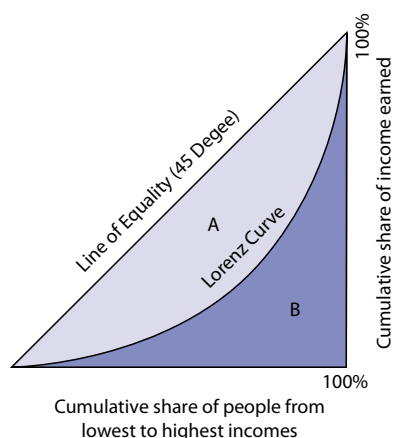
D.25.2.2. INCOME DISTRIBUTION

Income distribution measures the gap between the various strata of the population. On the extremes let us suppose that in a country everyone has the same (or approximately) income. This would be a situation where any proportion of the population (say x%) would have (approximately) the same x% of the wealth. The country would have an even income distribution.

On the contrary in case one person (or very few people) has the whole (or almost) wealth of the country. We consider this as an uneven income distribution. In a very uneven income distribution, the rich are very rich and the poor are very poor, comparatively. The most used statistical tool for assessing the shape of income distribution in a country is the Gini Coefficient. What is Gini coefficient?

Gini index or Gini coefficient is an economic measure of inequality in income distribution. On a scale of 0 to 1, the lower the Gini coefficient, the more evenly distributed the wealth. The coefficient is named after its inventor, the Italian statistician Corrado Gini. How is the Gini coefficient calculated?

Gini coefficient is calculated from the Lorenz curve, in which cumulative family income is plotted against the number of families arranged from the poorest to the richest. The index is the ratio of the area between a country's Lorenz curve (A) and the 45 degree helping line to the entire triangular area (A + B) under the 45 degree line. Using the graph below $G = A/(A+B)$ – See graph below.



The more unequal a country's income distribution, the farther its Lorenz curve from the 45 degree line and the higher its Gini index. For example, Sub-Saharan countries typically have an index of around 40 to 60. The more nearly equal a country's income distribution, the closer its Lorenz curve to the 45 degree line and the lower its Gini index. As an example, the EU countries with the lowest values of the Gini index – below or about 25 – are Slovenia, Hungary, Slovakia, Sweden and the Czech Republic.

If income were distributed with perfect equality, the Lorenz curve would coincide with the 45 degree line and the index would be zero; if income were distributed with perfect inequality, the Lorenz curve would coincide with the horizontal axis and the right vertical axis and the index would be 100. In practice people mostly receive their income in cash but often this happens in kind.

D.25.2.3 IN-KIND INCOME

In-kind income is income that is not in the form of cash or negotiable instruments. Examples of in-kind income include real property, food, and occasionally, wages (e.g., room and board or clothing as compensation for employment) ⁽⁷⁵⁾. The United Nations Statistics Division defines **in-kind income** as individual goods and services provided as transfers (see next section) in kind to individual households by government units (including social security funds) and Non Profit Institutions Serving Households (NPISHs), whether purchased on the market or produced as non-market output by government units or NPISHs. They may be financed out of taxation, other government income or social security contributions, or out of donations and property income in the case of NPISHs.

D.25.2.4 INCOME TRANSFERS

Income transfers are cash disbursements made by government or non-governmental organizations to individuals or households identified as highly vulnerable, with the objective of alleviating poverty or reducing vulnerability. Income transfers are payments to individuals for which no current goods or services are exchanged. This is the case of social security and unemployment benefits (see [chapter D.28. on social protection statistics](#)).

Depending on the country the details of income transfer may vary. Social security covers pension payments but also early retirement benefits. Public transfer administrations pay supplements to individuals temporarily inactive due to unexpected leaves or study, inability to pay specific services such as rent, survival utility bills and care for children and young persons. Education aids from public funds are exceptional forms of income transfers from public administrations to households. They take the form of cash pays or indirect transfers such as reduction on tuition and/or school supplies.

Moreover private transfer income includes received presents and winnings, payments from insurances, as well as payments from private pension schemes and received child maintenance and alimony. Besides these types of more current income transfers, households may receive capital transfers, such as inheritance. In low-income economies remittance are increasingly participating in the formation of income transfer between households either from urban to rural areas or from the citizens abroad to domestic families.

⁽⁷⁵⁾ United States of America Social Security Handbook 2009 Section 2140

D.25.2.5 MEASURES OF POVERTY

Measuring poverty is one of the most challenging areas of income and consumption statistics due to the existence of mainly two different concepts of poverty (see [chapter D.21](#) for more details). Two important notions are taken into consideration for the determination of the poverty status of a household: absolute and relative poverty.

Absolute poverty is a level of poverty at which certain minimum standards of living - for example nutrition, health and shelter - cannot be met. It is internationally admitted that people living in this condition earn less than \$1 per person per day. This threshold was recently re-evaluated to \$1.25 a day per person as the initial value tends to underestimate the number of poor people actually living below the poverty line in some countries. Depending on the expected impact some countries and organization push the threshold to 2 dollars a day.

The term "Absolute poverty" may be slightly misleading, since there is no "absolute" standard that defines absolute poverty: the level of income necessary for these minimum standards is often referred to as poverty line, which various institutions and individuals define differently. Absolute poverty can be contrasted with relative poverty which is a low income or standard of living relative to the rest of society.

Relative poverty is a poverty measure based on a low disposable income relative to the rest of society. Unlike absolute poverty, it does not necessarily imply that physical human necessities of nutrition, health and shelter cannot be met; instead it suggests that the lack of access to many of the goods and services expected by the rest of the contemporary society leads to social exclusion and damaging results for the individuals and families in relative poverty.

One of the consequences of using relative poverty to judge societies over time is that the poverty line tends to rise as incomes rise. This is desirable if it reflects a changing social consensus about minimum acceptable standards of living.

However, it is less desirable if it leads to social and economic policies which give such an emphasis to reducing inequality that the cost includes keeping the incomes of the poorest at a lower level than they might have been, had an absolute poverty measure been used to guide policy. It is a common take that rich and poor people do not spend their income the same way. What are the differences in consumption patterns between two counties?

D.25.2.6 CONSUMPTION PATTERNS

The consumption patterns of households determine the relative importance (weight) of household monetary expenditure attached to each category of goods and services covered by the Consumer Prices Index, a key measure of inflation. Mainly, consumption pattern is the key for distribution of the effects of economic shocks such as price change or increase in wealth (income).

However, there is no uniform basket which applies to all countries/economies. The structure of the weights may vary considerably from country to country, as well as between the Consumer Price Index for an individual country over time. This makes the study of consumption pattern a rather sophisticated exercise. For more accurate analysis of consumption pattern, especially in developing countries, it is suggested to reduce the number of categories at the first stage. For instance, simple structures like food vs. non-food analysis are more accurate than the usual international analysis of decomposition of household expenditures according to six or more categories (e.g. United Nations' [Classification Of Individual Consumption by Purpose \(COICOP\)](#)).

In the European Union, benchmarking studies have been conducted with three categories: 1. Food; 2. All items except Food and Transport; and 3. Transport. [The HICP - Household consumption patterns](#) is a reference show case. For this guide individual buy goods for immediate but also for long term use. The last are durables.

D.25.2.7 CONSUMER GOODS AND DURABLES

Household durables goods are products that are not purchased frequently. Under normal circumstances consumer durables can be used for more than a year. Furthermore the purchase price for the consumer good accounts for a significant amount of money. Examples of durables are appliances, home furnishings, lawn and garden equipment, consumer electronics, toys, small tool, sporting goods, photographic equipment, and jewellery. When the national statistical infrastructure allows, it is recommended to fine-tune the definition to at least two or three sub categories.

In this context household durables are goods that last longer in consumer use. Durables include, inter alia, motor vehicles, furniture, cookers, fridges, washing machines, television sets, musical equipment, computer equipment, watches and jewellery. Semi-durables' life time is rather short and this category includes clothing, footwear, household utensils, equipment for sport and books. Other non-durables consumer goods include food, beverages, tobacco, pharmaceutical products, petrol, cosmetics, newspapers etc.

The stock of consumer durables does not contribute to the national wealth, since the value of consumer durables is a satellite account. This is a consequence of the structure of the national accounts system, where households' acquisitions of consumer durables are considered as private consumption and not as an investment. Therefore durables purchased by household as capital goods do not count in this category. It is a National Accounts requirement to differentiate private consumption of goods and durables from investment which goes to family owned business account.

As seen above households and individuals earn income from various sources and consume different goods and services. The difference between income and consumption expenditure is known as wealth is positive and debt otherwise.

D.25.2.8 HOUSEHOLD WEALTH AND DEBTS

Household wealth is defined as the total market value of dwellings, consumer durable goods and financial asset net of debt. In practice, total household wealth is the sum of savings and checking accounts, bonds, stocks, individual retirement accounts, vehicles, market value of housing equity and other real estate, minus all current debt individually and/or collectively contracted by members of the household. In the notion of household wealth, the distinction between financial and non financial asset is essential. The fact that non financial assets are valued at their market price valuation impacts on the determination of the total wealth.

Ideally the main source of information on household wealth should be private banks. But due to confidentiality binding banks on consumer information, National Statistical Institutes generally use surveys to collect information about household wealth and the debts. In poor statistical systems lack of information makes it difficult to get accurate data on wealth as respondents may think information collected from them will be used for tax purposes. The general tendency therefore is for households to underestimate the amount of their asset. The next section of this chapter deals with important factors in the valuation of household income and consumption components.

D.25.2.9 INFLATION AND PRICE LEVEL INDICES

Focusing on household consumption expenditures, two types of statistical indicators are used to assess how the wealth of consumers varies over time and space. Inflation formulates how much money is needed to purchase the same amount of goods or services from one year to the other while purchasing power tells the price of the same good in one country relatively to another one. Consumer Prices Indices (CPI) general measures of inflation while price levels differences between two or more countries are measured by a Price Level Index (see also [chapter D.12. on price statistics](#)).

All countries in the Euro zone and their partners in OECD and outside have a well established Consumer Price Index. Some regions are participating in Harmonized Consumer Price Indexes making CPI numbers comparable across countries. As regards the measure of price level indices several methods are available including the use of official national currency exchange rate to Euro or United States Dollar. But the most robust measure of price level indexes between countries is provided by the [International Comparison Programme](#) with the notion of [Purchasing Power Parities](#).

Box 25.2: Do we underestimate household income in poverty context?

In order to have a better estimate of what households make a year it is better to measure its consumption rather than capturing its income. Consumption captures permanent income, reflects the insurance value of government programs and credit markets, better accommodates illegal activity and price changes. Consumption is more likely to reflect private and government transfers. However, it is fairly compelling that most households can more easily report income.

Research in the area of income and consumption statistics shows that income is systematically under-reported and measured with substantial error ⁽⁷⁶⁾. These problems are especially severe for those households with few resources. It is therefore recommended to use consumption to supplement income in analyses of poverty whenever possible.

Monitoring household consumption is a challenging endeavour. Existing international initiatives such as the household budget surveys any various standards of living surveys open the ground for more accurate estimates of consumption estimates.

⁽⁷⁶⁾ 'Measuring the Well-Being of the Poor Using Income and Consumption' by Bruce D. Meyer, Northwestern University and NBER and James X. Sullivan, Northwestern University, May 2002.

D.25.3. Sources of data and metadata

The primary sources of data on household income and consumption are national surveys of living standards. EUROSTAT collects across EU Member States harmonised data on living conditions (EU-SILC, [see chapter 28](#)) and of household budget surveys. Part of structural income and consumption expenditure statistics are available in population and housing census. Statistics about the level of income or consumption come from National Accounts. It is commonly admitted that data from sample surveys cannot be used at a broad level of disaggregation. At the same time census data are generally not a good source of data on household income. A trade-off is necessary to determine which available indicators should be used when assessing household income and consumption.

Metadata are available from international organizations such as the United Nations International Labour Organization, the Organisation for Economic Co-operation and Development, the European Union, etc. The Eurostat [Household consumption expenditure](#) web site gives an interesting oversight of individual components of household consumption expenditure, their variation among European Union Member States, reasons for statistical discrepancies, and factors affecting spending and saving habits in the Union. The OECD Statistics portal provides definition of key concepts on household income, consumption and [savings](#) for member economies. [International Financial Statistics \(IFS\)](#) of the International Monetary Fund defines economic concept of Household Consumption Expenditure including Non Profit Institutions Serving Households (NPISHs) while the [United Nations Statistics Division](#) centralizes metadata on the general framework for assessing household income and consumption statistics as part of [Millennium Development Goals indicators](#) (see [section B.1.1.](#) and [section B.4.1.](#)). The international reference organization on household statistics including income, consumption and price levels is the United Nations International Labour Organization with its [ILOSTAT Database](#).

Box 25.3: Selected international datasets related to Household Income and Consumption

ILOSTAT

ILOSTAT is a database of labour statistics. It covers official core labour statistics and estimates for over 200 countries since 1969. It also provides methodological descriptions of main national statistical sources. ILOSTAT is an initiative of the International Labour Organization Office (ILO).

OECD Statistics (StatExtracts)

OECD.StatExtracts is an integrated database system. It was developed for the use of member countries but also includes major aggregates from selected non-member countries. It has interesting features such as creating and customizing tables, reshaping table using “pivot dimensions” to move rows and columns. It also has export functions to download data in Excel or CSV formats. User can print query or save them for later use.

World Bank. Data and Statistics

The World Bank [Open Data initiative](#) forms a platform for sound policy making around the world. The mission of the World Bank’s Data Group is to provide high quality national and international statistics to clients within and outside the Bank and to improve the capacity of member countries to produce and use statistical information. As part of the international statistical system, the Data Group works with other organizations on new statistical methods, data collection activities, and statistical capacity-building programs. This group also coordinates the analytical and statistical work related to monitoring progress towards the [Millennium Development Goals](#) (see [section B.1.1.](#) and [section B.4.1.](#)). The [World Development Indicators \(WDI\)](#) provides a comprehensive selection of economic, social and environmental indicators, drawing on data from the World Bank and more than 30 partner agencies. The database covers more than 900 indicators for 210 economies with data back to 1960.

Eurostat statistical publications

Eurostat is the statistical office of the European Union. Its task is to provide the European Union with statistics at European level that enable comparisons between countries and regions. Featured publications include The EU economic data pocketbook and the Eurostat labour market statistics pocket book.

The EU economic data pocketbook is a handy collection of economic data from different domains, covering the European Aggregates, EU Member States and its main economic partners. The publication focuses on the structural aspects of the EU economy; consequently, most of the data are annual, complemented by selected monthly and quarterly indicators.

The Eurostat labour market statistics pocket book aims to highlight various aspects of the labour markets in Europe. The statistics shown refer to the labour market situation of individuals and households, their gross and net earnings as well as the labour cost incurred by enterprises, to labour demand, and labour market policy interventions.

IMF Data and Statistics

The **IMF** publishes a range of time series data on IMF lending, exchange rates and other economic and financial indicators including GDP expenditures. Manuals, guides, and other material on statistical practices at the IMF, in member countries, and of the statistical community at large are also available.

These are also important sources of metadata on household income and consumption

D.25.4. Analysing data quality and identifying problems

Data quality issues should be looked at from different perspectives which may vary from one country to the other. (See [chapter C.5.3](#) for general aspects of statistical quality.) For example a [United States experience](#) highlights non response in national census as an issue whether on statistical units or on items surveyed. International researches also show that in many countries, underreporting is disproportionately high for three types of income: government transfers, property income, and self-employment income. Since transfers are more likely to be received by people in the lower tail of the income distribution, this underreporting would increase measured poverty. On the other hand, underreporting of property income tends to lower the income of households at the top of the distribution, leaving poverty unaffected. Underreporting of self-employment income can result in too many individuals with low incomes, or even negative incomes, also affecting the measure of poverty rate.

As regards household surveys in general, fundamentally, there are two types of errors inherent in sample survey data, mainly, non-sampling errors and sampling errors. The reliability of survey estimates depends on the combined impact of non-sampling and sampling errors. A practical example of data quality indicators in relation with household income and consumption is available in [Data quality in the 2004 Survey of Labour and Income Dynamics \(SLID\) 75F0002M](#) disseminated by Statistics Canada.

D.25.5. Improving household statistics

Population and household statistics are of interest to international organizations but also to central and local government, especially in the context of governance and decentralization in developing countries. Improving relevance, accuracy and timeliness of household statistics will bring them to the standard needed to meet the needs of users. Many means can be used to improve household income survey estimates.

Developing international standards for household surveys is a major task to enhance comparability of data collected on income and consumption. An important international achievement is the establishment of the [International Household Survey Network](#) as a follow-up of recommendations on the implementation of the Marrakech Action Plan for Statistics. In addition, it is necessary to create experts discussion groups to share experience and best practices on issues of improving household statistics at both national and international levels. Examples of such initiatives are the UN backed [Rio Experts Group](#) on poverty statistics and the [Canberra Group on household income statistics](#).

National or regional workshops should be encouraged to discuss survey methodologies, questionnaire design, data processing and analysis. But moreover elaboration of household survey guides and standards are critical to ensuring robustness of income and consumption statistics. Implementation agencies should encourage pilot surveys in order to reduce data issues at the end of household income surveys while international organizations must provide necessary technical assistance where needed to enhance the quality of data collected on household income and consumption.

To find out more...**Major Statistics Programs Related to Income and Consumption Statistics**

- World Bank: [Open Data initiative](#)
- United Nations: [Data portal](#)
- World Bank: [International Comparison Program \(ICP\)](#)
- International Labour Organization: [Statistical Databases](#)

GDP Measure, Output, Income and Expenditure approaches

- World Bank Open Data initiative: [GDP \(current US\\$\)](#)
- International Monetary Fund: [World Economic Outlook \(WEO\) Databases](#)
- OECD: [Gross Domestic Product \(GDP\) Estimates](#)
- [System of National Accounts](#)

Methodological Research Papers

- [Income Distribution and Poverty in the OECD Area: Trends And Driving Forces](#), Michael Förster and Mark Pearson, Christian Dreger & Hans-Eggert Reimers, OECD Economic Studies No. 34, 2002/I October 2006
- [Consumption and disposable income in the EU countries: the role of wealth effects](#), Christian Dreger & Hans-Eggert Reimers, October 2006
- [Household Consumption, Household Incomes and Living Standards](#), A review of related recent research activities, Heinz-Herbert Noll (GESIS-ZUMA), Mannheim, 2007
- [Survey data on household finance and consumption - research summary and policy use](#), The Eurosystem Household Finance and Consumption Network, [European Central Bank](#), Occasional Paper Series, January 2009
- [African Statistical Journal Vol. 9](#), November 2009
- [UNESCAP Informal Sector website with reference materials](#)
- UEMOA: [Harmonised Index of Consumer Prices \(L'Indice Harmonisé des Prix à la Consommation \(IHPC\)\)](#)
- [UNECE web site](#)
- [International Household Survey Network](#)

International Data Sources

- International Labour Organization: [Labour Statistics \(ILOSTAT\)](#)
- International Monetary Fund: [General Data Dissemination System \(GDDS: Consumer Price Indices\)](#)
- United Nations Statistics Division: [Distribution of income and consumption](#)
- Eurostat: [PPP Program](#)
- Eurostat: [Household Consumption expenditure](#)
- OECD Statistics Department: [OECD.Stat Extracts](#)
- World Bank: [World Development Indicators – Income Distribution for poverty analysis](#)
- World Bank: [Consumption and welfare aggregates](#)
- World Bank: [Gross National Income concept \(GNI, Atlas method, current US\\$\)](#)

D.26

Sustainable development indicators



D.26. Sustainable development indicators

The chapter in brief

This chapter describes the meaning of sustainable development, the role of sustainable development in international development policies and the statistical steps necessary to define indicators on sustainable development, within the frame of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDG) and sets of sustainable development indicators (SDIs) at national and regional level. It draws from the work of both the UN and the EU and gives examples of the SDIs developed in individual countries. The developing country dimension is considered throughout, particularly in [section D.26.5](#) on building a statistical action.

