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Guide to Statistics in European Commission Development Co-operation

Version 1.0

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Foreword

High-quality statistics are a pre-requisite towards achieving developing countries' goals. From these countries' perspective, governments and businesses, on the one hand, and the press and citizens, on the other, need timely and reliable information to make informed decisions about the development process and to assess governance. From the international community's perspective, reliable statistics are considered as a key element towards the better measurement, monitoring and management of the results of development assistance. The Millennium Development Goals (MDG) indicators are an example of this need.

The European Union (EU) provides over half the world's development assistance and the European Commission, together with the Member States, is a major player in the field of international statistical co-operation. For over 50 years the Statistical Office of the EU, Eurostat, has been developing high-quality statistical instruments to provide the EU institutions, governments and citizens with a set of harmonised and reliable statistics. This valuable experience further contributes to the global advocacy initiatives in international statistical cooperation and enables Eurostat to provide technical advice to countries, primarily through the Commission's external relations services and their delegations.

The "Guide to statistics in European Commission development co-operation" is the fruit of a close collaboration amongst Commission services and international stakeholders in statistical co-operation for development. It attempts to gather together the key aspects involved when dealing with and supporting statistics as part of development cooperation. It is principally aimed at supporting EU staff in the delegations, but is also relevant to others active in statistical development programmes.

The "Guide" is meant to be more than a mere handbook: its ambition is to be accepted as a dynamic interactive tool, in three languages. Eurostat is already working on the next version of the "Guide" to integrate the continuously renewed paradigms of international statistical co-operation and to extend the part on statistics in sector policies with ten new chapters.

Comments and feedback are most welcome but in the meantime I hope that this "Guide" helps you better find your path in the world of statistical development co-operation.

Walter RADERMACHER

Chief Statistician of the EU

Director-General, Eurostat

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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.

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Contents

Foreword 3
Acknowledgements 4
Glossary 11
Acronyms and abbreviations 11
Part A: Introduction: The Guide to the Guide 23
A.0.1. Why a Guide to statistics in European Commission development co-operation and who should read it 23
A.0.2. What is in the Guide 23
A.0.2.1. Statistics in Development 23
A.0.2.2. Support for Statistics 24
A.0.2.3. Statistics for Development Policies 24
A.0.3. How to read the Guide 25
A.0.4. How the Guide is developed 26
Part B: Statistics in Development 31
B.1. Statistics for development co-operation 31
B.1.1. Millennium Development Goals 31
B.1.2. National development strategies and the demand for statistics 31
B.1.2.1. National Development Strategies 31
B.1.2.2. National development strategies as a framework for policy 32
B.1.3. Managing for Development Results 34
B.1.3.1. Overview 34
B.1.3.2. Principles of Managing for Development Results 34
B.1.3.3. The statistical implications of Managing for Development Results: the Marrakech Action Plan for Statistics 35
B.1.4. Paris Declaration on Aid Effectiveness 37
B.1.5. EU development policies: the European Consensus on Development and its implications for statistics 38
B.1.5.1. The European Consensus on Development as a framework for development policy 38
B.1.5.2. Regional policy focus 39
B.2. How statistics are made 43
B.2.1. Official statistics and their fundamental principles 43
B.2.1.1. Defining official statistics 43
B.2.1.2. The fundamental principles of official statistics 43
B.2.1.3. Legal framework for statistics 46
B.2.2. The statistical process 47
B.2.2.1. Main types of statistical operations 47
B.2.2.2. The statistical production process step by step 49
B.2.3. National Statistics Systems: who does what 51
B.2.3.1. Users of official statistics 51
B.2.3.2. The organisation of a National Statistical System 51
B.2.3.3. Statistical data producers 53
B.2.3.3.1. The National Statistical Institute 53
B.2.3.3.2. Other producers of official statistics 54
B.2.4. The role of international and regional organisations with statistical activities 54
B.2.4.1. International organisations 54