As SDIs are a cross-cutting theme, a detailed description of data sources is largely unnecessary as this would overlap with other modules; see e.g. [chapter D.14 on environmental statistics](#), [chapter D.15 on transport statistics](#) and [chapter D.28 on social protection statistics](#).

SDIs is an area in constant evolution, despite the substantial methodological work already undertaken all over the world. It is therefore recommended to look up the most recent developments in this statistics area. Hyperlinks to key SDI resources and reference documents are given throughout this chapter. In particular, many of the indicators developed for monitoring the Sustainable Development Goals (SDG Indicators) are by definition sustainable development indicators (see [section B.1.2](#) and [section B.4.1](#)). In addition, the list of references in the 'To find out more' box at the end of this chapter will allow follow-up of any aspect of SDIs.

the links between economic growth, the alleviation of poverty, and environmental conditions operate most directly. Yet developing countries are part of an interdependent world economy and their prospects also depend on the levels and patterns of growth in industrialized nations;

- Changing the quality of growth to make it less material- and energy-intensive, to maintain the stock of ecological capital, to improve the distribution of income, and to reduce the degree of vulnerability to economic crises;
- Meeting essential human needs. The most basic of all needs is for a livelihood, i.e. employment. More food is required to feed more people and to attack undernourishment. Energy is another essential need, especially urgent for poor households in developing country which depend mainly on wood as fuel;
- Ensuring a sustainable level of population as sustainable development can be pursued more easily when population size is stabilized at a level consistent with the productive capacity of the ecosystem;
- Conserving and enhancing the resource base. Development policies must widen people's options for earning a sustainable livelihood, particularly for resource-poor households and in areas under ecological stress. Agricultural, fishery and forestry resources have been overexploited and must be conserved and enhanced to meet the needs of growing populations;
- Reorienting technology and managing risk. The capacity for technological innovation needs to be greatly enhanced in developing countries so that they can respond more effectively to the challenges of sustainable development. The orientation of technology development must be changed to pay greater attention to environmental factors;
- Merging environment and economics in decision making. This will require a change in attitudes and objectives and in institutional arrangements at every level. Economic and ecological concerns are not necessarily in opposition. For example, policies that conserve the quality of agricultural land and protect forests improve the long-term prospects for agricultural development. The integration of economic and ecological factors into the law and into decision making systems within countries has to be matched at the international level.

These 7 strategic imperatives were followed up by political commitment in the [Rio Declaration on Environment and Development](#) and the [Agenda 21 action plan](#) for global, national and local actions. A key conclusion is that the world must design and pursue strategies that will allow nations to move onto sustainable development paths.

D.26.1. Policy applications: what these indicators are used for

D.26.1.1 WHAT IS SUSTAINABLE DEVELOPMENT?

'Sustainable development' is a normative concept, rather like 'justice' or 'democracy'. It integrates immediate and longer-term objectives and actions at local and global level, and seeks a balance between social, economic and environmental issues. The general meaning of the concept 'sustainable development' is clear, but there is no simple definition of it. The most well-known definition comes from the report 'Our common future' (1987) (the 'Brundtland report') of the UN World Commission on Environment and Development:

"... development which meets the needs of the present without compromising the ability of future generations to meet their own needs".

'Our common future' outlined seven critical objectives for environment and development policies that follow from the concept of sustainable development:

- Reviving growth to eliminate poverty. Growth must be revived especially in developing countries as that is where

This requires policy changes in all countries, with respect both to their own development and to their impacts on other nations' development possibilities.

The **United Nations Commission on Sustainable Development (CSD)** was a high-level forum established in 1992 to ensure effective follow-up of **United Nations Conference on Environment and Development (UNCED)** ('the Earth Summit' in Rio de Janeiro). The CSD was responsible for reviewing progress in the implementation of the **Rio Declaration on Environment and Development (1992)**, the **Agenda 21** (1992; the action plan for global, national and local actions in every area where humans impact on the environment) and for providing policy guidance to follow up the **Johannesburg Plan of Implementation (JPOI)** (2002).

Following the adoption of the Millennium Declaration and the 8 Millennium Development Goals (MDGs) in 2000, the Inter-Agency Expert Group on MDG Indicators (IAEG) developed a framework for monitoring progress towards achieving the MDGs. This framework consisted of **60 indicators**, providing one or more indicators for most of the specific targets under the MDGs. The MDGs indicators represented the first attempt at building a framework of global indicators, including indicators on both social and environmental sustainability.

The **UN High-level Panel on Global Sustainability (GSP)** was launched in 2010, aiming to formulate a new strategy for a sustainable future. The GSP explored approaches for building a low-carbon, green and resilient economy that can eradicate poverty and ensure a dignified life for all. The GSP's recommendations fed into the preparations for the "Rio+20" Conference and the meetings of the **United Nations Framework Convention on Climate Change (UNFCCC)**. In 2012, the GSP advised in its final report, '**Resilient People, Resilient Planet: A Future Worth Choosing**', that global Sustainable Development Goals needed to replace the MDGs.

In June 2012, the **UN Conference on Sustainable Development "Rio+20"** was held in Rio de Janeiro. The conference addressed the global challenges of sustainable development (social, economic, environment). In particular, it focused on two interlinked issues: the **green economy in the context of sustainable development and poverty eradication**, and the **institutional framework for sustainable development**.

In July 2014, the UN General Assembly's **Open Working Group on Sustainable Development Goals (OWG)** presented a proposal for new development goals to be achieved by 2030. The proposal contained 17 main development goals, sub-divided into 169 concrete targets. These cover a broad range of sustainable development issues and build on the principles agreed in the "The future we want" Resolution. The **Sustainable Development Goals** were formally adopted at the UN Sustainable Development Summit 25–27 September 2015 in New York, under the title "**Transforming our world: the 2030 Agenda for Sustainable Development**". The SDGs balance the three dimensions of sustainable development:

economic, social and environmental. The SDGs are global in nature and universally applicable. However, each government can set its own national priorities in the context of this framework. The SDGs are described in more detail in section B.1.2 and section C.4.1.

Poor people depend on the environment for their livelihoods and well-being. Improved management of the environment and natural resources contributes directly to poverty reduction, more sustainable livelihoods and pro-poor growth. The strong link between poverty and the environment is actively pursued in the **Poverty-Environment Initiative (PEI)** of the **United Nations Development Programme (UNDP)** and the **United Nations Environment Programme (UNEP)**. PEI is a global UN-led programme that supports country-led efforts to mainstream poverty-environment linkages into national development planning. It provides financial and technical assistance to government partners to set up institutional and capacity strengthening programmes and carry out activities to address the particular poverty-environment context.

D.26.1. European Union sustainable development policies

Following the UN Conference on Environment and Development in Rio de Janeiro (1992), the EU ratified both the Rio Declaration and Agenda 21. In 1997, sustainable development became a fundamental objective of the EU when it was included in the Treaty of Amsterdam as an overarching objective of EU policies. At the Gothenburg Summit in 2001, EU leaders launched the first EU sustainable development strategy. The EU SDS added a third, environmental dimension to the Lisbon Strategy of economic and social renewal. The two strategies are complementary.

The Gothenburg declaration formed the core of the EU's policies towards sustainable development. But these also encompassed other programmes and commitments, such as the commitments made at the 2002 World Summit on Sustainable Development in Johannesburg and the Millennium Development Goals agreed in 2000, as well as global pledges to increase official development aid and to take account of the needs of developing countries in international trade.

In June 2006, a **renewed EU Sustainable Development Strategy** was adopted by the European Council in response to developments such as climate change, a widening gap between the rich and the poor in the world, increased instability due to terrorist threats and violence, further globalization and changes in the world economy. This required a sustainable development strategy with a stronger focus, a clearer division of responsibilities, wider ownership and broader support, a stronger integration of the international dimension and more effective implementation and monitoring. The renewed EU SDS sets out a single, coherent strategy on how the EU will more effectively live

up to its long-standing commitment to meet the challenges of sustainable development. It reaffirms the need for global solidarity and recognises the importance of strengthening the work with partners outside the EU, including those rapidly developing countries which will have a significant impact on global sustainable development.

D.26.1.2 THE ROLE OF INDICATORS

The evaluation of indicators is a particular case in statistics. Indicators are built on statistics and statistical methodology is used to assess their quality. However, sustainable development indicators (SDIs) are conceived to enable assessment of whether targets and objectives of sustainable development are being met. In other words, they are policy performance indicators, designed to enable evaluation of the policy performance of the different facets of sustainable development.

By establishing quantitative measures for sustainability it becomes possible to set goals, apply management strategies, and measure progress. Agenda 21 calls on countries and the international community to develop indicators of sustainable development. Such indicators are needed to increase focus on sustainable development and assist decision-makers to adopt sound national sustainable development policies. Furthermore, the [Johannesburg Plan of Implementation](#) and the [Commission on Sustainable Development](#) encourages further work on indicators for sustainable development by countries, in line with their specific conditions and priorities. CSD specifically invites the international community to support efforts of developing countries in this regard.

To monitor the progress towards these 17 goals and their 169 targets, the United Nations Statistical Commission created an [Inter-agency and Expert Group on SDG Indicators \(IAEG-SDGs\)](#) in March 2015. The IAEG-SDGs presented its [Report to the 47th session of the UN Statistical Commission](#). This global monitoring framework for the SDG, comprising some 230 indicators, was agreed by the UN Statistical Committee in March 2016.

The SDG monitoring framework comprises indicators at several levels:

- **Global indicators**, which form the core of all other sets of indicators;
- **Indicators at regional, national and sub-national levels**, developed by the UN member states to complement the global indicators, taking into account national circumstances;
- **Thematic indicators**, being developed in a number of areas.

The Sustainable Development Indicators (SDIs) at regional, national and sub-national levels are developed by countries and regions to reflect their specific circumstances and complement the global SDG indicators.

Data are produced by the national statistical systems, ensuring national ownership. Countries are asked to strengthen collection of baseline data in order to better measure progress for each of the SDGs. Thus, statistical capacity building is essential for national statistical systems to meet the demands of the 2030 Agenda.

The United Nations has also established the [World Data Forum](#), which met for the first time in Cape Town in January 2017. The UN World Data Forum brings together public and private measurements experts, statistical producers, information system specialists, and users as well as all other key stakeholders to discuss data for sustainable development and further.

The focus of countries in establishing sustainable development indicator sets has generally been on meeting the information needs of a national sustainable development strategy. The establishment of SDIs has for many countries and institutions been a key opportunity to move environmental issues higher up the policy agenda alongside economic and social issues. The SDIs have also been instrumental in promoting the concept in a much clearer way than can be achieved through national sustainable development strategies alone.

As regards developing countries, generally the policy priorities relevant to sustainable development tend to emphasis basic aspects of economic development, social development and ecological aspects:

- Reducing poverty;
- Providing energy services to those without them;
- Managing external debt; and
- Energy security issues.

At the same time, many developing countries have an important and growing impact on world emissions of greenhouse gases. The solutions they find to their development challenges will affect the course of climate change globally.

Generally, the UN recommends a policy-driven approach, adapted to each region of the world. Thus, the regional Commissions of the UN are also prioritising the work on regionally adapted frameworks for SDIs. A good example is the framework developed by the [Economic Commission for Latin America and the Caribbean \(ECLAC\)](#), which is presented in more detail in [section D.26.3.3.](#) below, together with the practical application of this in Argentina (see [Box 26.3](#)). Further regional work can be found e.g. on the websites of the [UN Economic Commission for Europe \(UNECE\)](#) and the [UN Economic Commission for Africa \(ECA\)](#).

Eurostat and the European Statistical System have a leading role in providing data and monitoring to what extent the EU is on track to achieving the concrete goals for sustainable development set out in the EU Sustainable Development Strategy. Measuring progress towards sustainable development is an integral part of the EU SDS, and Eurostat is charged with producing a monitoring report every two years, based on the EU set of sustainable development indicators (EU SDIs). Eurostat's monitoring reports complements the policy analysis provided in the Commission's progress report [Mainstreaming Sustainable Development into EU Policies: 2009 Review of the European Union Strategy for Sustainable Development](#).

D.26.2 Concepts and definitions

D.26.2.1 POLICY DRIVEN APPROACH

In many cases, the relationship between indicators and policy is very strong. This is the case for sustainable development indicators, which are designed specifically to monitor progress in the different aspects of the sustainable development strategies. This policy driven approach assures the relevance of the SDIs. Policy makers see them as being directly relevant to the sustainable development strategies and effective means for communication. While there may be concerns about having indicators closely aligned with policy objectives and targets at the expense of other aspects of sustainable development, this is also one of their strengths. On the other hand, indicators which are closely connected with the measurement of specific policies must be redefined whenever there are changes in these policies. The United Nations' [Guidelines and Methodologies for Indicators of Sustainable Development](#) and their detailed [methodology sheets](#) are available as a basis for all countries to develop national indicators of sustainable development.

In the context of sustainable development, one often refers to three interdependent and mutually reinforcing pillars, meaning development that balances economic growth, the need to maintain stocks of natural resources, and social justice, in other words bringing people out of poverty. Sometimes, a fourth pillar is included, namely the institutional framework supporting sustainable development.

Most sets of indicators presently used by nations and international bodies are based on the [DPSIR framework](#) or a subset of it (see [Box 14.1](#) in [chapter D.14](#) on environmental statistics). According to this analysis, social and economic developments or (i) Driving forces exert (ii) Pressure on the environment and, as a consequence, the (iii) State of the environment changes, such as the conditions for health, resources availability and biodiversity. Finally, this leads to (iv) Impacts on human health, ecosystems and materials that may draw a (v) Response that feeds back on the (i) Driving forces.

From the policy point of view, there is a need for clear and specific information on these five elements. This is achieved

by using indicators reflecting the links between human activities and their environmental impacts as well as the response of society to these impacts.

D.26.2.2 CONCEPTUAL FRAMEWORKS

The focus of countries in establishing sustainable development indicator sets has generally been on meeting the information needs of a national sustainable development strategy. It is relatively rare that such policies have been based on an explicitly defined conceptual framework. They have often been, however, the result of rigorous consultation inside and outside of government to ensure that different perspectives on how sustainable development should be defined are taken into account.

The [Joint UNECE/OECD/Eurostat Working Group on Statistics for Sustainable Development \(WGSSD\)](#) was established in 2005 to identify good concepts and practices to assist national governments and international organizations in the design of sustainable development indicator sets. The aim of the Working Group was to develop a broad conceptual framework for measuring sustainable development with the concept of capital at its centre, and to identify a small set of indicators that might become the core set for international comparisons.

Sustainable development covers two different scales: the temporal and the spatial. The temporal scale considers sustainability within a generation and between generations; the spatial scale considers sustainability with respect to local, national, regional and global sustainability. This is also at the core of the Agenda 21. With respect to the intra-generation scale and the spatial scale, there is a divide in economic, social and ecological standards and growth between the developing countries and developed countries, often labelled a 'North-South divide'.

Another dimension of sustainable development is the discussion of 'weak' versus 'strong' sustainability as regards 'natural' and 'artificial' capital, understood as the volume and quality of the stock of natural, physical, human, financial, produced and social capital. In essence, these two views disagree as to what should be handed over to future generations. 'Weak sustainability' argues that 'natural' and 'artificial' capital can be substituted for another, i.e. that depreciation of natural capital such as the use of non-renewable resources such as oil and uranium can be compensated for by a corresponding investment in 'artificial capital' such as knowledge of production of renewable energy and of energy efficiency. Strong sustainability, in contrast, argues that humans are embedded in a natural system and that limits to natural resources ('capital') constrain the scope for human actions. In other words, that the two kinds of capital are complementary.

The indicators that are used to measure sustainability are dependent on the choice of basic sustainability concept. An extensive discussion of the capital approach is contained in the ‘[Measuring Sustainable Development](#)’ study prepared by the [Joint UNECE/Eurostat/OECD Task Force on Measuring Sustainable Development \(WGSSD\)](#) in 2009.

D.26.3 Sources of data and metadata

D.26.3.1. SUSTAINABLE DEVELOPMENT GOAL INDICATORS

Following internal and open consultations, the [Inter-agency and Expert Group on SDG Indicators \(IAEG-SDGs\)](#) proposed a monitoring framework for the SDGs, which was agreed upon by the UN Statistical Commission in March 2016.

The SDG monitoring framework comprises indicators at several levels:

- **Global indicators**, which form the core of all other sets of indicators;
- **Indicators at regional, national and sub-national levels**, developed by the UN member states to complement the global indicators, taking into account national circumstances;
- **Thematic indicators**, being developed in a number of areas.

At global level, this framework covers 230 indicators, with each of the 169 SDG targets being covered by at least one indicator for each target (9 of these indicators relate to 2 or 3 different targets). The framework includes most of the 60 [Millennium Development Goals indicators](#), as well as a number of other existing indicators sourced from international organisations and others. However, a number of indicators are under development.

At regional, national and sub-national levels, the Sustainable Development Indicators (SDIs) are developed by countries and regions to reflect their specific circumstances and complement the global SDG indicators.

For the thematic indicators, the IAEG-SDG continues the development in consultation with the relevant concerned parties. For example, UNESCO’s Institute for Statistics (UIS) chairs the Technical Advisory Group developing thematic indicators on education, which also includes experts from the EFA Global Monitoring Report, OECD, UNESCO and UNICEF.

In 2016, the UN Secretary-General released the first “[Sustainable Development Goals Report](#)”, based on information provided by the SDG global indicators. This first report provides a baseline of where the world stands at the beginning of the efforts towards achieving the SDG. At the same time, the Global SDG Indicators Database was launched. This database presents country level data, as well as global and regional. The SDG indicators website also contains metadata for the global indicators.

D.26.3.1. UNITED NATIONS COMMISSION ON SUSTAINABLE DEVELOPMENT (CSD) INDICATORS

Agenda 21 specifically calls on countries and the international community to develop indicators of sustainable development. Compiling indicators and communicating efficiently about an issue as complex as sustainable development remains a challenge at all levels (international, national, local). This is due not only to the wide range of issues which need to be addressed (economic, environmental, social and institutional), but also to the demand for new data, which may stem from diverse data sources.

The third, revised set of [CSD indicators](#) was finalized in 2006 by a group of experts from developing and developed countries and international organisations. The revised edition contained 96 indicators, including a subset of 50 core indicators (presented in Box 26.1 below.) The larger indicator set allowed a more comprehensive and differentiated assessment of sustainable development by countries. The CSD indicators were structured in a framework of themes and sub-themes.

The CSD core indicators fulfilled three criteria:

- They covered issues relevant for sustainable development in most countries;
- They provided critical information not available from other core indicators;
- They could be calculated by most countries with data that were either readily available or could be made available within reasonable time and costs.

Box 26.1: CSD core indicators of sustainable development, by theme

Poverty

- Income poverty: Proportion of population living below national poverty line
- Income inequality: Ratio of share in national income of highest to lowest quintile
- Sanitation: Proportion of population using an improved sanitation facility
- Drinking water: Proportion of population using an improved water source
- Access to energy: Share of households without electricity or other modern energy services
- Living conditions: Proportion of urban population living in slums

Governance

- Corruption: Percentage of population having paid bribes
- Crime: Number of intentional homicides per 100,000 population

Health

- Mortality: Under-five mortality rate; Life expectancy at birth
- Health care delivery: Percent of population with access to primary health care facilities; Immunization against infectious childhood diseases
- Nutritional status: Nutritional status of children
- Health status and risks: Morbidity of major diseases such as HIV/AIDS, malaria, tuberculosis

Education

- Education level: Gross intake ratio to last grade of primary education; Net enrolment rate in primary education; Adult secondary (tertiary) schooling attainment level
- Literacy: Adult literacy rate

Demographics

- Population: Population growth rate; Dependency ratio
- Tourism: No core indicator in this subtheme
- Natural hazards
- Vulnerability to natural hazards: Percentage of population living in hazard prone areas
- Disaster preparedness and response: No core indicator for this subtheme

Atmosphere

- Climate change: Carbon dioxide emissions
- Ozone layer depletion: Consumption of ozone depleting substances
- Air quality: Ambient concentration of air pollutants in urban areas

Land

- Land use and status: No core indicator in this subtheme
- Desertification: No core indicator in this subtheme
- Agriculture: Arable and permanent cropland area
- Forests: Proportion of land area covered by forests

Oceans, seas and coasts

- Coastal zone: Percentage of total population living in coastal areas
- Fisheries: Proportion of fish stocks within safe biological limits
- Marine environment: Proportion of marine area protected

Freshwater

- Water quantity: Proportion of total water resources used; Water use intensity by economic activity
- Water quality: Presence of faecal coliforms in freshwater

Biodiversity

- Ecosystem: Proportion of terrestrial area protected, total and by ecological region
- Species: Change in threat status of species

Economic development

- Macroeconomic performance: Gross domestic product (GDP) per capita; Investment share in GDP
- Sustainable public finance: Debt to GNI ratio
- Employment: Employment-population ratio; Labour productivity and unit labour costs; Share of women in wage employment in the non-agricultural sector
- Information and communication technologies: Internet users per 100 population
- Research and development: No core indicator in this subtheme
- Tourism: Tourism contribution to GDP

Global economic partnership

- Trade: Current account deficit as percentage of GDP
- External financing: Net Official Development Assistance (ODA) given or received as a percentage of GNI

Consumption and production patterns

- Material consumption: Material intensity of the economy
- Energy use: Annual energy consumption, total and by main user category; Intensity of energy use, total and by economic activity
- Waste generation and management: Generation of hazardous waste; Waste treatment and disposal
- Transportation: Modal split of passenger transportation

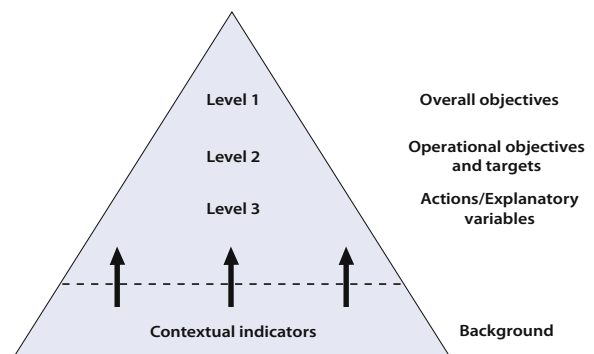
D.26.3.2. EU SUSTAINABLE DEVELOPMENT INDICATORS

The EU Sustainable Development Indicators (EU SDIs) are used to monitor the EU Sustainable Development Strategy in a report published by Eurostat every two years. The most recent example is the [Sustainable development in the European Union - 2015 monitoring report](#). Out of more than 100 indicators, ten have been identified as headline indicators. They are intended to give an overall picture of whether the EU has achieved progress towards sustainable development in terms of the objectives and targets defined in the strategy.

Like the UN set, the EU SDIs have been organised within a thematic framework in order to provide a clear and easily communicable structure, relevant to political decision-making. The framework is based on priority policy issues, but is flexible enough to adjust to possible changes in these priorities and objectives, bearing in mind that new issues and priorities emerge from time to time. The EU SDI framework follows a general gradient from the economic, to the social, and then to the environmental and institutional dimensions. The themes are derived from the EU SDS as well as Agenda 21. Each theme is further divided into subthemes to organise the set in a way that reflects the operational objectives and actions of the EU SDS (see Box 26.2 below).

The EU SDI set is structured as a three-storey pyramid, distinguishing between three levels of indicators. This approach not only reflects the structure of the EU SDS (overall objectives, operational objectives, actions), but also responds to different kinds of user needs. The three-level pyramid is complemented with contextual indicators:

- **Headline (or level-1) indicators** are at the top of the pyramid, monitoring the 'overall objectives' related to the seven key challenges of the EU SDS. On the whole they are widely used indicators with a high communicative and educational value. They are robust and available for most EU Member States.
- The **second level** of the pyramid consists in most cases of indicators related to the 'operational objectives' of the Strategy. They are the lead indicators in their respective subthemes. They are robust and available for most EU Member States.
- The **third level** consists of indicators related to actions described in the Strategy or to other issues which are useful for analysing progress towards the Strategy's objectives.
- **Contextual indicators** are part of the SDI set, but either do not monitor directly a particular SDS objective, or they are not policy responsive. Generally, they are difficult to interpret in a normative way. However, they provide valuable background information on issues having direct relevance for sustainable development policies and are useful for the analysis.



The SDI set also describes indicators which are not yet fully developed but which would be necessary to give a more detailed and complete picture of progress:

- The indicators under development either already exist, but are of insufficient quality or coverage, or are known to be currently under development by a group of experts in Europe.
- The indicators to be developed are either: (i) known to be under development currently by a group of experts in Europe, but no final satisfactory result is expected within two years; or (ii) not being developed currently as far as is known.

Box 26.2: EU headline sustainable development indicators, by theme

Socioeconomic development

- Real GDP per capita

Sustainable consumption and production

- Resource productivity

Social inclusion

- People at risk-of-poverty or social exclusion

Demographic changes

- Employment rate of older workers

Public health

- Life expectancy and healthy life years

Climate change and energy

- Greenhouse gas emissions
- Primary energy consumption

Sustainable transport

- Energy consumption of transport relative to GDP

Natural resources

- Common bird index

Global partnership

- Official development assistance

Good governance

- No headline indicator

D.26.3.3. EXAMPLES OF REGIONAL AND NATIONAL SDI FRAMEWORKS

Latin America and the Caribbean - Argentina

A good example of a policy-driven, regionally adapted framework for SDIs is the framework developed by the [Economic Commission for Latin America and the Caribbean \(ECLAC\)](#). The conceptual framework developed through the [Evaluation of sustainable development in Latin America and the Caribbean project \(ESALC - Evaluación de la Sostenibilidad en América Latina y el Caribe\)](#).

The ESALC SDI framework is based on the four pillars Economic, Social, Environmental and Institutional. For each pillar (or 'subsystem'), the indicators are divided into sustainability and development indicators. An interesting approach is the definition of themes and indicators on the interrelations between the different subsystems (e.g. between economic and environmental, and institutional and social) and between the national level and the rest of the world. The ESALC SDI framework also defines the energy and demography 'Efficiencies and intensities' as specific themes. The [Argentinian System of Sustainable Development Indicators \(SIDSA\)](#) presented in [Box 26.3](#) is a good example of a national adaptation

Box 26.3: System of Sustainable Development Indicators, Argentina

The 'Sistema de Indicadores de Desarrollo Sostenible Argentina' (SIDSA) is built on the basis of the ESALC conceptual framework. The SIDSA contains 68 indicators, measuring the relationship between economic and population growth and their effects on the environment. The system builds on the four subsystems economic, social, environmental and institutional, each subdivided into development indicators and sustainability indicators. The development indicators portray change directly, enabling improved definition of development objectives. The sustainability indicators aim to portray the change process and therefore the capacity to maintain the development over time.

The use of the conceptual framework:

- permits a holistic view of the sustainability of development;
- permits an integrated view of the indicators, visualising the interactions between the different subsystems;
- constitutes a tool for defining integrated public policies.

The national system is not a closed system, but linked with the rest of the world. Therefore, the national indicator system includes indicators on the interrelations between the national and international development and sustainability. Furthermore, the system includes indicators on the interrelations between the different subsystems (or 'pillars'). In addition, indicators are presented on intensities, analysing the relations between the productive sector and the environment. These indicators permit analysis of to what extent economic growth depends on the use of natural resources.

The SIDSA system is structured as follows:

- Social subsystem of Development: 11 indicators
- Social subsystem of Sustainability: 3 indicators
- Environment subsystem of Development: 3 indicators
- Environment subsystem of Sustainability: 5 indicators
- Economic subsystem of Development: 3 indicators
- Economic subsystem of Sustainability: 4 indicators
- Institutional subsystem of Development: 3 indicators
- Institutional subsystem of Sustainability: 3 indicators
- National and international interrelations: 4 indicators
- Interrelation between the Economic and Environment subsystems: 9 indicators
- Interrelation between the Environment and Social subsystems: 4 indicators
- Interrelation between the Economic and Social subsystems: 3 indicators
- Interrelation between the Institutional and Economic subsystems: 3 indicators
- Interrelation between the Institutional and Social subsystems: 3 indicators
- Interrelation between the Institutional and Environment subsystems: 3 indicators
- Efficiency or intensity: 4 indicators

Vietnam

In Vietnam, the 'Strategic Orientation for Sustainable Development' included promoting environmental information systems and a sustainable development evaluation and monitoring indicator system. The Local Agenda 21 focuses on concrete local conditions, defines sustainable development goals and indicator systems on local level and establishes a reporting and supervising system. Before the establishment of the [Sustainable Development Implementation Plan for Vietnam](#) (2008), there was no official indicator system to measure and assess sustainable development.

According to the local conditions and the targets and characteristics of the national Agenda 21, the SDI set has been developed for each area. Amongst other, this work has been based on the Millennium Development Goals (MDG) indicators and the CSD sustainable development indicators. Following a four-pillar framework, an SDI set of 44 indicators has been established, presented in [Box 26.4](#):

Box 26.4: Vietnam sustainable development indicators

Economic area: 12 indicators

1. GDP per capita
2. GDP growth
3. Structure of national economic sector
4. Agricultural labour rate of the total labour
5. Investment rate compares with GDP
6. ODA and FDI rate of investment of total social investment
7. Investment rate for studying and deploying (R&D)/GDP
8. Investment rate of education compares with GDP
9. Import/export balance
10. Debt rate compares with GDP
11. Energy consumption/annual GDP
12. Reuse and recycle rate of waste

Social area: 17 indicators

13. Population total
14. Percentage of population living under poverty level
15. Gini index about income difference
16. Ratio of male/female salary
17. Maternal mortality rate in having a baby
18. Percentage of under-five malnourished children
19. Urban unemployed rate
20. Life-span
21. Percentage of population with access to clean water
22. Percentage of literate adult
23. Percentage of children in compulsory lower secondary school
24. Students and collegians per 1000 people
25. Percentage of trained labour
26. Percentage of population with access to model communication means
27. Housing area per person in the city
28. Crimes per 100.000 people in the year
29. Traffic accidents per 100.000 people in the year

Area of Resource and Environment: 12 indicators

30. Forest coverage
31. Percentage of nature reserve area compares with natural square
32. Percentage of irrigated agricultural land
33. Annual rate of soil degradation
34. Annual exploitation rate (main mineral)
35. Percentage of industrial groups and zones with waste treatment system
36. Number of enterprises awarded ISO 14001 certificates
37. Discharge of greenhouse gases
38. Urbanization rate with air pollution beyond standards
39. Ecosystem are in danger of species threatened by extinction
40. Annual fish yield
41. Economic loss due to calamities

Institutional area: 3 indicators

42. Number of localities has Agenda 21
43. Number of sustainable development offices, number of staffs in sustainable development offices
44. Finance mobilization for hunger elimination and poverty alleviation.

D.26.4. Analysing data quality and identifying problems

The quality of Sustainable Development Indicators (SDIs) includes the relevance to policy makers in their decision-making and policy monitoring is central to SDI quality, as well as more traditional aspects such as accuracy, comparability and timeliness. (Statistical quality is described in more detail in [section C.5.3.](#))

The [Quality Assurance Framework of the European Statistical System](#) provides a template for the systematic assessment of the quality of indicators. The main feature of policy driven indicators is their relevance to the formulation and monitoring of policy. This is a cornerstone of the assessment of the quality profiles, together with the indicator's contribution to an integrated policy analysis. The quality profile also documents the quality of the indicator with respect to the statistical quality dimensions most relevant to the indicator and its institutional framework (sources, legislation, etc). As the Eurostat Quality Assurance Framework is generic and focused on common key quality criteria for indicators, it is straight-forward to adapt and implement in any statistical system, both in developing and developed countries.

Box 26.5. Quality profiles for EU statistical indicators

The quality profiles provide the definition of the indicator and a list of key stakeholders in Eurostat and elsewhere in the European Commission, as well as any Working Groups involved.

The quality profile of the indicator is then specified according to the following points:

1. Overall assessment of accuracy and comparability⁷⁷

- A: reliable and well documented, with high comparability over time and across countries
- B: reliable and well documented, but serious shortcomings in comparability
- C: to be interpreted with care and/or with serious shortcomings in comparability
- 'Indicator to be developed'

2. Description of the objective and relevance of the indicator

Specifically detailing any restriction of the indicator's relevance and other characteristics which may lead to restrictions in using it in monitoring and reporting

3. Details of data availability

Overview over countries and periods for which data are available: EU Member States, Candidate and Potential Candidate States, US and Japan, EFTA states

4. Overall accuracy

Assessment of whether the indicator's accuracy is 'High' or 'Restricted', and a description of the framework to assure the accuracy

5. Comparability across countries

Assessment of whether the indicator's comparability across countries is 'High' or 'Restricted', and a description of the framework to assure the comparability

6. Comparability over time

Assessment of whether the indicator's comparability over time is 'High' or 'Restricted', and a description of the framework to assure the comparability

7. Development perspective for improving the quality of this indicator

The possibilities for further quality of the indicators is outlined, including as far as possible an indication of the burden on Member States and respondents.

8. Contribution to quality of the set/potential to qualify for an integrated policy analysis

Analysis of the indicator's information value for analysis of the policy domain and its interdependence and combined analytical strength with other indicators.

An overview of relevant EU level legislation is also provided.

D.26.5. Improving sector statistics

D.26.5.1. EU SDI

Following the 1992 Rio Earth Summit Eurostat worked closely with the UN work programme on global indicators of sustainable development, and published indicator compilations in 1997 and again in 2001. A first EU-oriented set of SDIs was proposed following the adoption of the initial EU SDS of 2001. The European Commission foresaw the need for a regular review and adaptation of the set in order to reflect emerging policy priorities, as well as improvements in statistical data collection.

Eurostat, with the assistance of the working group on SDIs, constantly reviews the situation regarding the development of appropriate indicators, so as to further improve the relevance of the set of indicators. This working group on SDIs comprises both statistical and policy representatives at both national and EU level. The issues addressed in these reviews are:

- Policy relevance: is the current SDI set providing the information needed to monitor progress under the latest version of the EU SDS and other relevant policy initiatives?
- Efficient communication: Is the current SDI set streamlined to communicate progress and priorities efficiently and does it take in the latest developments in indicator methodology with respect to communication
- Statistical quality: Are the SDIs meeting current quality criteria, are they designed using the best available methods, are they taking into account the latest datasets available and are they stable over time?.

The EU SDIs include a group of indicators currently under development, as they are based on the development of specific surveys (e.g. SILC, CIS, health surveys) and sectoral methodological development (e.g. energy statistics, environmental accounts). Eurostat is cooperating closely with relevant agencies, researchers, etc. to develop further sustainable development indicators, especially to fill information needs in areas currently not adequately covered.

D.26.5.2. RECOMMENDATIONS ON HOW TO CONSTRUCT A SET OF SDI

The [United Nations Guidelines and Methodologies for Indicators of Sustainable Development](#) provides both a global list of sustainable development indicators and methodology for developing such indicators within each area. This is a good basis for developing a national set of SDIs. However, but each country must define which SDIs are most relevant for its own policy purposes, e.g. as defined by the national Agenda 21.

A basic approach is to start by analysing national policy information needs and which statistics and indicators are already available or easy to construct based on existing sources. Policy makers and other stakeholders should be closely involved in this process, as the main goal of the SDIs is to inform policy makers and to monitor progress within the national sustainable development policies. Political support

is vital; policy makers must need the SDIs for their planning, monitoring, evaluation and political dialogue.

Existing surveys and management information systems (MIS) are key data sources. On this basis, a first set of national SDIs may be established. Further development should be focused on improving the quality of these first SDIs and of constructing indicators in priority areas poorly or not at all informed by the initial set of SDIs. In this context, coordination and networking is vital, bringing surveys and data together. The initial set of SDIs needs to be operationalised, the theoretical framework established and the necessary policy documents developed.

Some countries and international organisation use so-called composite indicators, such as the ecological footprint, genuine savings, and the human development index. This type of indicator attempts to combine different indicators into a single index. The lack of an empirical basis for weighting the different components means that these indicators remain controversial.

The structure of the SDI set is important, and requires a balance between indicators for the different themes and between different types of indicators (stock, flow, distribution, efficiency, context). The Eurostat pyramid of indicator levels (see [section D.26.3.2](#)) is a good way to structure the indicator set, both as regards policy relevance and quality.

The quality of Sustainable Development Indicators (SDIs) is closely related to their purpose of monitoring progress in priority policy areas. Thus, the relevance to policy makers in their decision-making and policy monitoring is central to SDI quality, together with aspects such as accuracy, comparability and timeliness. (Statistical quality is described in more detail in [section C.5.3](#).) The [Quality Assurance Framework of the European Statistical System](#) provides a template for the systematic assessment of the quality of indicators. It is straightforward to adapt and implement in statistical system also in developing countries.

In summary, the indicators should be:

- policy responsive;
- informative to policy makers and other stakeholders;
- methodologically sound;
- easy to interpret;
- form a balanced set over the sustainable development themes;
- sensitive to the change they are supposed to measure;
- measurable;
- updated regularly;
- not involving huge costs or impose heavy statistical burdens.

It is not always possible to satisfy all these criteria simultaneously; compromises are often unavoidable. However, the main goal of these indicators is that they should monitor progress towards sustainable development strategies. Thus, they must be relevant to these policies and be comparable over time (and preferable also across countries and regions).

To find out more...