B.2.4.1.1. Overview 54
B.2.4.1.2. Data compiling and disseminating 55
B.2.4.1.3. International statistical concepts and methods 55
B.2.4.2. Regional organisations 60
B.3. Statistics and indicators in the European Commission development aid process 65
B.3.1. The role and importance of statistics and indicators in the aid context 65
B.3.2. Typology of development indicators 65
B.3.2.1. Typology according to what the indicator is measuring 65
B.3.2.2. Typology of indicators by the use made of them 68
B.3.3 The indicators and statistics to use at each stage of the European Commission Development Cycle 68
B.3.3.1 Statistics and Development Country Attribution 68
B.3.3.2. Statistics and Programming 69
B.3.3.3 Statistics and Identification 71
B.3.3.4 Statistics and Formulation / Implementation 71
B.3.3.5 Statistics and Evaluation 71
B.3.3.6 Statistics and Reporting for Accountability 71
B.3.4 Eurostat Indicators Database 72
B.4. Statistics across policy sectors 75
B.4.1. Millennium Development Goals, Targets and Indicators 75
B.4.2. Indicators for poverty reduction strategies 76
B.4.3. Mapping European Commission policy intervention areas to statistical activities 78
Part C: Support for Statistics 87
C.5. How to decide on a statistical action 87
C.5.1. The importance of National Statistical Systems 87
C.5.1.1. National statistical systems are generators of official statistics 87
C.5.1.2. Data available through the national statistical systems 87
C.5.1.3. International sources as data sources and quality references 90
C.5.2. Assessing the capacity of the National Statistical System 90
C.5.2.1. Objective of the assessment 90
C.5.2.2. The issues to be addressed 91
C.5.2.3. Assessment methodologies 92
C.5.3. The concept of quality in statistics 96
C.5.3.1. The key quality concepts in statistics 96
C.5.3.2 Examining data quality 97
C.5.4. Looking at the National Statistical System as a whole 100
C.6. How to bring assistance to statistics 103
C.6.1. Statistical strategy 103
C.6.1.1. Why a Statistical Strategy 103
C.6.1.2. National Strategies for Development of Statistics 103
C.6.2. Capacity building in statistics 106
C.6.3. Co-ordinating with other programmes and other development partners 109
C.7. The European Commission's support to statistics 113
C.7.1. Objectives for statistics actions: statistics in strategy and programme documents 113
C.7.2. Matching outputs to objectives: the logical framework of a statistics action 113

C.7.3. Providing European Commission support for statistics ... 114
C.7.3.1. The European Commission's implementation instruments and statistics ... 114
C.7.3.2. Eurostat's role in supporting European Commission development statistics ... 115
C.7.4. European Commission types of action in statistics ... 117
C.7.4.1. Overview ... 117
C.7.4.2. Support to the whole statistical system at national level ... 118
C.7.4.3. Support for large scale operations ... 119
C.7.4.4 Sector statistics support at national level ... 119
C.7.4.5. Strengthening regional statistics ... 120
C.8. How to manage statistics actions ... 125
C.8.1. Identification / Pre-feasibility ... 125
C.8.3. Implementation ... 130
C.8.3.1. Start-up phase ... 130
C.8.3.2. Implementation phase ... 130
C.8.3.3. Final phase ... 130
C.8.4. Evaluation step ... 131
C.8.5. Specificities of multi-country projects ... 134
C.8.5.1. Stakeholders ... 134
C.8.5.2 Statistical domains ... 134
C.8.5.3. Statistical integration ... 134
C.8.5.4 Implementation of regional statistical co-operation projects ... 135
C.8.6. Statistical Training ... 135
C.8.7. Other methodological support ... 137
C.8.8. Support in strategy and management ... 137
C.8.9. Support for IT in statistical capacity building ... 139
Part D: Statistics for Policy issues ... 145
D.9. External trade ... 145
D.9.1. Policy applications: what this data is used for ... 145
D.9.2. Concepts and definitions ... 145
D.9.3. Sources of data and metadata ... 147
D.9.4. Analysing data quality and identifying problems ... 148
D.9.5. Improving sector statistics ... 150
D.10. Government finance and public sector statistics ... 159
D.10.1. Policy applications: what this data is used for ... 159
D.10.2. Concepts and definitions ... 159
D.10.2.1. Accounting principles: Cash basis versus accrual basis ... 159
D.10.2.2. Guidelines for government finance statistics ... 160
D.10.2.3. The coverage of the government sector and of the public sector ... 160
D.10.2.2. The analytic framework ... 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 ... 165
D.11. Business statistics ... 171
D.11.1. Policy applications: what this data is used for ... 171