Methodologies and frameworks

- [Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators \(IAEG-SDGs\)](#) to the 47th session of the UN Statistical Commission (including list of proposed SDG indicators)
- [SDG Indicators metadata repository](#)
- United Nations: [Indicators of Sustainable Development - Guidelines and Methodologies \(2007\)](#)
- Eurostat: [Sustainable development in the European Union \(2015\)](#) – monitoring report of the EU sustainable development strategy
- [Sustainable development indicators to monitor the implementation of the EU Sustainable Development Strategy](#), Communication from Commissioner Almunia to the Members of the Commission SEC(2005) 161 final
- Examples of national frameworks: [Argentina](#), [Vietnam](#) and [South Africa](#)
- [Eurostat's SDI website](#)

Policy documents

- World Commission on Environment and Development: [Our Common Future](#) (1987)
- United Nations Conference on Environment and Development: [Rio Declaration on Environment and Development](#) and the [Agenda 21](#) action plan (1992)
- World Summit on Sustainable Development: [Johannesburg Plan of Implementation](#) (2002)
- [Renewed EU Sustainable Development Strategy \(EU SDS\)](#) (2006)
- European Commission Communication COM(2009) 400: [Mainstreaming Sustainable Development into EU Policies: 2009 Review of the European Union Strategy for Sustainable Development](#);
- [UN High-level Panel on Global Sustainability: 'Resilient People, Resilient Planet: A Future Worth Choosing'](#) (2012)
- UN Resolution 70/1 (2015): [Transforming our world: the 2030 Agenda for Sustainable Development](#)
- [The Sustainable Development Goals](#)

Other resources

- The [Inter-Agency and Expert Group on Sustainable Development Goal Indicators \(IAEG-SDGs\)](#)
- [The SDG Indicators Global Database](#)
- United Nations [Division for Sustainable Development](#)
- United Nations [Sustainable Development Solutions Network \(SDSN\)](#)
- Eurostat: [Sustainable Development Indicators \(EU SDI\)](#); ['Figures for the future - 20 years of sustainable development in Europe? A guide for citizens'](#) (2012)
- European Commission DG International Cooperation and Development: [The 2030 Agenda for Sustainable Development](#)
- European Commission DG Environment: [Sustainable Development](#)
- OECD: [Development Co-operation Directorate \(DCD-DAC\)](#) and [Sustainable development](#)
- United Nations Development Programme and United Nations Environment Programme: [Poverty-Environment Initiative \(PEI\)](#)

D.27

Labour market statistics



D.27. Labour market statistics

The chapter in brief

The challenge for labour market statistics is to provide users with a comprehensive description of the various aspects of the labour market and its dynamics. This statistical domain is of strategic importance, as labour market policies are at the heart of efforts to reduce poverty and provide the poor with the means to support themselves. Like national accounts, the population census or business statistics, labour market statistics belong to the core business of national statistical offices. Labour market statistics are mainly based on administrative records and on large surveys, such as labour force surveys.

This chapter covers a wide area of labour market statistics such as employment and unemployment, labour conditions, job vacancies, health and safety at work, strikes and lockouts, etc. It starts by identifying the main areas for which these statistics are used. The chapter then provides an overview over the different labour market statistics collected and of some of the main concepts, definitions and classifications agreed at international level. The main sources of labour market data are presented, followed by advice on how to analyse the quality of labour market statistics. The chapter concludes with recommendations on how to improve labour market statistics and how to strengthen the capacity to produce these statistics in developing countries.

This chapter is based on internationally agreed definitions and methodological recommendations from the [International Labour Organization \(ILO\)](#), the [UN Statistical Division](#), [Eurostat](#) and the [European Statistical System \(ESS\)](#). Examples and recommendations are drawn both from ILO/PARIS21 meetings on labour market statistics in developing countries as well as from experiences of European integration in this domain.

D.27.1. What this data is used for

Labour market statistics are crucial to understand, enhance and promote key issues such as employment, principles and rights at work and social protection and dialogue. These statistics are vital to analyse, evaluate and monitor the functioning of the economy, to design and set up effective labour market strategies and to assess their effectiveness over the short and the long term.

From a social viewpoint, this information is needed to design policies and programs for job creation, training schemes and help vulnerable groups (e.g. poor people, young people, older people, women, disabled people) to find secure employment. From an economic viewpoint, these statistics are used to analyse, evaluate and monitor the way the economy is performing and the effectiveness of current and longer term policies.

Statistics on employment, unemployment, the share and structure of the labour market, broken down by age and sex, are vital to design social protection policies. In developing countries, labour market statistics are needed above all to design and monitor policies and programs that aim to reduce poverty and vulnerability. This is achieved by promoting efficient labour markets, lessening people's exposure to risks

and enhancing their capacity to manage economic and social risks such as unemployment, sickness or disability. In these countries, employment in the informal sector and informal employment is often of great importance. Thus, statistics need to capture employment in both the formal and the informal sector, including informal employment (see [Box 27.2](#) below).⁽⁷⁸⁾

Labour market statistics are also used to complement information from other social statistics. They are also enhancing the analysis of key social challenges and development. High unemployment is often correlated with social issues such as poverty, crime, social unrest, religious and ethnic tensions, health risks, etc. (see [Box 27.1 on Employment and the MDGs](#)). Labour market statistics are also used to develop and improve education policies and identify training needs.

Main labour market indicators, in particular unemployment and employment rates, are published frequently (monthly and/or quarterly), provided that the NSI has the required capacity. The labour market indicators are timely indicators providing key information for short term and business cycle analysts to monitor the current economic situation together with other short term indicators (e.g. GDP, trade, current account, financial indicators, and business climate indicators).

Labour market data are also relevant to citizens, as employment and unemployment are of central concern to each person and to society. It may also be used by international companies to decide if they should make long term investments in a developing country. Many types of labour market statistics, such as hours worked, absences or injuries at work are also useful for labour-management negotiations and discussions led by unions.

Enterprises, governments and others use information on health and safety at work to design, monitor and assess policies and programmes for the prevention of occupational injuries, disease and deaths and to foster a safe work environment.

Finally, labour market statistics are used as input to other statistical domains, such as education statistics (see [chapter D.23](#)) and national accounts (see [chapter D.11](#)).

⁽⁷⁸⁾ For further discussion of informal employment in specific sectors (see [chapter D.11 National accounts, economic accounts and the non-observed economy](#); [chapter D.13 Business statistics](#); [chapter D.17 Agriculture, forestry and fishing statistics](#)).

Box 27.1: Employment and the Millennium Development Goals

In the context of the Millennium Development Goals (MDG), in 2007 the United Nations Secretary-General started a two-year effort in the Commission for Social Development on the priority theme of “promoting full, productive employment and decent work for all”.

Resolutions that were adopted guided the work of the members of the Inter-Agency and Expert Group (IAEG) on Millennium Development Goals Indicators in their efforts to expand the MDGs. The result, in 2008, was that a new MDG target (Target 1B) related to employment was added. The following four indicators were defined to monitor progress under this target:

- ✓ Indicator n° 1.4 Growth rate of labour productivity (GDP per person employed)
- ✓ Indicator n° 1.5 Employment-to-population ratio
- ✓ Indicator n° 1.6 Proportion of employed people living below the poverty line (working poor)
- ✓ Indicator n° 1.7 Proportion of own-account and contributing family workers in total employment (vulnerable employment rate)

In addition to these indicators, MDG Goal 3 ‘Promote gender equality and empower women’ included an indicator on women’s participation in the labour market:

- ✓ Indicator n° 3.2 Share of women in wage employment* in the non-agricultural sector

In 2015, the Inter-Agency and Expert Group on Sustainable Development Goals Indicators (IAEG-SDGs) proposed a set of 230 indicators to measure progress towards achieving the 17 SDGs and their 169 targets. Several of these built on the previous MDG indicators:

Sustainable Development Goal 1: End poverty in all its forms everywhere

- ✓ Indicator n° 1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)

Sustainable Development Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

- ✓ Indicator n° 2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size
- ✓ Indicator n° 2.3.2 Average income of small-scale food producers, by sex and indigenous status

Sustainable Development Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

- ✓ Indicator n° 8.2.1 Annual growth rate of real GDP per employed
- ✓ Indicator n° 8.3.1 Proportion of informal employment in non-agriculture employment, by sex person
- ✓ Indicator n° 8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities
- ✓ Indicator n° 8.5.2 Unemployment rate, by sex, age and persons with disabilities
- ✓ Indicator n° 8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training
- ✓ Indicator n° 8.7.1 Proportion and number of children aged 5-17 years engaged in child labour, by sex and age
- ✓ Indicator n° 8.8.1 Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status
- ✓ Indicator n° 8.8.2 Increase in national compliance of labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status
- ✓ Indicator n° 8.9.2 Number of jobs in tourism industries as a proportion of total jobs and growth rate of jobs, by sex
- ✓ Indicator n° 8.b.1 Total government spending in social protection and employment programmes as a proportion of the national budgets and GDP

Labour market statistics are crucial to compile these indicators and thus to allow policy makers to monitor effects of actions taken to meet the Sustainable Development Goals.

Sources: *International Labour Organization (ILO): ‘Guide to the new Millennium Development Goals Employment indicators: including the full decent work indicator set’ and the United Nations Statistical Division’s (UNSD) official MDG indicators website*

United Nations Statistics Division: Indicators for Monitoring the Millennium Development Goals – Definitions, Rationale, Concepts and Sources (wiki; December 2012)

United Nations Statistical Division’s (UNSD) official SDG indicators website

* Wage employment refers only to “persons in paid employment jobs”.

D.27.2. Concepts and definitions

D.27.2.1. BACKGROUND

The statistics covered in this section are those defined by the section 1.2 “Labour statistics” of the UNECE’s [Classification of Statistical Activities \(CSA\)](#). This area covers statistics on the labour force, the labour market, employment and unemployment. The more detailed topics include the economically active population, labour conditions, health and safety at work, working time and other working conditions, strikes and lockouts, job vacancies and job creation.

At the international level, the International Labour Organization (ILO) promotes standards on various topics of labour market statistics. Standards are defined according to [Conventions and recommendations](#) adopted by the ILO’s annual International Labour Conference, and to [Resolutions and Guidelines](#) adopted by the [International Conference of Labour Statisticians](#).

[ILO Convention n° 160](#) provides general guidelines encompassing all areas of basic labour market statistics. It is complemented by several resolutions regarding specific topics like the [statistics of child labour, the measurement of working time](#), the economically active population, employment, underemployment, employment in the informal sector and classifications. The [Resolutions](#) provide information on conceptual frameworks, definitions and methodologies to be used when producing labour market statistics. They are complemented by [Guidelines](#) which refer to specific areas.

Numerous statistical variables and indicators are collected in order to give a comprehensive overview of the labour market. The definitions of the main variables, as agreed at the international level, are presented in [section D.27.2.2](#). Generally, the terminology used is that of the ILO ⁽⁷⁹⁾. The ILO plays a key role given its position as a specialised agency of the UN, which includes a specific responsibility for labour market statistics. In addition, a number of other actors are involved in labour market statistics, including Eurostat, OECD, IMF, UNSD and the World Bank. The ILO and other international actors are working since a long time to improve the quality of labour market statistics, through the promotion of international harmonization of concepts and definitions and through technical assistance to improve statistical capacity at national level.

Many more indicators than the ones defined in [section D.27.2.2](#) are available at European level. To improve harmonisation of labour market statistics, definitions and concepts throughout the European Statistical System, a number of regulations have been adopted and form the legal basis for the labour market statistics in the EU. Generally, the definitions and recommendations of the International Labour Organisation are followed.

⁽⁷⁹⁾ ‘Job vacancies’ and ‘job creations’ refer to Eurostat terminology, as does ‘labour market statistics’.

[Eurostat’s Labour market statistics website](#) provides methodological information and definitions for EU labour market statistics, as well as references to international methodological recommendations, guidelines, etc. The [European Union Labour Force Survey \(EU-LFS\) website](#) contains detailed information regarding the concepts and definitions, survey methods, organization and comparability of the EU-LFS. Eurostat also maintains a [Concepts and Definitions Database \(CODED\)](#) where, amongst others, concepts and definitions for labour market statistics can be consulted.

D.27.2.2. DEFINITIONS

Labour force, employment and unemployment:

- **The economically active population (or labour force)** encompasses persons employed and unemployed. People are classified as employed, unemployed or economically inactive according to the definitions of the ILO (see the following definitions). When measured for a short period of time, e.g. a day or a week, it refers to the labour force or the current economically active population. When measured for a long period of time, such as a year, it relates to the **usually active population**. The **activity rate** is the share of the total population that is economically active, i.e. the labour force as a percentage of the population of working age (in the EU, this is defined as the population aged 15-64 years).
- **Employed** persons are those who, during the reference week, did any work for pay or profit, or were not working but had jobs from which they were temporarily absent. “Work” means any work for pay or profit during the reference week, even for as little as one hour. Pay includes cash payments or payment in kind (i.e. payment in goods or services rather than money), whether payment was received in the week the work was done or not. Anyone who receives a wage for on-the-job training which involves the production of goods or services is also considered as being in employment. Self-employed and family workers are also included.
- **The Employment rate** is calculated as the share of persons in employment in the total population; the employment rate is frequently broken down by sex and age groups.
- **Unemployment:** The reference statistical definition of unemployment is based on the ‘Recommendation of the 13th International Conference of Labour Statisticians’. According to ILO terminology, the “unemployed” comprise all persons above a specified age ⁽⁸⁰⁾ who during the reference period were:
 - (a) “without work”, i.e. were not in paid employment or self-employment;
 - (b) “currently available for work”, i.e. were available for paid employment or self-employment during the reference period; and

⁽⁸⁰⁾ The Eurostat definition is people aged 15 to 74 years old.

- o (c) “seeking work”, i.e. had taken specific steps in a specified recent period to seek paid employment or self-employment. The specific steps may include registration at a public or private employment exchange; application to employers; checking at worksites, farms, factory gates, market or other assembly places; placing or answering newspaper advertisements; seeking assistance of friends or relatives; looking for land, building, machinery or equipment to establish own enterprise; arranging for financial resources; applying for permits and licences, etc.
- The **unemployment rate** is the number of people unemployed as a percentage of the labour force. The youth unemployment rate is the unemployment rate of people aged 15-24. The long-term unemployment rate is the number of persons unemployed for 12 months or longer as a percentage of the labour force ⁽⁸¹⁾.

Labour conditions

Labour conditions cover issues such as wages, working time, work organization, maternity protection and arrangements to adapt working life to the demands of life outside work. It can be defined as the legislated conditions that shape workers’ experience at work. Numerous conventions regarding working time and work organization have been adopted, and a number of associated **international standards** exist. A key international policy initiative aimed at improving labour conditions is the ILO’s **Decent Work Agenda**.

According to the ILO methodology, definitions of main indicators are:

Usual hours worked are the modal value of the actual hours worked per week over a long reference period, excluding weeks when an absence from work occurs (e.g. holidays, leaves, strikes ...).

Actual hours worked in the reference week are the hours the person spent in work activities during the reference week. Work activities should include production activities, ancillary activities, short pauses and education and training which are necessary for successfully carrying out of either the production or ancillary activities.

Actual hours worked should exclude travel time between home and the place of work, the main meal breaks, absences from work within the working period for personal reasons and education and training hours which are not necessary for carrying out the production or ancillary activities.

Health and safety at work

Health and safety at work is a cross-disciplinary area. Since 1950, the ILO and the **World Health Organization (WHO)** have shared a common definition of occupational health. It was adopted by the Joint ILO/WHO Committee on

⁽⁸¹⁾ Eurostat uses a more precise definition in order to further improve comparability within the EU (see **Commission Regulation (EC) No 1897/2000**). This definition is fully compatible with the ILO standards.

Occupational Health at its first session in 1950. The definition reads:

“Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities; and, to summarize, the adaptation of work to man and of each man to his job.”.

Current international statistical guidelines on occupational injuries are found in the **Resolution concerning “Statistics on occupational injuries resulting from accidents at work”** (adopted by the 16th International Conference of Labour Statisticians, 1998), which adopted much of the European Commission’s **European Statistics on Accidents at Work (ESAW) methodology**. The Resolution and the ESAW provides terms and definitions for statistics on occupational injuries.

According to the ILO methodology, definitions of main indicators are:

Occupational accident: an unexpected and unplanned occurrence, including acts of violence, arising out of or in connection with work which results in one or more workers incurring a personal injury, disease or death; as occupational accidents are to be considered travel, transport or road traffic accidents in which workers are injured and which arise out of or in the course of work, i.e. while engaged in an economic activity, or at work, or carrying on the business of the employer;

Occupational injury: any personal injury, disease or death resulting from an occupational accident; an occupational injury is therefore distinct from an occupational disease, which is a disease contracted as a result of an exposure over a period of time to risk factors arising from work activity.

Strikes and lockouts

Official statistics related to **strikes and lockouts** data are provided following the guidelines included in the Resolution concerning statistics of strikes, lockouts and other actions due to labour disputes, adopted by the ILO Fifteenth International Conference of Labour Statisticians in 1993 which gives the following definitions:

- A **strike** is a temporary work stoppage effected by one or more groups of workers with a view to enforcing or resisting demands or expressing grievances, or supporting other workers in their demands or grievances.
- A **lockout** is a total or partial temporary closure of one or more places of employment, or the hindering of the normal work activities of employees, by one or more employers with a view to enforcing or resisting demands or expressing

grievances, or supporting other employers in their demands or grievances.

- **Workers involved in a strike:** Workers directly involved in a strike are those who participated directly by stopping work. Workers indirectly involved in a strike are those employees of the establishments involved, or self-employed workers in the group involved, who did not participate directly by stopping work but who were prevented from working because of the strike.
- **Workers involved in a lockout:** Workers directly involved in a lockout are those employees of the establishments involved who were directly concerned by the labour dispute and who were prevented from working by the lockout. Workers indirectly involved in a lockout are those employees of the establishments involved who were not directly concerned by the labour dispute but who were prevented from working by the lockout.
- A **labour dispute** is a state of disagreement over a particular issue or group of issues over which there is conflict between workers and employers, or about which grievance is expressed by workers or employers, or about which workers or employers support other workers or employers in their demands or grievances.

Job vacancies, job creations

Job vacancy statistics provide information on the demand side of the labour market (whereas employment and related statistics illustrate the offer side). These indicators are used to analyse the business cycle and as early indicators of downturns in the business cycle. Recently, an emphasis has been made on job vacancies and job creation. These indicators belong to the indicators used to closely monitor short-term changes in the labour market.

The Eurostat definition is as follows:

- **job vacancy** is defined as a paid post newly created, unoccupied, or about to become vacant:
 - for which the employer is taking active steps to find a suitable candidate and is prepared to take further steps to find a suitable candidate from outside the enterprise concerned; and
 - which the employer intends to fill either immediately or within a specific period of time.

The concepts “active steps to find a suitable candidate” and “specific period of time” are country specific, and defined in relation to national legislation. A vacant post that is only open to internal candidates is not treated as a ‘job vacancy’.

Job vacancy statistics are predominantly presented in terms of **the Job Vacancy Rate (JVR)**. This indicator measures the percentage of total posts that are vacant, in line with the definition of job vacancy above, expressed as follows:

$$\text{JVR} = \text{number of job vacancies} / (\text{number of occupied posts} + \text{number of job vacancies}) * 100$$

An occupied post is a post within an organisation to which an employee has been assigned.

Classifications

Several classifications are relevant for labour market statistics. The ILO is responsible for the maintenance, the update and the revision of two main specific classifications used for labour market statistics; the **International Standard Classification of Occupations (ISCO)** and the **International Classification of Status in Employment (ICSE)**.

- The International **Standard Classification of Occupations (ISCO)** which brings together individuals working in similar types of work, namely tasks and duties undertaken in the job, irrespective of where the work is performed.
- The **International Classification of Status in Employment (ICSE)** which is a set of discrete values which can be assigned to the variable “type of contract which a person has with other persons or organizations when performing a particular job” when that is measured in a statistical survey or registered in other administrative files.

Other classifications are also of relevance to labour market statistics, in particular:

- United Nations’ **International Standard Industrial Classification of all Economic Activities (ISIC)**. In the European Statistical System, the NACE classification is used. ⁽⁸²⁾
- UNESCO’s **International Standard Classification of Education (ISCED)**

⁽⁸²⁾ NACE is based on ISIC and adapted to reflect economic activities of particular relevance to the European economy through sub-division of ISIC sub-groups. Statistics produced on the basis of NACE are comparable at European and, in general, at world level.

Box 27.2: Informal employment, the informal sector and the informal economy

The term “informal economy” is used by the ILO as including the informal sector as well as informal employment. As a supplement to the 1993 System of National Accounts, an [international conceptual framework for measurement of the non-observed economy](#) already exists (see [chapter D.13](#)), which distinguishes the informal sector from underground production, illegal production and household production for own final use. The concept of informal sector refers to production units as observation units, while the concept of informal employment refers to jobs as observation units. Informal sector enterprises and employment in the informal sector are defined according to the [resolution concerning statistics of employment in the informal sector](#) adopted by the 15th ICLS.

Informal employment comprises the total number of informal jobs, whether carried out in formal sector enterprises, informal sector enterprises, or households, during a given reference period:

- i. own-account workers employed in their own informal sector enterprises;
- ii. employers employed in their own informal sector enterprises;
- iii. contributing family workers, irrespective of whether they work in formal or informal sector enterprises;
- iv. members of informal producers’ cooperatives;
- v. employees holding informal jobs in formal sector enterprises, informal sector enterprises, or as paid domestic workers employed by households;
- vi. own-account workers engaged in the production of goods exclusively for own final use by their household ⁽⁶³⁾.

Employees are considered to have informal jobs if their employment relationship is, in law or in practice, not subject to national labour legislation, income taxation, social protection or entitlement to certain employment benefits. The reasons may be that the jobs or the employees have not been declared; the jobs are casual or of a limited short duration; the hours of work or wages fall below a specified threshold; employment by unincorporated enterprises or by persons in households; the employee’s place of work is outside the premises of the employer’s enterprise (e.g. outworkers without employment contract); or labour regulations are not applied, not enforced, or not complied with for any other reason for the jobs in question.

The structure and size of the informal economy varies greatly between countries; the operational criteria for defining informal jobs of employees must be determined in accordance with national circumstances and data availability.

Informal employment outside the informal sector comprises: employees holding informal jobs in formal sector enterprises (or as paid domestic workers employed by households); contributing family workers working in formal sector enterprises; own-account workers engaged in the production of goods exclusively for own final use by their household.

Countries which exclude agricultural activities from the scope of their informal sector statistics should develop suitable definitions of informal jobs in agriculture, especially with respect to jobs held by own-account workers, employers and members of producers’ cooperatives.

Sources: *Seventeenth International Conference of Labour Statisticians (ICLS): Guidelines concerning a statistical definition of informal employment*; *International Labour Organization: Informal economy website*

⁽⁶³⁾ If considered employed according to the resolution concerning statistics of the economically active population, employment, unemployment and underemployment adopted by the 13th ICLS.

Box 27.3: Examples of indicators derived from labour market statistics: Europe 2020 and other key European policies

Europe 2020 is an EU strategy for reviving the economy, launched by the European Commission in 2010. Europe 2020 aims at creating more jobs and better lives through Europe's capability to deliver smart, sustainable and inclusive growth. It also involves [greater coordination of policy at Member States and EU level](#). The Europe 2020 strategy has 5 headline targets, the first of which is directly addressing the labour market in the Member States and in the EU:

- 75 % of the population aged 20-64 should be employed: The employment rate of the population aged 20-64 should increase to at least 75%, also through the greater involvement of women, older workers and the better integration of migrants in the work force.

These headline targets are currently measured by [eight headline indicators](#). The first of these is taken directly from [Eurostat's labour market statistics](#):

- Employment rate by gender, age group 20-64

The Employment Committee, the Social Protection Committee and the European Commission have developed a [Joint Assessment Framework \(JAF\)](#) to track progress and monitor the Employment Guidelines under Europe 2020. JAF includes quantitative monitoring of progress towards the EU headline and related national targets in the light of the implementation of the [Europe 2020 Integrated Guidelines](#). It also monitors progress in the labour market participation and social inclusion of specific groups. The initial list of JAF indicators (see Annex 2 of the JAF) is mainly based on the [indicators developed for the monitoring of the Employment Guidelines under the Lisbon Strategy](#).

Labour market statistics also provide key indicators in other key policy areas:

Good quality [Euro Area statistics](#) are essential for co-ordination of economic policies, assessment of convergence and the conduct of monetary policy. This concerns macroeconomic statistics with quarterly and monthly frequency, a key instrument for business cycle analysis, for short-term economic policies and for monitoring of government deficit and debt in the context of the Excessive Deficit Procedure (EDP). The [Principal European Economic Indicators \(PEEIs\)](#) include 4 short-term indicators drawn from the labour market statistics:

- 4.1 Unemployment rate (monthly)
- 4.2 Job vacancy rate (quarterly)
- 4.3 Employment (quarterly)
- 4.4 Labour cost index (quarterly)

[Eurostat's Sustainable Development Indicators \(SDIs\)](#) are used to monitor the [EU Sustainable Development Strategy \(EU SDS\)](#) (see [chapter D.26](#)). The EU SDIs are organised in ten themes in order to provide a clear structure, relevant to political decision-making. The EU SDIs is structured in three levels of indicators, complemented by contextual indicators. Several of these indicators are taken from the labour market statistics:

- Headline indicators monitor the 'overall objectives' of the key challenges of the EU SDS:
 - *Employment rate of older workers*
- Indicators related to the 'operational objectives' of the EU SDS strategy are the lead indicators in their respective subthemes:
 - *Total employment rate*
- Indicators related to actions described in the EU SDS strategy:
 - *Employment rate, by gender*
 - *Employment rate, by highest level of education attained*
 - *Dispersion of regional employment rates, by gender*
 - *Unemployment rate, by gender*
 - *Unemployment rate, by age group*

D.27.3. Data sources

In general, labour market statistics are obtained from the following sources:

- Population censuses and household-based sample surveys (in particular labour force surveys (LFS)).
- Enterprise censuses or surveys.
- Administrative records.

Household surveys usually have comprehensive coverage of the population and allow detailed questioning for precise measurement of labour force concepts. It is the main source of information for labour market statistics. The definitions used are agreed at the international level by the ILO.

At EU level, the LFS is a large sample survey among private households that provides detailed annual and quarterly data on employment, unemployment and inactivity. The EU LFS is carried out on a quarterly basis by the Member States. The data can be broken down along many dimensions including age, sex, educational attainment, and distinctions between permanent/temporary and full-time/part-time employment. Ad-hoc modules (set of questions on specific topics) have been added to the EU LFS on a yearly rotating basis, e.g. on employment of disabled people, entry of young people into the labour market, labour market situation of migrants, accidents at work and work-related health problems, etc.

Although the LFS is a priority source of information, it cannot provide data on job vacancies and job creation. This type of data, together with collection of data related to production, labour input, number of employees⁸⁴, salaries of the employees, etc., is obtained from enterprise surveys or censuses. Responding companies usually provide reliable information. However, business surveys (enterprise surveys) are based on business registers, which may not be well maintained or even available in developing countries (small businesses are for instance usually poorly covered, and enterprises in the informal sector are not covered at all). Thus, mixed surveys such as 1-2-3 surveys (see e.g. [chapter D.13](#)) may also be valuable tools to estimate informal employment.

Dependent on their design, household and business surveys often do not provide reliable estimates for very small sub-groups of the population, such as unemployment by individual occupational groups or detailed data by industry type. The size of the samples for normal household surveys are usually not large enough to provide reliable (in the sense of low variance) estimates for such small sub-groups. Business surveys in developing countries normally contain a limited number of questions in order to avoid excessive administrative burden and ensure adequate response by the business community. Detailed data covering specific groups or industries may instead be obtained from targeted sector surveys (e.g. on companies in particular industries, such as mining or manufacturing) when they exist.

⁽⁸⁴⁾ The number of employees is also available from the LFS.

Data compiled from administrative records include for instance registered job-seekers (from the national employment service, and occasionally even private agencies) or injuries at work (from national compensation schemes, etc). Administrative records are good sources in countries where the administrative system is reasonably developed and well organised. However, in developing countries this is often not the case.

A comprehensive system for labour market statistics needs to tap into several data sources. The same type of information may be available through more than one data source. The labour market statistics system must be developed based on an assessment of quality, coverage and reliability of the available sources, in order to select the most appropriate sources within the national context. On this basis, a sound and comprehensive labour statistics system should be developed.

Data availability

Regarding the dissemination of labour market statistics, various international organisations regularly publish data for their member countries.

The International Labour Office disseminates official core labour market statistics and estimates for over 200 countries. It also provides methodological descriptions of main national statistical sources. Those data are accessible online from the [ILOSTAT - database of labour market statistics](#). Every two years, the ILO also publishes the [Key Indicators of the Labour Market \(KILM\)](#). This publication presents a collection of 20 key indicators of the labour market, ranging from employment and variables relating to employment (status, sector, hours, etc.) to the lack of work and the characteristics of jobseekers, education, wages and compensation costs, labour productivity and working poverty.

The World Bank database covers most countries around the world; labour market statistics can be found under the topic '[Social Protection and Jobs](#)'. The OECD also maintains a database on labour market covering mainly its Member countries. WHO is active within the field of '[Occupational health and safety](#)' (health and safety at work), and is also central in the [Global Occupational Health Network \(GOHNET\)](#).

Many National Statistical Offices publish national labour market statistics on their website, in particular [results of national Labour Force Surveys](#).

Eurostat publishes EU statistics on employment and unemployment (from the Labour Force Survey (LFS)); Job vacancies; Earnings (gross and net earnings, the Structure of Earnings Survey (SES), gender pay gap, minimum wages); Labour costs incurred by businesses (the quarterly Labour Cost Index (LCI), annual labour costs data, the Labour Cost Survey (LCS)); Labour market policies (LMPs) and Labour disputes. Eurostat also publishes European statistics on [Health and safety at work](#).

Box 27.4: Examples of potential best sources for a selection of labour market statistics

- **Total employment** statistics: labour force surveys and population censuses;
- **Paid employment** statistics:
 - ✓ business surveys (normally only relating to the formal sector),
 - ✓ social security records (although these may not have full coverage of all paid employment because selected groups such as low wage groups, temporary workers and juniors may be excluded), and also
 - ✓ labour force surveys and population censuses
- **Underemployment** statistics: Labour force surveys.
- **Informal sector employment:** special informal sector surveys, (but some data may be gathered in labour force surveys, and even from population censuses).
- **Unemployment** statistics: Labour force surveys and Statistics on registered jobseekers (a concept that is not the same as the unemployed) may be obtained from employment exchange records (and have the benefit of low cost, detailed classification and high frequency).
- **Vacancy** statistics: business surveys (formal sector) and employment exchange records (if notified to the exchange);
- **Hours of work** statistics:
 - ✓ Actual and usual hours worked, all workers: Best from labour force surveys
 - ✓ Hours paid for, paid employees: Best from business surveys (formal sector).
- **Occupational safety and health:** administrative reports of accidents and from workers' compensation claims, as well as from special modules of household surveys.
- **Strikes, lockouts, grievances:** These may be compiled from reports of disputes resolutions.
- **Trade union membership:** These may be compiled from registrations of unions at the ministry of labour, and some countries have also used household surveys to measure this topic.
- **Statistics on collective agreements:** These may be compiled from registrations at the ministry of labour.
- **Breaches of labour law:** These may be compiled from reports of labour inspections.
- **Public sector employment and wages:** These may be compiled from public sector payroll records.

Source: 'Development of labour statistics systems' by Robert J Pember and Honoré Djerma (ILO, 2005)

D.27.4. Analysing data quality and identifying problems

The Data Quality Assessment Framework (DQAF) for Principal Labour Statistics published by the International Monetary Fund (IMF) in 2005 is a recommended tool for establishing a quality statistics diagnostic. The quality criteria identified in this framework are: prerequisites of quality (covering legal and institutional environment, resources available for statistical work, relevance, and other quality management), assurances of integrity (adherence to the principle of objectivity in all steps of statistical production), methodological soundness

(concepts, definitions, scope, classifications used), accuracy and reliability (data source, statistical techniques, validation, revision), service ability (periodicity and timeliness, consistency, revision policy and practice), data accessibility, metadata accessibility, and assistance to users.

The European Statistical System has agreed standards for the quality of statistics in general and of labour market statistics in particular (as for other statistical domains). Quality criteria are: relevance, accuracy, timeliness and punctuality, coherence, accessibility and clarity, comparability and completeness. Based on those criteria (and sub criteria), Eurostat compiles a Quality Report on the European Union Labour Force Survey (EU LFS). A report based on 2008 data and on individual Member States quality data was published in 2010.

For comparison and analysis of situations in different countries or sub-regions of the world, international standards and classifications should be respected. At the EU and OECD level, labour market statistics are harmonised and thus very comparable. But in developing countries, in practice, comparability of the data over time and across countries is often hampered by the use of different definitions, classifications or by differences in the methods of collection.

If we take as an example the economically active population, the extent to which family workers, particularly women, are included among the economically active population varies considerably from one country to another. National practices between countries also vary significantly as regards the treatment of groups such as armed forces, members of religious orders, persons entering the labour market, seasonal workers or persons engaged in part-time economic activities. Depending on the countries, all or some of these groups are included, or not, among the economically active population while in other countries they are treated as inactive.

The quality of data produced by countries also depends on issues specific to the source used. Survey data may suffer from sampling and non-sampling errors, and may also suffer from a poor quality of the sample frames used (e.g. population registers, business registers)⁸⁵.

As already mentioned, the management and maintenance (updating, checking) of business registers should assure a comprehensive coverage of all type of businesses; in developing countries, this is often not the case. In particular, poor coverage of small business is often observed. Furthermore, employment in the informal sector and other informal employment (see Box 27.2) often play a key role in developing countries.

For instance, the Expert Group Meeting on Setting the Scope of Social Statistics of the United Nations Statistics Division noted that in several African countries the sample frame starts to be obsolete already four years after a population census, due to very rapid population growth (in particular in urban areas). If, as it may be the case, a systematic update of these frames is not undertaken, the sampling errors may increase significantly.

⁽⁸⁵⁾ See chapters D.13 Business statistics and D.22 Population statistics.

The use of administrative data to compile statistics has the advantage of often being less costly than the implementation of surveys and treatment of data from these. However, the reliability and especially the adequacy of administrative data depend on the organisation and ability of the administration in a given country to manage and maintain them efficiently. For instance, if unemployed people do not systematically register to job agencies (e.g. because the agency is not efficient or because there is no incentive to do it), information from those agencies will have a poor coverage of the actually unemployed population.

Finally, at national level, the multiple sources for producing labour market data (population censuses, labour force surveys, establishment surveys and administrative records) may create confusion. These data sources have the advantage of providing users with a wide spectrum of statistics. However, different data sources with different methodologies measure the same phenomena in different ways, with more or less accuracy and coverage. As a result, the final figure for the same type of variable may not be comparable. In addition, not all countries are able to produce data on a regular basis.

In terms of quality, it is thus very important to provide metadata and guidelines to users to explain differences, key methodological and quality issues to keep in mind when using the data. It is also important to advise users on which source is the best to use for which particular purpose. Metadata are of particular importance for assessing the level of comparability and compliance with international standards.

For bodies responsible for the production of labour market statistics, the comparison of data from different sources is also a way to identify and understand problems and gaps. Some countries go one step further and try to reconcile/adjust data collected from different sources in order to bridge distinctive gaps in coverage of individual sources, smooth over measurement errors and harmonised definitions and classifications used.

Other countries go further by integrating data or constructing labour accounting systems where various types of inconsistent data are reconciled to yield hybrid “best” estimates. The main aim of such systems is to combine statistical data sources to enhance their strengths and overcome their weaknesses, in order to produce new series of data of superior quality. One of the advantages is the elimination of contradictory results.

Box 27.5: Example of two data sources in Europe: EU LFS and National accounts

The EU Labour Force Survey (EU LFS) and National Accounts of EU Member States are the two main sources of employment data. These two sources are not independent; indeed LFS is frequently an input to National Accounts employment estimates. Although using common definitions, LFS and National Accounts have their own aims and measurement approaches, which may lead to different results. In addition, other statistics based on business surveys or administrative sources also provide estimates of employment which may differ. These may also be used as input to the National Accounts. The main differences between LFS and National Accounts concern elements of geographical coverage (resident persons employed in the LFS vs. employment in resident production units in National Accounts), other coverage issues such as age boundaries and treatment of institutional households and some borderline differences regarding for example the recording of conscripts, unpaid apprentices and trainees or work in agriculture solely for own-consumption.

To ensure consistency between the numerator (output in terms of value added) and the denominator (labour input) in the productivity indicators, the primary source for employment growth and branches of activity is National Accounts data; EU LFS data are used for employment rates and for gender and social breakdowns.

Source: Eurostat

D.27.5 Improving sector statistics

Countries' statistical capacities may be developed using different paths and strategies, depending on the national context, policies, preferences and practices. For those reasons, this section does not seek to be prescriptive or exhaustive. Instead, it provides some key constraints and considerations, as well as important priority actions recommended by ILO to consider when seeking to improve labour market statistics in the framework of a cooperation program.

Box 27.6: Example: a proposal of key steps for a cooperation project in the field of Labour market statistics

Various steps have to be taken to successfully implement a cooperation programme in the field of labour market statistics.

First and foremost, it is necessary to have a comprehensive diagnosis of the situation, including ongoing activities managed by other international donors, and potential difficulties. This could be done via targeted missions to the country. The objective of such a mission will be to produce a detailed report assessing:

- ✓ The level of comprehensiveness and quality of available data (e.g.: domain covered, existing sources, results from user surveys ...), problems of coherence and definition; data flows and existing information systems.
- ✓ The qualifications of the staff involved in terms of their ability to produce data that meet the standards required, as well as the level of national expertise in the different sub-sectors.
- ✓ The institutional framework and organisation of the collection and dissemination of labour market statistics and the role played by the NSI.

Based on the results of this initial study, key actions should be identified together with the recipient country. To do so, a strategic meeting with the main stakeholders regarding the labour market statistics should be organised, with the objective of defining key priorities, objectives and targets. The result of the meeting will be translated into a document describing the components of the cooperation project, together with a tentative calendar.