D.11.2. Concepts and definitions ... 171
D.11.2.1. The main types of business statistics ... 172
D.11.2.1.1. Structural (annual) business statistics (SBS) ... 172
D.11.2.1.2. Short-term business statistics (STS) ... 172
D.11.2.1.3. Manufactured products statistics ... 172
D.11.2.1.4. Other business statistics ... 172
D.11.2.2. The framework for business statistics ... 173
D.11.3. Sources of data ... 173
D.11.3.1. Collecting and compiling business statistics ... 173
D.11.3.2. International sources for business statistics ... 175
D.11.4. Analysing data quality and identifying problems ... 176
D.11.4.1. Specific quality issues for business statistics ... 176
D.11.4.2. The informal economy ... 177
D.11.5. Improving sector statistics ... 178
D.12. Environmental statistics ... 183
D.12.1. Policy applications: what this data is used for ... 183
D.12.2. Air – statistics on emissions to air and ozone depleting substances ... 184
D.12.2.1. Concepts and definitions ... 184
D.12.2.2. Source of data ... 185
D.12.3. Water – statistics on emissions to water and water resources ... 186
D.12.3.1. Concepts and definitions ... 186
D.12.3.2. Source of data ... 186
D.12.4. Waste – statistics on waste generation, movements of hazardous wastes, recycling and disposal ... 187
D.12.4.1. Concepts and definitions ... 187
D.12.4.2. Source of data ... 189
D.12.5. Biodiversity and protected areas ... 190
D.12.5.1. Concepts and definitions ... 190
D.12.5.2. Source of data ... 190
D.12.6. Land cover and land use statistics ... 191
D.12.6.1. Concepts and definitions ... 191
D.12.6.2. Source of data ... 192
D.12.7 Analysing data quality and identifying problems ... 194
D.12.8. Improving sector statistics ... 194
D. 13. Transport statistics ... 201
D.13.1. Policy applications: what transport data is used for ... 201
D.13.2. Concepts and definitions ... 202
D.13.3. Sources of data ... 202
D.13.4. Analysing data quality and identifying problems ... 205
D.13.5. Improving sector statistics ... 207
D.14. Agricultural, forestry and fishing statistics ... 213
D.14.1. Policy applications: what this data is used for ... 213
D.14.2. Concepts and definitions ... 213
D.14.2.1 Economic Accounts for Agriculture (EAA) ... 214
D.14.2.2. Agricultural Price Statistics (APS) ... 215

D.14.2.3 Agricultural structures (farm structure) ... 216
D.14.2.4 Agricultural production statistics (crop and animal production) ... 217
D.14.2.5 Forestry statistics ... 217
D.14.2.6 Agri-environmental statistics ... 218
D.14.2.7 Fisheries ... 218
D.14.3. Sources of data and metadata ... 219
D.14.4. Analysing data quality and identifying problems ... 220
D.14.5. Improving sector statistics ... 221
D.15. Regional and small area statistics ... 227
D.15.1. Policy applications: what this data is used for ... 227
D.15.2. Concepts and definitions ... 228
D.15.3. Sources of regional data ... 231
D.15.4. Analysing data quality and identifying problems ... 231
D.15.5. Improving regional statistics ... 232
D. 16. Justice and Crime Statistics ... 237
D.16.1. Policy applications ... 237
D.16.1.1. The criminal justice system ... 237
D.16.1.2. What these data are used for ... 237
D.16.1.3. Types of justice and crime statistics ... 238
D.16.2. Sources of Data and Metadata: Data available from international sources ... 239
D.16.3. Quality aspects ... 240
D.16.4. Key issues in building a system ... 241
D.16.5. Data Protection ... 242
D.17. Sustainable Development Indicators ... 247
D.17.1. Policy applications: what these indicators are used for ... 247
D.17.1.1 What is sustainable development? ... 247
D.17.1.2 The role of indicators ... 249
D.17.2 Concepts and definitions ... 249
D.17.1.2 Policy driven approach ... 249
D.17.2.2 Conceptual frameworks ... 250
D.17.3 Sources of data and metadata ... 250
D.17.3.1. United Nations (CSD) sustainable development indicators ... 250
D.17.3.2. EU Sustainable Development Indicators ... 252
D.17.3.3. Examples of regional and national SDI frameworks ... 253
D.17.4. Analysing data quality and identifying problems ... 255
D.17.5. Improving sector statistics ... 256
D.17.5.1. EU SDI ... 256
D.17.5.2. Recommendations on how to construct a set of SDI ... 257
D.18. Social Protection ... 261
D.18.1. Policy applications ... 261
D.18.2. Sources of data and metadata: scope, limits, concepts, definitions and nomenclatures ... 262
D.18.2.1. Scope of social protection ... 262
D.18.2.2. Content of the functions ... 263
D.18.2.3. Schemes and types of social protection interventions ... 264