Key activities of the project may comprise:

- ✓ Technical meetings: training courses and workshops to help domain specialists in the country to deal with practical questions related to the collection, processing and analysis of labour market data. To encourage institutional co-ordination, experts from both the NSI and other administrations involved in the production process should be invited to participate.
- ✓ Technical assistance to national experts in the implementation of new concepts or methodological tools, methods for designing Labour Force and Living Conditions Surveys (standardized questionnaires, sampling methods), methods for analysing social statistics (data processing and analysis software such as STATA or SPSS), the concepts behind data harmonisation, etc...
- ✓ Specific co-ordination mechanisms between the NSI, involved ministries and other specialised agencies should be identified and proposed, in order to:
 - Best address the users' needs of labour market statistics.
 - Define the most suitable set of indicators, given the national methodologies used for the production of labour market statistics and social indicators.
 - Promote synergies between the labour market statistics sector and related statistical sectors (e.g. national accounts, migration statistics and social statistics).

Even if national settings are very different, many of the problems in the development of sustainable systems for labour market statistics are common. Some common challenges for developing and improving the capacity for producing labour market statistics in a developing country are:

- Labour statistical systems are often not sufficiently co-ordinated. Concepts, definitions and classifications are not harmonised within countries and the labour market statistical system is not well co-ordinated with the statistical system for related domains (e.g. education, health,

agriculture). Data might be available, but with problems concerning coherence and definitions and concerning the quality control of the data.

- Given the numerous stakeholders involved in producing labour market data, inter-institutional co-ordination is a major issue in many countries. Often, the Ministry of Labour and the National Statistical Institute do not collaborate closely to discuss statistical needs and priorities, to co-ordinate statistical standards and output or to avoid overlaps in data collection.
- A lack of capacities within government ministries (e.g. ministries responsible for labour, social security, education, vocational training and occupational health) to generate quality data from administrative records is often observed in developing countries.⁽⁶⁶⁾ In addition, statistics on the supply and demand in the labour market, based on registers kept by employment agencies, may be very unreliable due to the low coverage of the labour market (informal sector not covered; vacancies are not reported; unemployed persons are not registering).
- A lack of communication between users and producers of statistics is often observed. Access to data might be difficult (even if data exist) and dissemination not appropriate. A lack of co-ordination of concepts and definitions generates difficulties for users in reconciling statistics produced from different sources and for different regions or periods. Users may also lack the specialised skills and knowledge to analyse and interpret the labour market statistics.

Each of these challenges needs to be addressed in order to develop and improve the capacity to produce even a basic set of labour market statistics. Factors that should be put in place to make data available include:

- organisation of the statistical system;
- primary data collection mechanisms;
- data processing methods;
- dissemination mechanisms;
- data analysis capacity;
- staff qualifications;
- funding mechanisms;
- hardware and software equipment;
- premises;
- partnerships with non statistical units and with employers' and union bodies.

⁽⁶⁶⁾ In such situations, the administrative systems are normally not well developed or maintained

Furthermore, factors concerning possible synergies with other data production mechanisms must be addressed:

- sampling frames and registers;
- survey systems;
- dissemination of statistics;
- compatibility of concepts adopted;
- synchronisation of activities;
- training;
- multi-sectoral analyses within the framework of development and poverty reduction policies;
- user satisfaction surveys.

ILO generally recommends prioritising the following actions:

- If it does not already exist in a given country, the highest priority should be given to the introduction of at least one national household survey with detailed labour force questions (preferably a labour force survey (LFS)) and subsequently to introduce a regular programme of LFS. At early stages of development in a country with limited resources and capacities, the labour force survey programme might comprise annual surveys of urban areas and 5-yearly (intercensal) surveys with national coverage. Informal employment should be measured in these labour force surveys. ⁽⁸⁷⁾
- Second priority should be given to build the capacity of the NSI and government ministries to generate quality statistics from administrative records. In order to build this capacity, it might be useful to initially develop statistics from one simple system only (such as reports of labour disputes or registered job-seekers), in order to build the confidence and skills of the statistical staff;

In countries where the labour market statistics is more advanced (a good LFS already exists, ad-hoc surveys are conducted (e.g. child labour, informal sector), statistics from administrative records are available (but with uneven quality)), priorities can be given to the improvement or widening of the existing process, such as:

- increasing the frequency of the LFS (e.g. monthly or quarterly);
- widening the thematic coverage of the LFS (e.g. modules related to accidents at work, details of training, work history, travel to/from work, labour migration, etc...);
- introducing a regular programme of specialised household surveys (informal sector, household budget, child labour);
- improving business surveys (e.g. separate surveys for employment, extending existing surveys to include labour turnover and unfilled job vacancies, enlarge coverage to all business sectors);

⁽⁸⁷⁾ Specific guidelines are provided by ILO to cover the informal labour market (see also Box 27.2).

- improving existing statistics based on administrative records (content, definitions, classifications, coverage, frequency, reporting accuracy, quality checks) or compiling statistics from untapped administrative records (e.g. social security records, industrial relations reports and registrations, public sector records, etc ...).

In addition, collaboration between ministries, other statistical producers/users and the national statistical office should always be encouraged. Moreover, overall management of the data flows and the implementation of a sustainable and modern information system is an issue in many developing countries. In some countries, administrative records are not available in an electronic format.

The choice of which improvements or developments to focus upon should be based on the particular country priorities and directly linked with the user needs. Indeed, all potential actions should be complemented by an improvement of statistical analyses and of the relevance to user needs and priorities. It should also be kept in mind that, the more labour market statistics are used for current political issues, the more political awareness is raised and more use is made of labour market statistics when discussing, formulating and implementing policies. This should in turn raise the political awareness of the need to improve statistical capacity, both generally and specifically for labour market statistics. In this framework, organisation of user/producer workshops to encourage communication between these parties and of training workshops to guide users in how to make better use of labour market statistics might be considered.

Box 27.7: Example of Terms of References for a regional project: Harmonisation and Co-ordination Framework for the Labour Market Information System in Africa

The Labour Market Information System Co-ordination and Harmonisation Framework Project (LMIS/CHP) proposal was elaborated by the African Union Commission in 2011. It was based on the capacity building and planning workshop on “Harmonisation and Co-ordination of the Labour Market Information Systems in Africa” (Addis Ababa, December 2010) and several consultations with stakeholders. It is an answer to shortcomings of the labour information systems in African countries and resulting problems in planning, monitoring and evaluation of employment policies for all labour market stakeholders.

The proposed general terms of reference are the following:

Goal

The goal of the project is to improve the labour and employment policy setting, monitoring and evaluation processes in Africa.

Objectives

The objectives of the Labour Market Information System Harmonization and Coordination Framework (LMIS/HCF) will be structured around the following:

- i. Defining a set of key labour/employment indicators that are relevant to the follow-up of the Ouagadougou 2004 Plan of Action.
- ii. Facilitating the harmonization, co-ordination and coherence of the labour and employment data collection, treatment, analysis and dissemination at all levels.
- iii. Ensuring a regular production of labour harmonized and co-ordinated labour market statistics as defined on the above item (i).
- iv. Promoting awareness of, and accessibility to reliable, affordable and accurate labour/employment data to all the stakeholders.
- v. Enhancing technical and institutional capacity of Member States LMIS.

Outcomes

- Continental LMIS harmonization and co-ordination mechanisms established/ promoted;
- Harmonized and co-ordinated LMIS in Pilot/Champion countries in line with the AUC LMIS/HCF;
- Partnership enhanced for sustainable harmonized and co-ordinated LMIS in Africa.

Outputs

- LMI concepts, definitions, targets, and methodologies are harmonized, and tested with pilot countries;
- Harmonized Continental LMI produced, analyzed, disseminated and used for policy formulation, M&E;
- Secured and long-term based mechanisms for LMIS Funding.

Source: *The African Union's 'Labour Market Harmonization and Co-ordination Framework' and the 2004 Ouagadougou Declaration on Employment Promotion and Poverty alleviation.*

To find out more...

Methodologies, concept and definitions

- International Labour Organization (ILO): ‘Guide to the new Millennium Development Goals Employment indicators: including the full decent work indicator set’; ‘Standards and guidelines; Guidelines concerning a statistical definition of informal employment
- United Nations Statistics Division: *Indicators for Monitoring the Millennium Development Goals – Definitions, Rationale, Concepts and Sources* (wiki; December 2012)
- Eurostat: *Labour market statistics*; *European Union Labour Force Survey (EU-LFS)*; *Health and safety at work statistics (HSAW)*
- Eurostat: *RAMON metadata sever* (including the *Concepts and Definitions Database CODED*)
- World Health Organization (WHO): *Occupational health*

Data sources

- International Labour Organization (ILO): *ILOSTAT* and *Key Indicators of the Labour Market (KILM)*
- World Bank: *Labour and social statistics database* (dedicated section of the *World Development Indicators* database)
- OECD: *Labour Statistics*
- Eurostat: *Job vacancy data*; *Earnings data*; *Labour costs data*; *Labour market policy data*
- Eurostat: *European Union Labour Force Survey (EU-LFS) data*
- Eurostat: *Employment and social policy and equality indicators* (including, amongst others, OMC indicators and i2010 indicators)

Cooperation activities

- International Labour Organization (ILO): *Technical assistance*
- ILO and PARIS21: *Seminar on Capacity Building for Labour Statistics* (2003) and thematic paper on *National Statistics Development Strategies (NSDS) and Labour Statistics* (2003)
- West Africa Regional Workshop II (2003)
- Afristat and the African Capacity Building Foundation: *Regional Project on Improving the Quality of Labour Market Statistics and Strengthening the Management of Labour Market Information (LMI) and Poverty Monitoring Systems in Africa* (2005)
- African Union: *8th Ordinary Session of the Labour and Social Affairs Commission of the African Union* (2011)

Informal employment, informal sector, informal economy

- Seventeenth International Conference of Labour Statisticians (ICLS): *Guidelines concerning a statistical definition of informal employment* (2003)
- International Labour Organization: *Informal economy department, Informal economy website, Resource guide on the informal economy and Informal economy resource database*
- ILO Subregional Office For South Asia and Indian Industrial Relations Association: *Informal economy: The Growing Challenge For Labour Administration* (Eds: A. Sivananthiran, C.S. Venkata Ratnam, 2005)
- International Labour Organization and World Trade Organization: *Globalization and informal jobs in developing countries* (M. Bacchetta, E. Ernst, J. P. Bustamante; 2009)
- Eurostat: *Essential SNA: Building the Basics* (chapter VII)

D.28

Social protection



D.28. Social protection

The chapter in brief

This chapter is about social protection mainly in developing countries, with the emphasis on statistics. It gives the policy context of social protection, describes the metadata and data sources including their quality and proposes how a statistical action could be built in the sector. Its illustrations are drawn mainly from Eurostat's ESSPROS (European Social PROtection Statistics), which is used as a starting point for demonstrating how a framework could be developed and used. Further information could be obtained from the various websites given in the references at the end of the chapter.

D.28.1. Policy applications

The distribution of factor incomes in market economy is highly inegalitarian, with a very large number of zero incomes. This degree of poverty and inequality is a threat to social cohesion. Governments intervene to alleviate the condition of poverty and redistribute incomes. Redistributive policies are both vertical and horizontal. Vertical redistribution transfers income from better-off households to those in the lowest deciles, using mainly progressive taxation and benefits to the poor. Horizontal redistribution transfers incomes between different stages of the life cycle, such as from the working population to pensioners, from the healthy to the sick, from the employed to the unemployed. Thus, redistribution reduces poverty and vulnerability and minimises social exclusion, enhances social solidarity and, through particularly health and education expenditures, promotes investments in human capital.

In developed countries, social insurance essentially covers the middle-income formal sector and either excludes informal workers altogether (among those most in need of social protection) or offers them ineffective voluntary affiliation. The ongoing global financial and economic crisis is aggravating these problems, reducing social insurance coverage (as the formal sector contracts and the informal sector and unemployment expand), increasing poverty and worsening living conditions. In this context, social assistance (including non-contributory social transfers in both cash and in-kind) is emerging in many developing countries as a key social protection instrument for tackling poverty and vulnerability.

This kind of socially acceptable economic growth or "growth with a human face" is enshrined in a number of international policy initiatives, such as, for example, the White Paper on "European Social Policy: A Way Forward for the Union" (COM(94) 333) and in the [European Social Charter](#), which is the only treaty in European law to apply to all the aspects of social protection and hence lie at the core of the European social model.

The European Social Model and the Lisbon Strategy have an external dimension which shapes EU external and development policy. In its relations with partner countries, the Commission advocates and supports the efforts to create more, better and more productive employment and to develop systems of social protection with broader and effective coverage, in order not to risk increasingly divided societies where economic growth does not benefit the poor.

The [European Consensus on Development](#) stresses the crucial role of employment and Decent Work for achieving the MDGs. The EU endorses fully the [Decent Work Agenda](#), which includes social protection as one of its four interdependent objectives ⁽⁸⁸⁾.

One of the overarching goals of the 'Agenda for Change' is inclusive and sustainable growth for human development. The Agenda for Change outlines a more comprehensive approach for the EU to human development. In particular, this involves supporting the development of social protection and reducing inequality of opportunity. The EU should support the Decent Work Agenda, social protection schemes and floors and encourage policies to facilitate regional labour mobility.

Against the background of the current financial and economic crisis, social protection and employment are gaining momentum in European Commission development cooperation as effective responses to poverty and vulnerability in developing countries and as essential components of economic and social development strategies. The European Commission [Communication \(COM\(2009\) 160 of 8 April 2009\)](#) and the [Council Conclusions of 18 May 2009](#), both on "[Supporting developing countries in coping with the crisis](#)", stressed the importance of tackling the direct social impact of the crisis by creating and strengthening social protection systems and supporting formal job creation.

The key policy applications of social protection arise from a number of issues. These arise in both developed and developing countries, though to varying degrees:

- The proportion of GDP that is spent on social protection. "Too small" a proportion can be regarded as too little investment in human capital and "too high" a proportion can be seen in some quarters as directly and indirectly damaging economic growth potential;
- The share of the total benefit expenditure that is devoted to current consumption, and the share to capital investments, such as the construction of hospitals, clinics and schools;
- The size of the benefit awarded to each individual/household. The larger the benefit, the greater the protection against social risks and needs, such as unemployment, but a large benefit can damage incentive to work, save and invest; and it also means fewer beneficiaries from a fixed budget;

⁽⁸⁸⁾ Together with fundamental principles and rights at work, decent and productive employment, and social dialogue.

- The coverage of the population under each scheme. The coverage of the whole population is the aim of universal state schemes, such as those providing sickness benefits, but there may be supplementary employers' schemes that cover only a part of the population, such as farmers or other occupational groups. Developing countries have special problems. For example, important equity concerns remain because coverage is not usually extended to include private sector workers, people in the informal economy and immigrant workers. Also, the constitutional requirement in many cases to introduce a retirement pension scheme for all the workers, including the private sector ones, is not met in practice.
- Whether or not the benefit is means-tested, in other words the eligibility for receiving the benefit depends on whether income or wealth is below a certain level. Means-testing channels limited resources to the poorest and most vulnerable but it can be seen as bureaucratic and stigmatising, meaning that take-up can be low, that is not all those who are entitled to the benefit applies for it and receive it. More generally, targeting is the means of identifying which members of society should receive a particular benefit. Benefits can be targeted on the basis of geography, age, disability, household size or other indicators of poverty. Targeted programmes have the effect of limiting the number of clients and reducing costs, but can also receive less political support, be too administratively cumbersome and costly. The appropriate approach to targeting will depend on a country's social and policy context.
- Whether financing of the benefit is through contributory or non-contributory social insurance. The tendency is for benefits, such as unemployment or sickness, intended to compensate for temporary loss of earnings to be based on contributions, but other benefits, such as those that protect against social exclusion, to be non-contributory, that is eligibility is not conditional on prior contributions;
- The financing of social protection has been a huge challenge to policy makers in both developed and developing countries. For the developed countries, the big problem has been the financing of pensions because of the ageing population and rising elderly dependency ratios, that is the retired population as a percentage of the working population has been increasing. Raising taxes and social insurance to pay for non-contributory old age pensions, in direct competition with spending on human and economic development, would have disincentive effects and are generally considered politically inexpedient. Although financing is one of the major challenges for delivering social protection in developing countries (and particularly in low income countries), recent evidence shows that even low-income countries can afford at least basic packages of social protection. Affordability of social transfers is largely a matter of political prioritisation, which depends on the political will to make the necessary trade-offs ⁽⁸⁹⁾.
- The more fundamental policy challenge concerns the efficiency and effectiveness of social protection expenditures. Efficiency would be optimised when maximum return is achieved from a given expenditure or a given outcome is achieved at minimum cost. For example, it is generally considered that targeted means-tested benefits are more efficient than generalised benefits, though universal benefits would be preferable where administrative capacity is weak and political support from the middle classes for a social protection programme is needed. Effectiveness would be optimised when the stated objectives of the expenditure are achieved. For example, increased expenditure on maternal health care should result in much lower maternal deaths and infant mortality;
- Effective social protection systems require long-term planning, strategy and political commitment.

The social protection statistics can also be used to assess the nature and trends in social exclusion, though for an in-depth study of this topic, or any other such as pensions, the core system of social protection would need to be supplemented by special modules that bring together data from a variety of sources for analysis. In developing countries, effective and credible monitoring and evaluation systems (measuring the performance of social protection programmes) are essential for demonstrating programme impact, developing an evidence base for decision-making, communicating operational lessons, and building the foundation of support that fosters long-term sustainability. The ILO uses the [Social Protection Expenditure and Performance Reviews \(SPERs\)](#), which aim at providing detailed information on the performance of national social protection schemes as well as on the extent of coverage and exclusion from social protection. The SPERs provide information about the structure and level of total social expenditure, and establish indicators of system performance with respect to its effectiveness, efficiency, population coverage and the adequacy of benefit levels. The SPERs provide internationally comparable statistics on social protection

⁽⁸⁹⁾ The ILO has conducted a costing exercise that quantifies the costs of a basic package of social protection under a number of alternative scenarios. Still, analysis of broader affordability dimensions and fiscal space for social protection in low income countries needs to be strengthened.

D.28.2. Sources of data and metadata: scope, limits, concepts, definitions and nomenclatures

Numbers are wrapped in a set of metadata concerning the scope, concepts, definitions and nomenclatures and, indeed, legislation on social protection. These are briefly considered in this section.

D.28.2.1. Scope of social protection

There is no universally unique definition of the scope of social protection that satisfies all purposes. Normally a pragmatic definition is adopted. The usual definition is that social protection encompasses all interventions from public or private bodies intended to relieve households, families or individuals of the burden of a defined set of risks or needs. The scope is defined in terms of the social risks or needs that one decides to include in social protection. As an example, [Box 28.1](#) lists the social risks or needs defined in the European ESSPROS survey, based on administrative data. In addition, the example in [Box 28.1](#) includes education, which is excluded from ESSPROS but included in the reckoning of most developing countries. Thus, the table on social protection expenditure for a particular year would simply show (a) functions in columns, (b) either schemes or type of benefit in rows and (c) the expenditure figures in the cells. For the least developed countries, the tables in full would contain many empty cells, therefore showing where the gaps in the social protection system are located. At a second stage, cells could be combined into smaller tables.

Social protection expenditures include not only social benefits but also the cost of **administration**. Social expenditures are classified by function. However, it is more difficult to classify social protection revenue by function. But revenue is classified by its **institutional** source, viz corporation, general government (central government, local authorities and social security funds), households, non-profit-making organisations and rest of the world. For example, the institutional distribution of total revenue would show how the social protection financing burden is shared between employers, government, households and other sources.

D. 28.2.2. Content of the functions

[Box 28.1](#) takes a restricted view of social protection in terms of social risks in order that it should not include general anti-poverty measures or broader social policies or the entire spectrum of social expenditures as defined in the national accounts. However, operationally, it is difficult to set limits because social protection in individual developing countries can vary widely depending on culture, conventions, political consensus, policies and practices.

The EU statistics on social protection, ESSPROS, provides a restrictive definition of content, i.e. of the risks and needs for which support schemes are defined under 'social protection'. ESSPROS is useful as a starting point for developing social

protection statistics, and can be adapted to fit with national circumstances and needs.

ESSPROS has two conditions for a benefit to be counted as a social protection benefit. The first condition is that the recipient is not obliged to provide something of equivalent value in exchange. For example, expenditures by employers that can be regarded as compensation for work, such as free housing, child care for the children of employees, etc., should be excluded from social protection. If there is not a direct counterpart, for example in the case of occupational pensions, these are included in social protection. Similarly, the continued payment of normal or reduced wages and salaries while an employee is unable to work during sickness, maternity, disability and redundancy is regarded as social benefits.

This criterion is restrictive. However, ESSPROS, which has been under development for over 40 years, show the basic principles for classifying support schemes as social protection. These principles can be applied as they are or adapted dependent on the national situation and systems. For example, the ESSPROS criterion would not include **the Maharashtra Employment Guarantee Scheme** in India under 'social protection'. The Maharashtra Scheme guarantees one hundred days employment a year for the poor; not considering this as 'social protection' would be unacceptable in the context of India, and an adaptation of the basic principle required.

The second ESSPROS condition for a benefit to qualify as 'social protection' is that **individual** arrangements are excluded. A third party should be involved, with the aim of promoting social solidarity, for the benefit to be classified as **social** protection. This excludes insurance policies taken out as a private initiative of households or individuals solely for their own interest. For instance, the payment of a capital sum or an annuity to the holder of a private life insurance policy is not considered social protection as no third party is involved.

The question of the scope, content and statistical dimensions of social protection is more easily resolved by listing the specific risks and needs (also called functions) in the international systems ESSPROS (EU), the Cost of Social Security Enquiry (ILO) and the SOCX system (OECD). These systems show some differences in the classification of benefits by risks and needs. The systems, with corresponding data bases are:

A. Organization for Economic Cooperation and Development (OECD): SOCX is the Social Expenditure database developed in order to serve a growing need for indicators of social policy. It includes reliable and internationally comparable **statistics on public and private social expenditure at programme level across OECD member states**. It should be noted that social expenditure is closer to this concept as defined in the national accounts rather than to social protection expenditure.

International Labour Organization (ILO): The ILO regards social protection as a fundamental human right under Article 22 of the 1948 [Universal Declaration of Human Rights](#). The ILO has developed the [Social Security Inquiry and additional associated databases](#) to collect, store and disseminate, on a regular and sustainable basis, comparable statistics on social security systems/programme financing, expenditure, benefit levels and coverage for both formal and community based schemes across the world (including both developed and developing countries). These include employment-related social security schemes, public health, welfare and anti-poverty programmes as well as non-public schemes of different types transferring goods, services or cash to poor and vulnerable individuals and households.

- B. Eurostat: ESSPROS (the European System of Integrated Social PROtection Statistics)** is the harmonised instrument of statistical observation of social protection in EU member states. Complementary to ESSPROS is [MISSOC \(The Mutual Information System on Social Protection\)](#), which was established in 1990 and gives fuller description of the underlying legislation in EU Member States and analyses developments on, for example, the financing of social protection systems.
- C. The **World Bank** views seem to have shifted the conceptual framework of social protection from a definition by instruments (such as social insurance) to a definition by objectives (that is assisting in risk management); from a traditional focus on ex-post poverty to ex-ante vulnerability reduction; from seeing social protection less as safety nets and more as trampolines from which the poor can help themselves to jump out of poverty. The new conceptual framework is called [Social Risk Management \(SRM\)](#). **This framework is used by the World Bank for risk and vulnerability analysis, often done in conjunction with a poverty analysis, prior to the development of a country Poverty Reduction Strategy.**

D.28.2.3. Schemes and types of social protection interventions

An important aspect of the system is the **scheme** or organisation. Schemes can be government or not government-controlled, contributory or non-contributory, universal that covers the whole population or occupational schemes, compulsory or not, and so on. A useful analysis is the functional classification of expenditures by schemes or a classification of revenue by schemes, showing for example the extent to which private schemes contribute to social protection receipts. The [ESSPROS Manual](#) contains a detailed classification of different types of social protection schemes.

In the context of development cooperation, arrangements such as micro-insurance or community based schemes should be included. These arrangements have specific advantages, such as the flexibility in administrative processes and the targeted definition of benefits and contribution rates according to the capacities and needs of specific population

groups such as rural workers or certain occupational groups. They allow the coverage of groups which may be difficult to cover otherwise and often excluded from statutory schemes. The encouragement of these arrangements and progressively establishing linkages with statutory social security schemes can be a strategy for extending social protection.

Social assistance

Social protection programmes are described as 'social assistance' when resources, either cash or in-kind (such as food), are transferred to vulnerable individuals or households. Social assistance programmes take many forms, including cash transfers or public works programmes. They will be allocated to functions depending on the risk being addressed, for example social assistance to the elderly would be allocated to the old-age function.

Cash transfers

Cash transfers can be unconditional, for example, social pensions or disability allowances. Alternatively, they can be conditional, for example where receipt of the payment is dependent on public works being performed or children attending school or a health clinic. The allocation could be to the Family, Education and Health functions respectively. Social pensions are non-contributory pensions and are therefore a form of cash transfers targeted by age. Research shows that they have a strong poverty reducing potential as the cash benefits tend to be shared within households.

Public works programmes

Public works programmes are a form of conditional transfer in that cash or food is given in return for work on public infrastructure projects, such as road building.

In-kind transfers

In-kind transfers are when non-cash resources (such as food) are passed to vulnerable individuals and households. The free distribution of anti-retroviral drugs to those living with HIV and AIDS can save lives. Fee waivers for basic services such as health and education are a form of social assistance in-kind transfers. School feeding is also common in many countries. Housing subsidies for the poor (concessional interest rates for mortgages) fall in this category.

Social insurance

Social insurance schemes are contributory programmes, where the beneficiaries make regular financial contributions in order to join a scheme that will reduce risk in the event of a shock. Thus, contributory insurance schemes protect against the social risks of, for example, old age (pensions) and unemployment (unemployment benefit). Health insurance is increasingly popular in developing countries, particularly where fees are charged for health services. Schemes can be run by the government, health providers and by non-governmental organizations. However, poor people find it hard to afford the health insurance premiums, particularly in the informal economy where incomes are small and uncertain. Micro-insurance can cover the risks of unorganized workers and their families in the informal sector of developing countries. For example, in Bangladesh, many

microfinance institutions provide life insurance and disaster insurance when giving loans to poor people (by allocating a small proportion of the loan to pay the insurance premiums). Funeral associations that support families when a member dies is another type of social insurance scheme.

Labour market interventions

Labour market interventions focus on providing protection for the category of the poor who are able to work. They vary between active and passive programmes. Active programmes include training and skills development and employment counselling. Passive interventions include unemployment insurance, income support and changes to labour legislation, for example in establishing a minimum wage or paid maternity leave or safety at work.

D.28.2.4. Risks/needs/functions

The specification of the social risks of social protection helps in the definition of the scope, content and statistical support needed for monitoring and evaluation of social protection expenditures and receipts. [Box 28.1](#) below gives one list of functions with examples of the benefits that may be classified in each. It provides an illustrative example of the possible contents of each function and is not entirely linked to any known system:

Box 28.1: Social protection risks	
RISKS/NEEDS OR FUNCTIONS	EXAMPLES OF BENEFITS
Sickness/Health care	Included are cash benefits that replace income lost due to illness, including medical care provided to expectant mothers and disabled persons. Conditional and unconditional non-contributory social transfers to the sick are included. That part of medical care paid for in part by the sick is excluded. Also, health care provided by employers to maintain production is excluded because there is a simultaneous reciprocal counterpart in the production of goods and services.
Disability	This social risk is the full or partial inability to engage in economic activity or to lead a normal life due to physical or mental impairment. It covers disability allowances, rehabilitation services, and goods and services other than medical care. Medical care for disabled or sickness-related benefits are classified under the Sickness function; and family allowances paid to the disabled in respect of spouse and children are classified under the Family function.
Old age	The benefits under this function are directly linked to the condition of old-age. They include contributory and non-contributory old age pensions and any replacement income when a person leaves his/her job early to make way, for example, for an unemployed person to take it. But excluded are health care expenditures for elderly, which are allocated to the Sickness function.
Survivors	Survivors eligible for benefit may be the spouse or ex-spouse or children of the deceased beneficiary. Benefits include survivors' pensions, death grants and funeral expenses. Family allowances for dependent children of a beneficiary of survivors' benefits are allocated to the Family function.
Family/children	This includes financial support for bringing up children and social services designed to assist the family. Benefits cover income maintenance at childbirth, birth grant, paid maternity leave, all family allowances, child day care and nursing homes. Conditional cash transfers or fee-waivers to encourage children to attend school may be classified under the Education function.
Unemployment	Typical benefits are unemployment benefit, redundancy compensation, training allowances for people looking for work and relocation costs for the unemployed who have found work away from their local area. Payments to promote active labour market policies that do not raise the disposable income of the unemployed may be excluded.
Housing	This covers means-tested interventions by the authorities directly to assist households with meeting their housing costs. It includes social housing, rent allowances, and means-tested transfers to owner-occupiers to help pay mortgages, capital and/or interest. Wider housing policies, including housing subsidies, aimed at assisting the building industry or promoting ownership may or may not be excluded depending on the strength of country reactions.
Education	For developing countries, the achievement of universal primary education is a key MDG and is normally measured through indicators on the reduction in illiteracy, increase in net enrolment ratios in primary education and the promotion of gender equality in primary and secondary education. Thus, this function may include the total expenditure by Local and Central Government on nursery, primary and secondary education; and on the reduction of illiteracy. It may include assistance with school uniform, text books and other educational material as well as free or subsidised school meals and school medical services. Conditional cash transfers or fee-waivers to encourage children to attend school may be classified under the Education function.
Social exclusion not elsewhere specified	This includes income support paid to people with insufficient resources or other safety-net payments to alleviate destitution. They include shelter for the homeless, means-tested legal aid, and counselling for alcohol and drug abuse. These benefits could be paid by Government or private non-profit making organisations such as charities. Care should be taken not to make this residual category too large; otherwise it would need further disaggregation.

D.28.3. Possible output of statistics and indicators

Before describing the data sources, we should state some of the statistical indicators which those sources are expected to produce. That would impart focus to the description of sources, their limits and quality. The following suggestions are intended to serve only as a flexible guide which can be expanded in specific cases:

- Total social protection expenditure as a % of GDP at factor cost, both current and constant prices;
- Total social protection expenditure as a % of all public expenditure, current and capital combined;
- The total expenditure under each function as a % of total social protection expenditure, for example the total expenditure under the old-age function as a % of all social protection expenditure;
- The full table showing functions in columns, schemes in rows and expenditure in each cell;
- The full table showing functions in columns, benefit types in rows and expenditure in each cell;
- The % distribution of total social protection revenue by institutional source, for example how much employers contribute to the financing of social protection compared with households;
- The % distribution of revenue by function, though this can be very difficult to produce;
- The total number of beneficiaries in receipt of benefits under each function, without aggregating across functions;
- An estimate of the take-up of means-tested benefits, see [D.28.4.3](#) 'Household surveys' below;
- An estimate of the post-transfer poor, see [D.28.4.3](#) 'Household surveys' below;
- An estimate the reduction in inequality that is attributable to the redistributive effect of the social protection system, see [D.28.4.3](#) 'Household surveys' below.

D.28.4. Data sources: content, limits and quality

The data sources are:

- Accounting records of expenditure and revenue;
- The administrative forms which are completed either by the authorities concerning the condition and characteristics of the beneficiary or by the beneficiary himself. Included in this category are hospital and clinical records or registers on school enrolment, attendance, dropouts etc;
- Household sample surveys.

General statistical quality is discussed in [chapter C.5](#): The **quality criteria of Eurostat**, based on the **UN's Fundamental Principles of Official Statistics** and part of the **European Statistics Code of Practice** (see [section B.2.1.2](#)), are: relevance, accuracy, timeliness and punctuality, coherence, accessibility and clarity, comparability and completeness. Because social protection expenditure and receipts are part of public finance, the quality criteria stated by **IPSAS (International Public Sector Accounting Standards) 1**, appendix 2, are also highly relevant: understandability, relevance, reliability (faithful presentation, substance over form, neutrality, prudence and completeness), constraints (timeliness, balance between benefit and cost). References will be made to quality in the description of content below.

D.28.4.1. Accounting records

Most of the expenditure data for social protection would come from government departments/ministries responsible for health, education, housing, social security and other functions. Often, the National Statistical Institute (NSI) would coordinate the information flow from different sources into a pre-determined social protection format, ensuring in the process that departmental concepts, definitions and classifications are adjusted to those used in the standard framework (which is necessary for international and temporal comparability). For example, errors and inconsistencies could arise from different valuations, (cash or accrual), different years, (fiscal or calendar), and different basis for recording benefits, (net or gross of tax).

Within a decentralised statistical system, the line departments have their own statistical divisions, which, together with the NSI, form the National Statistical System (NSS). The NSI may be independent or may be located in the Treasury or in the Finance Ministry or the Planning Department. In any event, the NSS tends to coordinate closely to ensure, inter alia, that international standards are adopted throughout. This makes the flow of social protection statistics according to international norms more manageable, reliable and timely.

Social protection statistical standards seek to be as consistent as possible with the [UN System of National Accounts \(SNA\) 2008](#) and the [European System of National Accounts \(ESA 2010\)](#) (which applies to EU Member States) as well as with the latest IMF [Government Finance Statistics Manual \(GFSM 01\)](#). These systems have differences amongst themselves, though in 2003 a Task Force on the harmonisation of public sector accounting led by the IMF but including OECD, EU and IPSAS have sought to minimise the differences in producing GFSM 08.

Alignment with particularly General Government transactions in the national accounts is important and, indeed, in countries such as France, social protection statistics are developed as a satellite of the national accounts. However, the national accounts and the social protection systems are not identical in all respects. For example, the classification of government expenditure by [COFOG \(Classification of the Functions of Government\)](#) is a classification by purpose whereas the classification by social protection functions is according to the viewpoint of the beneficiary. Thus, a payment to someone near retirement age to induce him to vacate his job so that an unemployed person could be placed in it is allocated to unemployment in COFOG, because the purpose is to reduce unemployment, but in social protection the payment is classified as old age because that is the perspective of the recipient of the payment. Thus, great care is required in importing ready-made national accounts statistics into social protection. It should also be noted that COFOG can be used in relation to government revenues such as fees. Care is also required to ensure that all social insurance schemes are included because in some countries such schemes are run by private companies such as insurance companies. They count as social security because they are compulsory and are subject to strict government regulations. But the money flows through private sector entities and might or might not count as government spending. The need is to make sure that they are included in the social protection statistics.

Nearly all developing countries are committed to implement the latest SNA. However, even though the 2008 edition is now available, a large majority of them are still dealing with the 1993 version. Social protection accounts are, strictly speaking, satellite accounts of the national accounts. It is not uncommon for the national accounts to be developed ahead of social statistics generally and certainly social protection statistics in particular. Ideally, there should be maximum articulation between social protection statistics and national accounts but this tends to be the exception in low-income developing countries. Therefore, as a first interim step, using the national accounts figures of social expenditures for the identified social risks might be unavoidable while launching a statistical programme to achieve improvements.

In developed countries generally, the state of public finance, including auditing and control, is sufficiently advanced not to cause undue concern about the quality of the derived statistics. In low-income countries, the situation can be very different. This is so despite the commendable efforts of, amongst others, the [International Social Security Association \(ISSA\)](#) to develop the statistical capacity of its members in developing countries and contributing to the

development of international standards in this field. Often, the recording and reporting of disbursements (budget execution) can be seriously delayed, with serious consequences for programme monitoring and evaluation. This delay tends to be worse for health expenditure than for education expenditure, and also worse for capital than for current expenditure. The root cause is the shortage of trained accountants and auditors, even shortage of skilled clerks. In a number of low-income countries, such as Gambia and Guyana, the Ministries of Finance have been supported through cooperation programmes in order to install a network of computers linking the fiscal departments for rapid transmission of expenditure and revenue data. This network forms part of IFMIS (Integrated Financial Management Information System). IFMIS is to be welcomed but it can be demanding in skills and resources to maintain, which raises questions about sustainability once donor finance ceases.

Financial data on social protection have to be supplemented with physical data on the number and characteristics of the beneficiaries under each function, for example how many pensioners or how many widowed pensioners. The aggregation of this information is not always easy to disentangle on an unambiguous basis. Some beneficiaries receive more than one benefit, such as both pensions and housing benefits, and so simply adding the number of beneficiaries under the old-age function to those under the housing function would result in duplication. Moreover, estimates of numbers can relate to one point in time or for the whole year, not always easy to distinguish in the statistics.

The difficulty in estimating numbers of beneficiaries and their socio-economic characteristics from financial records is one argument in favour of the administrative forms and also of household sample surveys, described in [section D.28.4.2](#) and [section D.28.4.3](#) respectively.

D.28.4.2. Administrative forms concerning the condition and characteristics of the beneficiary

The information contained in the administrative forms which are completed either by the authorities concerning the condition and characteristics of the beneficiary or by the beneficiary himself goes well beyond expenditure and receipts. For example, the forms on the granting of means-tested housing benefits would contain, *inter alia*, information on income and/or wealth, tenure status and household size. The forms would be completed either by the social security administration through direct questioning of the applicants for benefits, with requests in some cases for supporting documentary evidence, or it would be filled in by the applicant, with subsequent checks carried out by the authorities. Sometimes, the administration is persuaded to add questions for purely statistical purposes in these forms as the cheapest way of collecting additional information. The accuracy of the data collected in this way depends very much on the truthfulness of the answers given by applicants. This can be assessed by in-depth follow-up investigations of a very small sample of respondents.

If the forms are pre-coded, data entry should be relatively fast with fewer transcription and other errors. In large countries, the resulting database can be huge, with quite protracted timescales for the completion of processing to obtain analyses. In order to improve timeliness, some countries, such as UK, take a small random sample of the records for early processing to obtain preliminary results, with of course the caveat that the sample results would be subject to sampling errors.

Also, administrative records are normally the source of input/resource/access social protection indicators (at least the numerator) such as the number of trained doctors per head of rural population.