D.18.2.4. Risks/needs/functions 265
D.18.3. Possible output of statistics and indicators 266
D.18.4. Data sources: content, limits and quality 266
D.18.4.1. Accounting records 266
D.18.4.2. Administrative forms concerning the condition and characteristics of the beneficiary 267
D.18.4.3. Household surveys 268
D.18.5. How to build a statistical action in this sector 268
D.18.5.1. Accounting records 269
D.18.5.2. Administrative records 270
D.18.5.3. Household sample surveys 270
D.18.5.4. Training 270
Index 273

Glossary

Eurostat's *Concepts and Definitions Database (CODED)*

OECD's Glossary of Statistical Terms

International Statistical Institute's (ISI) Multilingual Glossary of Statistical Terms

Acronyms and abbreviations

AAA	Accra Agenda for Action
ACP	Africa, Caribbean and Pacific
ACS	African Centre for Statistics
ADB	Asian Development Bank
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AfDB	African Development Bank
AfDF11	11th replenishment of the African Development Fund
AFRISTAT	Economic and Statistical Observatory of Sub-Saharan Africa
AIDS	Acquired Immune Deficiency Syndrome
ALA	Asia and Latin America
ALI	Agricultural Labour Input
APS	Agricultural Price Statistics
ARIMA	AutoRegressive Integrated Moving Average
ASEAN	Association of South East Asian Nations
AU	African Union
AWU	Annual Work Unit
BAT	Best Available Techniques
BCEAO	Central Bank of West African States
BEAC	Bank of Central African States
BOP	Balance of Payments
BTS	Bureau of Transportation Statistics
CA	Central Asia
CAN	Andean Community of Nations
CAP	Common Agricultural Policy
CARDS	Community Assistance for Reconstruction, Development and Stabilisation programme
CARICOM	Caribbean Community
CAS	Country Assistance Strategy

CBD	Convention on Biological Diversity
CCSA	Committee for the Coordination of Statistical Activities
CEEAC	Economic community of Central African States
CEIP	Center on Emission Inventories and Projections
CEMAC	Central African Economic and Monetary Community
CFAA	Country Financial Accountability Assessment
CFCs	Chlorofluorocarbons
CFP	Common Fisheries Policy
CH4	Methane
CILSS	Permanent Interstate Committee for Drought Control in the Sahel
CIS-STAT	Interstate Statistical Committee of the Commonwealth of Independent States
CJAT	Criminal Justice Assessment Toolkit
CLRTAP	Convention on Long-Range Transboundary Air Pollution
CO	Carbon monoxide
CO2	Carbon dioxide
COFOG	Classification of the Functions of Government
COICOP	Classification of Individual Consumption by Purpose
COMESA	Common Market for Eastern and Southern Africa
COMEXT	Eurostat's external trade database
COMTRADE	External trade database of the UNSD
CORINAIR	Core Inventory of Air emissions
CORINE	Coordination of Information on the Environment
CPA	Classification of Products by Activity
CPC	Central Product Classification
CPI	Consumer Price Index
CSD	Commission on Sustainable Development
CSI	Core Set of Indicators
CSP	Country Strategy Paper
CSSR	Country Statistical Situation Report
CTS	Crime Trends and Operations of Criminal Justice Systems
CWIQ	Core Welfare Indicators Questionnaire
CWP	Coordinating Working Party
DAC	OECD Development Assistance Committee
DCI	Development Cooperation Financial Instrument
DHS	Demographic and Health Surveys
DISC	Database on International Statistical Cooperation (Eurostat)
DPSIR	Driving Forces-Pressures-State-Impacts-Response
DQAF	Data Quality Assessment Framework

DQRS	IMF's Data Quality Reference Site
EAA	Economic Accounts for Agriculture
EAF	Economic Accounts for Forestry
EC	European Commission
ECB	European Central Bank
ECHP	European Community Household Panel
ECLAC	United Nations Economic Commission for Latin America and the Caribbean
ECOWAS	Economic Community of West African States
EDF	European Development Fund
EDF10	10th European Development Fund
EDP	Excessive Deficit Procedure
EEA	European Environment Agency
EEI	Energy Efficiency Initiative
EFA	Education for All
EFTA	European Free Trade Association
EIONET	European Environment Information and Observation Network
EITI	Extractive Industries Transparency Initiative
EMEP	European Monitoring and Evaluation Programme
EMIS	Education Management Information System
ENP	European Neighbourhood Policy
ENV	DG Environment
ENVISAT	European Space Agency Environmental Satellite
ESA95	European System of Accounts 1995
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ESDN	European Sustainable Development Network
ESDP	European Spatial Development Policy
ESPON	European Observation Network for Territorial Development and Cohesion
ESS	European Statistical System
ESSPROS	European System of Integrated Social Protection Statistics
ESU	European Size Units
ETC ACC	European Topic Centre on Air and Climate Change
ETC SCP	European Topic Centre on Sustainable Consumption and Production
EU ICS	European Crime and Safety Survey
EU	European Union
EUNIS	European Nature Information System Habitats
EURAREA	Enhancing small area estimation techniques to meet European needs
EUROSTAT	Statistical Office of the European Union
EWORSAE	European Working Group on Small Area Estimation

FADN	Farm Accountancy Data Network
FAO	Food and Agriculture Organisation
FASDEV	Forum on African Statistical Development
FATS	Foreign Affiliates Statistics
FISIM	Financial Intermediation Services Indirectly Measured
FRA	Forest Resources Assessment
FSS	Farm Structure Survey
GAAP	Generally-Accepted Accounting Principles
GDDS	General Data Dissemination System
GDP	Gross Domestic Product
GEO	Global Environment Outlook
GFS	Government Finance Statistics
GFSM	Government Finance Statistics Manual
GHG	Greenhouse Gases
GIS	Geographical Information System
GLIPHA	Global Livestock Production and Health Atlas
GNI	Gross National Income
GOFC-GOLD	Global Observation of Forest and Land Cover Dynamics
GWPs	Global Warming Potentials
HBS	Household Budget Surveys
HCFCs	Hydrochlorofluorocarbons
HEUNI	European Institute for Crime Prevention and Control
HFCs	Hydrofluorocarbons
HIES	Household Income and Expenditure Survey
HIPC	Highly Indebted Poor Countries
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HMN	Health Metrics Network
HoMIS	Housing Management Information System
HRD	Human Resources Development
HS	Harmonized System
IADB	Inter-American Development Bank
ICD	International Classification of Diseases
ICES	International Council for the Exploration of the Sea
ICLS	International Conference of Labour Statisticians
ICT	Information and Communication Technologies
ICVS	International Crime Victim Survey
IDA	International Development Association

IDA14	14th replenishment of the International Development Association's resources
IDSB	Industrial Demand-Supply Balance Database
IEA	International Energy Agency
IEEAF	Integrated Environmental and Economic Accounts for the Forests
IFAC	International Federation of Accountants
IFMIS	Integrated Financial Management Information System
IGBP	International Geosphere-Biosphere Programme
IHSN	International Household Survey Network
IISD	International Institute for Sustainable Development
ILO	International Labour Organisation
IMF	International Monetary Fund
INSEE	National Institute for Statistics and Economic Studies (France)
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated Pollution Prevention and Control
IPSAS	International Public Sector Accounting Standards
IPSASB	International Public Sector Accounting Standards Board
IRENA	Indicator Reporting on the integration of Environmental concerns into Agricultural policy
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
ISI	International Statistical Institute
ISIC	International Standard Industrial Classification
ISSA	International Social Security Association
IT	Information Technologies
ITF	International Transport Forum
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
IVAWS	International Violence Against Women Survey
JAR	Joint Annual Report
JFSQ	Joint FAO/UNECE/Eurostat/ITTO Forest Sector Questionnaire
JRC	Joint Research Centre
KIDS	Key Indicator Display System
LABORSTA	Statistical database of the ILO
LAU	Local Authority Level
LC/LU	Land Cover/Land Use
LCCS	Land Cover Classification System
LKAU	Local Kind-of-Activity Unit)
LSMS	Living Standards Measurement Study
LUCAS	Land Use/Cover Area statistical Survey