In low-income countries, administrative reporting is well-established and can yield comparatively reliable data. However, some countries experience severe difficulties, particularly in the field of health. Health data tend to be collected at various levels, viz Village Health Centres, Primary Health Care Centres, and Minor and Major Health Centres. But this reporting is not always undertaken under professional supervision. In addition, there might be no means of centralizing the data from the health facilities because of lack of internet services, including lack of electricity, and insufficient vehicles, scarce fuel and limited personnel. The few officials from Head Office have to travel the length and breadth of the country to collect the information, which might remain stored in paper files for long periods without processing and analysis. The overriding danger of this *ad hoc*, manual process of data gathering is coverage errors, which are the inadvertent omission of facilities and even regions from the national statistical aggregates.

D.28.4.3. Household surveys

Administrative data give only *users* of services or actual reach. Those who need the service but do not, for one reason or another, make use of it themselves are excluded from the administrative statistics. This argument applies to people who are entitled to means-tested social protection benefits but do not, for one reason or another, actually claim, or take up, the benefit. The only way to measure take-up is either through appropriate questions included in household surveys or through service facility-based surveys.

The typical survey for measuring take-up is the Household Income and Expenditure Survey (HIES), in which detailed questions are asked about sources of income, including the receipt of various benefits. From these data it is possible to construct the means-tested income/assets threshold and hence measure entitlements and take-up. More generally, the HIES is used to measure financial poverty and material deprivation and, in some countries, to collect information on coping strategies. Indeed, a household survey generally covers a wider range of household characteristics than the corresponding administrative source, and can therefore generate deeper cross-analyses to reflect the *multi-dimensional* nature of poverty and vulnerability. These issues are all highly relevant to questions about the need for, and delivery of, social protection and hence the implications for social cohesion.

The HIES has two other relevant uses, though these are more difficult to execute and can even be somewhat controversial. First, it can yield an estimate of the *post-transfer poor*, that is the numbers that remain poor after the receipt of the “safety-net” income support. As a hypothetical example, let us put the official minimum income as 100 Euros per month for a female-headed indigent household. A poverty line can and is often independently derived from the HIES. If this statistical line for exactly the same household type works out as 120 Euros per month, it is clear that this particular household still lives in poverty even after help from the authorities. The total number of such households can be counted from the HIES. If this number is large, the conclusion could be that the social protection system in respect of poverty alleviation is ineffective. ⁽⁹⁰⁾

Secondly, the HIES, in conjunction with independent data on unit costs of services, can be used to show how **inequality** (as measured by say the Gini coefficient) in the size-class distribution of factor incomes is progressively reduced at each stage of income redistribution. Starting with the large Gini for factor incomes, the Gini is derived for incomes after income taxes, and then for post-tax, post-transfer incomes, then for incomes (say final incomes) after taking account of imputed benefits of health expenditure to individual households. The greater the difference between the Gini for the distribution of factor incomes and the Gini for the distribution of final incomes, then the more effective is the redistributive function of social protection system ⁽⁹¹⁾.

All household sample surveys suffer from sampling and non-sampling errors. Income data are particularly prone to wide margins of reporting errors and non-response bias and, indeed, household surveys are particularly unreliable at the tails of the income distribution. Surveys are very costly. Because mainly of costs, the HIES is often carried out every five years in developing countries, which means that it is more useful for providing benchmarks than for annual monitoring. Nevertheless, household survey data can be used to check the reliability of administrative data or, coupled with administrative data, to derive estimates in certain circumstances.

Surveys other than the HIES can shed light on the effectiveness of the social protection system in terms of outcome indicators. The main examples are the World Bank's [Living Standards Measurement Study \(LSMS\)](#), UNICEF'S [Multiple Indicator Cluster Survey \(MICS\)](#), the [Demographic and Health Survey \(DHS\)](#), and the [Core Welfare Indicator Questionnaire \(CWIQ\)](#), a light survey intended to yield data on the MDG indicators.

⁽⁹⁰⁾ Governments often object to this interpretation on the grounds (a) that the official line IS THE poverty line and (b) that the line derived from the survey is too generous and therefore unaffordable. Normally, the survey-based line is defined as 50% or 60% of the mean equivalised household disposable income, where the equivalence scales are factors that adjust the household income for household size and sex-age composition.

⁽⁹¹⁾ The horizontal redistribution and the disincentive effects have also to be taken into account before passing a final judgment on the effectiveness of the social protection system.

In the European Union, the main source of data and metadata for poverty and living conditions is the [Statistics on Income and Living Conditions \(EU-SILC\)](#) household survey. It provides cross-sectional data with variables on income, poverty, social exclusion and other living conditions, as well as longitudinal data on individual-level changes over time. The EU-SILC methodology may be adapted for other coordinated regional social surveys. It is based on a common framework aimed at maximising comparability of the information produced. It defines the harmonised lists of target variables; common guidelines and procedures; common concepts (household and income) and classifications. For more details on the EU-SILC, see [section D.21.3](#).

D.28.5. How to build a statistical action in this sector

The principles that should guide the statistical action are:

- A. To be clear about the objectives and statistical outputs of the statistical action in this sector;
- B. To consolidate and build on the 3 broad categories of data sources mentioned in the previous section in order to meet these objectives;
- C. To develop social protection statistics as part of the development of other systems, specifically the national accounts (of which it is a satellite), Public Finance Management (PFM) reform, which is normally central to EU General Budget Support, and social indicators, with which it overlaps;
- D. To see social protection statistics in the broader context of building institutional capacity and strengthening good governance.

The main pillars of the statistical action should be:

- A. The suggestions in this chapter provide a flexible guide to the kinds of issues that a country would have to consider in developing a social protection statistical programme. The chapter does not seek to be prescriptive because of the wide variations in national policies, preferences and practices. However, it should serve as a very useful point of departure concerning the scope of social protection, concepts, definitions and classifications, functions, the possible content of functions, schemes, types of benefits, institutional breakdown and data sources. In general, to develop an action in this area, the following steps are proposed:
 - o Develop a national social protection **framework**, linked, where appropriate, to the Poverty Reduction Strategy Papers (PRSPs) and the Poverty Reduction and Growth Facility (PRGF);
 - o Establish a manageable definition of social protection and its scope;

- o Define which is the main set of needs or risks (i.e. which are the functions) to be considered within the definition of social protection;
 - o Identify the main types of institutions providing social protection that should be considered within the scope and formulate a definition for the statistical units (i.e. the social protection schemes) by specifying the elements necessary to delimit them;
 - o Identify, according to the functions selected, groups of protected persons and define the benefits provided for specific groups; establish a classification of benefits by function and possible specific breakdowns needed by the national system of social protection (e. g. by cash/ kind, means-tested / non means-tested);
 - o As certain who are the poorest and most vulnerable, and what is the best way of reaching them, given the budget and capacity constraints facing so many governments;
 - o Establish which are the main data sources that can provide the necessary information by social protection scheme, which is the information that can be gained from different data sources and formulate a parallel programme for improvements;
 - o Describe qualitatively all schemes and the benefits provided by each one of them; develop user manuals;
 - o Build broad political support and support amongst donors.
- B. Aim at producing as far as possible the statistics and indicators listed in [section D.28.3](#). above. For developing countries, many cells in the tables would be zero. However, that would still be useful information in indicating the absence of particular social protection arrangements in those cells;
 - C. Consolidate. That means building on the 3 categories of data sources mentioned in the preceding section. These sources should not be seen as alternatives but complementary, and therefore their development should be planned in a coordinated way;
 - D. Most of the action that should be taken is implied in the comments on data quality in those descriptions. Additional considerations are mentioned below;
 - E. The role of training is crucial in all countries, particularly in developing (both low and middle income) countries. Training is further considered below.

Ideally, the development of social protection statistics should proceed through the strengthening of Management Information Systems (MIS). The data in these are used to underpin policy decisions and to conduct monitoring and evaluation exercises. They cover both financial and non-monetary data and their relationship to each other, and they are constructed from both administrative and survey information, including the population census. IFMIS has already been mentioned. Others would be the Health MIS (HeMIS), Housing MIS (HMIS) and Education MIS (EMIS). Setting them up would involve substantial back-office costs in IT.

Box 28.2: European Commission support to social protection in developing countries

Income, employment and social protection are essential for achieving social inclusion and cohesion. Developing countries are often characterized by unemployment, underemployment, lack of social protection and large informal economies. Social protection systems function as shock absorbers in crisis situations, reduce poverty and support pro-poor economic growth. However, there are challenges for social protection in developing countries. These include the necessity to raise awareness and provide evidence on the positive impacts of social protection, achieving long term financial sustainability within national budgets for social protection, and extending social protection for people in the informal economy and in rural areas. These challenges highlight the need for quality data to monitor and evaluate the impacts of social protection.

The EU emphasizes reduction of poverty in its development and co-operation policies, by strengthening [employment, employability, social protection and decent work](#), amongst others through the Migration, Mobility and Employment Partnership of the [Joint Africa-EU Strategy \(JAES\)](#). The [European Report on Development 2010](#) is entitled 'Social Protection for Inclusive Development - a New Perspective in EU Co-operation with Africa'. It deals with the issues of poverty, inequality and social protection, with a focus on Sub-Saharan Africa. The report focuses on the role of formal and informal mechanisms of social protection as a means to enhance the resilience of countries when faced with shocks (short term) and structural vulnerabilities such as poverty traps (long term). The European Commission Communication '[A twelve-point EU action plan in support of the Millennium Development Goals](#)' (2010) underlined that targeted interventions should focus on the most vulnerable, including women, children and people with disabilities, through support to wide coverage social protection systems which are a key element of social cohesion and stability. Concrete measures to help developing countries cope with the global financial and economic crisis were set out in the European Commission Communication '[Supporting developing countries in coping with the crisis](#)' (2009). Amongst these measures is support to developing countries to cope with the direct social impact of the crisis through creation and strengthening of social safety nets, facilitation of direct cash transfers and enhancement of in-kind transfers. A further measure is to support mechanisms to safeguard social spending in developing countries in crisis situations. A European Commission Reference Document on 'Social Transfers in the fight against hunger' is being issued in 2011.

The European Commission supports social protection in all regions, through a demand-driven and differentiated approach. In Latin America, 40% of European Commission co-operation is addressing the social sector and social protection; in Asia, there is increasing political dialogue and important bilateral co-operation support to social protection reforms. In Africa, European Commission support to social protection encompasses a range of country programmes, including the Productive Safety Net Programme in Ethiopia (with the World Bank), comprehensive social protection programme through sector budget support in Rwanda, and support and funding for UNICEF's Orphan and Vulnerable Children's (OVC) Programme in Lesotho and Zimbabwe. There are widespread actions, supporting countries own reforms of social protection systems and Food Security programmes.

The Joint Africa-EU Strategy (2007) defines 8 strategic partnerships, one of which is the Migration, Mobility and Employment Partnership. This Partnership aims to create more and better jobs for Africa and to better manage migration flows, essential elements of strategies against poverty and other national development and co-development strategies. The [Action Plan 2011-2013](#) defines 12 initiatives; the ones directly concerning EU-AU co-operation on social protection:

- The Decent Work Initiative, which extends social protection coverage in particular in the informal economy, supporting the AU programme on upgrading the informal economy and the Productivity Agenda for Africa;
- The Labour Market Governance and Capacity Building Initiative, which aims at strengthening the institutional capacity of the labour market institutions in Africa, especially public employment services and labour administrations;
- The organisation of a number of regional and sub-regional fora on employment, labour, social protection and labour migration, including supporting harmonisation processes of labour market and social protection frameworks at regional levels, in cooperation with Regional Economic Communities

In March 2011, the European Commission and the African Union Commission organised a workshop in Nairobi on "[Social protection in Africa – sharing experience in the informal economy](#)". It was attended by representatives of EU and AU Member States, Regional Economic Committees, international organizations, civil society organizations, social partners and experts on social protection. In line with the Action Plan initiative, the objective of workshop was to contribute on how to implement the AU Social Policy Framework and the AU Programme on Upgrading the Informal Economy and the Productivity Agenda for Africa, through an exchange on national, regional or local social protection initiatives/schemes in the formal and informal economy were discussed.

The workshop focused on identifying and removing obstacles to effective social protection for informal economy workers, on resource mobilization strategies in support of social protection, and on follow-up on the Decent Work Initiative. [The workshop concluded](#) that there is a need to further develop and implement overall social protection policies that particularly address workers and their family members in the informal economy. Political commitment, mobilisation of national resources and the need to address affordability aspects were particularly highlighted for setting up social protection systems. It was highlighted that it is important to enhance data collection and setting up monitoring and evaluation mechanisms for analysing the impacts of social protection.

Source: [Social protection in EU development cooperation and in EU-AU relations](#) by [Hjördís Ogendo](#) and [Tamás Várnai](#) (DG EuropeAid), presented at the EU-AU "[Social protection in Africa – sharing experience in the informal economy](#)" workshop, 10-11 March 2011.

D.28.5.1. Accounting records

There is no substitute to ensuring timely, comprehensive and accurate recording and reporting of expenditure and revenue covering all service facilities. In low-income countries, appropriation, commitments and disbursements tend to be well below budgets, with substantial time lags. There are international standards and recommendations about these matters. There is the [Public Expenditure and Financial Accountability \(PEFA\) PFM Performance Measurement Framework](#); Annex 1 gives The PFM High-Level Performance Indicator Set, which should be implemented.

D.28.5.2. Administrative records

The specific actions that should be taken to achieve improvements are:

- Observe the data capture forms used; see if they are standardized between service facilities in the sector; find out how the data are stored and trace the information flows;
- See to what extent international classifications, such as [ICD](#) and [ISCED](#), are used;
- Observe the recording of information and, if any, computerised data entry;
- Identify the quality control methods used in the statistical process;
- Assess other aspects of data management, such as supervision, hardware and software in use, spreadsheets, deployment of internet or other methods for data transmission;
- Evaluate the extent of tabulation and analysis, and their purpose;
- Assess the strength and quality of the human resources deployed on statistical reporting;
- Interact with the data clerks at grass-root level to learn of their qualifications, motivation, dedication, and training needs; sector training initiatives should be coordinated with the statistical training programme of the NSI.

D.28.5.3. Household sample surveys

- Remember that surveys are necessary for performing welfare analysis and for impact analysis of social protection programmes; and they are also necessary for data capture in the informal sector which might be poorly covered in administrative records. At the same time, they can be very expensive, so first see if the required analyses could be met from existing sources or by hitch-hiking on existing collection instruments;

The primary purpose of an HIES is to generate expenditure weights for the compilation of the CPI and secondarily to contribute to the tracking of progress towards the MDGs. Attempts to overload the HIES thereby making it a multi-purpose omnibus survey, for example in Gambia in 2003, has actually resulted in large blocks of data never analyzed. Many countries, for example the Maldives, have found the Household Economic Survey useful, particularly in relation to the informal sector.

D.28.5.4. Training

In developing countries at least, training is needed at all levels: central government, sectoral and regional levels and also at the level of service facility. The evidence is that, generally speaking, the clerks who compile figures are not sufficiently motivated and consequently might be casual in carrying out their statistical tasks. The problem is attitude as well as lack of skills. Many of those charged with compiling data for poverty monitoring are themselves near the poverty line. Thus, simply demanding greater rigour and dedication to increasing data quality might seem coercive and unproductive. Local staff should be trained to see the ultimate value of their work, such as the impact of their data entries on policy and planning. This perspective would **invert** dissemination and reporting, that is, disseminate the results of monitoring first and as a means of improving bottom-up reporting. There should be training in **analysis** and training should be **continuous**.

The first step in developing a training programme is to conduct a needs survey and a needs analysis covering all relevant stakeholders. The priority is to train trainers, with their multiplier effects, and if possible to mount training **in situ** because of the need to achieve relevance to local conditions and local laws. However, because of economies of scale, a regional approach and infrastructure might already be available through, for example, CARICOM in the Caribbean or through SADC for Southern Africa. The [ILO's International Training Centre](#) in Turin Italy has 5 regional centres, which deal with Africa, the Americas, Arab States, Asia and the Pacific and Europe; these regional divisions do run training courses in social protection.

To find out more...

- Eurostat: [ESSPROS \(the European System of integrated Social PROtection Statistics\)](#) and the [ESSPROS Manual](#)
- Eurostat: [Statistics on Income and Living Conditions \(EU-SILC\)](#)
- Overseas Development Institute (ODI): [Social Protection - New Directions of Donor Agencies](#) by Tim Conway, Arjan de Haan, Andy Norton (June 2000)
- International Labour Organization (ILO): [The Cost of Social Security, Programme and budget for the biennium 2008-09, Report of the Committee on Technical Cooperation and Global Extension of Social Security \(GESS\)](#)
- OECD: [SOCX Social Expenditure database](#)
- Public Expenditure and Financial Accountability (PEFA): [PEFA Performance Measurement Framework PFM](#)
- World Bank: [Social Risk Management, Closing the Coverage Gap, The Role Of Social Pensions And Other Retirement Income Transfers and the Safety net website](#)
- EuropeAid: [Employment and Social Protection in European Commission Development Co-operation \(website\)](#)
- European Report on Development 2010: [Social Protection for Inclusive Development - a New Perspective in EU Co-operation with Africa](#)
- European Commission Communications: 'A twelve-point EU action plan in support of the Millennium Development Goals' (COM(2010)159); 'Supporting developing countries in coping with the crisis' (COM(2009) 160); 'Increasing the impact of EU Development Policy: an Agenda for Change' (COM(2011) 637)
- Joint Africa-EU Strategy (JAES); [Migration, mobility and employment; Action Plan 2011-2013](#)
- European Union – African Union Capacity Building Workshop "Social protection in Africa – sharing experience in the informal economy" (Nairobi, March 2011); [Outcome document](#)
- African Union Labour and Social Affairs Commission (LSAC): "Addressing Social Cohesion and Inclusive Growth through Promoting Employment" (8th Session, Yaoundé, April 2011)

HOW TO OBTAIN EU PUBLICATIONS

Free publications:

- **one copy:**
via EU Bookshop (<http://bookshop.europa.eu>);
- **more than one copy or posters/maps:**
from the European Union's representations (http://ec.europa.eu/represent_en.htm);
from the delegations in non-EU countries (http://eeas.europa.eu/delegations/index_en.htm);
by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm) or calling 00 800 6 7 8 9 10 11 (freephone number from anywhere in the EU) (*).

(*). The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

Priced publications:

- via EU Bookshop (<http://bookshop.europa.eu>).

Guide to statistics in European Commission development co-operation

The “Guide to statistics in European Commission development co-operation” provides extensive information on statistics in development cooperation, presenting key international initiatives supporting developing countries in building sustainable statistical systems that produce quality statistics. It explains the ‘statistical machinery’, covering organisation, functioning and products of national statistical systems, as well as international quality frameworks and principles. It presents tools for assessing statistical systems, strategic plans for developing statistical institutions, management of national projects/programmes in the field of statistics, training, as well as different aspects of statistical capacity building.

The Guide gives advice on identification and development of actions to support statistics and on statistical indicators to define and follow-up co-operation programmes, including sector policies. It provides insight into the statistics in a wide range of specific sectors, from agriculture to social statistics, from sustainable development indicators to business statistics.

It presents a summary of EU support to statistics, including issues such as requests for support to statistical capacity building, indicators to feed result-based management tools, monitoring development partnerships or assessing the performance of policies and interventions.

For more information

<http://ec.europa.eu/eurostat/>