LUZ	Larger Urban Zone
M&E	Monitoring and evaluation
MADE	Multipurpose Africover Database for the Environmental Resources
MAPS	Marrakech Action Plan for Statistics
MCPFE	Ministerial Conference on the Protection of Forests in Europe
MDG	Millennium Development Goals
MEDA	Euro-Mediterranean partnership
MEDSTAT	Programme for Cooperation of Euro-Mediterranean Statistical Institutes
MERCOSUR	Southern Common Market
MfDR	Managing for Development Results
MICS	Multiple Indicator Cluster Surveys
MIS	Management and Information System
MISSOC	Mutual Information System on Social Protection
MoF	Ministry of Finance
MOVE	DG Mobility and transport
MTEF	Medium Term Expenditure Framework
N2O	Nitrous oxide
NACE	Statistical Classification of Economic Activities
NAICS	North American Industry Classification System
NB	National Bank
NDS	National development strategy
NEC	National Emission Ceilings
NESIS	National Education Statistical Information System of UNESCO Institute for Statistics
NGO	Non-Governmental Organisation
NH3	Ammonia
NIP	National Indicative Programme
NMVOCs	Non-methane volatile organic compounds
NOx	Nitrogen oxides
NRA	National Revenue Authority
NSDS	National Strategy for the Development of Statistics
NSI	National Statistical Institute
NSS	National Statistical System
NST	Standard Goods Classification for Transport Statistics
NUTS	Nomenclature of Territorial Units for Statistics
ODI	Overseas Development Institute
ODS	Ozone Depleting Substances
OECD	Organisation for Economic Co-operation and Development
PAF	Performance Assessment Framework

PAH	Polycyclic aromatic hydrocarbon
PAIRAC	Support Programme for Regional Integration in Central Africa
PALOP	Portuguese-speaking African countries
PARI	UEMOA's regional programme supporting integration
PARIS21	Partnership in Statistics for Development in the 21st Century
PARSTAT	Regional statistical support program of the UEMOA
PAYE	Pay-as-you-earn tax
PCB	Polychlorinated biphenyl
PECBMS	Pan-European Common Bird Monitoring Scheme
PEEIs	Principal European Economic Indicators
PEFA	Public Expenditure and Financial Accountability
PEI	Poverty-Environment Initiative
PFCs	Perfluororcarbons
PFM	Performance Measurement Framework
PFM	Public Finance Management
PMMP	Poverty Monitoring Master Plan
POPs	Persistent Organic Pollutants
PPP	Purchasing Power Parity
PPPs	Public-Private Partnerships
PRBS	Poverty Reduction Budget Support
PRESS	Partner Report on Support to Statistics (PARIS21)
PRGF	Poverty Reduction and Growth Facility
PRS	Poverty Reduction Strategies
PRSP	Poverty Reduction Strategy Paper
RAA	Regional Agricultural Accounts
REC	Regional Economic Community
REDD	Reducing Emissions from Deforestation and Forest Degradation
RIP	Regional Indicative Programme
RRSF	Reference Regional Strategic Framework for Statistical Capacity Building in Africa
RSP	Regional Strategy Paper
RSTS	Regional Statistical Training Strategy
RTACs	Regional Technical Assistance Centres
RTCs	Regional Training Centres
SADC	Southern African Development Community
SAE	Small Area Estimation
SBS	Structural Business Statistics
SCA-ECLAC	Statistical Conference of the Americas of the ECLAC
SCD	Sub-City District

SDDS	Special Data Dissemination Standard
SDI	Sustainable Development Indicators
SDP	Sector Development Programme
SEBI 2010	Streamlining European 2010 Biodiversity Indicators
SF6	Sulphur hexafluoride
SGM	Standard Gross Margin
SIECA	Secretariat for Central American Economic Integration
SILC	Survey on Income and Living Conditions
SIRE	European infra-regional information system
SITC	Standard International Trade Classification
SMEs	Small and Medium-sized Enterprises
SNA	System of National Accounts
SNA93	System of National Accounts 1993
SNAP	Selected Nomenclature for sources of Air Pollution
SO2	Sulphur dioxide
SOCX	Social expenditure database
SoEF	State of Europe's Forests
SOGO	Statement of Government Operations
SPC	Secretariat of the Pacific Community
SPC	Statistical Programme Committee (from 2009: the European Statistical System Committee (ESSC)
SPER	Social Protection Expenditure and Performance Review
SRM	Social Risk Management
SSL	Statistics Sierra Leone
STATCAP	Statistical Capacity Building Program
STS	Short-Term business Statistics
SWAp	Sector-Wide Action programmes
SWOT	Strengths, Weaknesses, Opportunities and Threats analysis
TACIS	Technical Aid to the Commonwealth of Independent States
TFP	Total Factor Productivity
TFSCB	Trust Fund for Statistical Capacity Building
ToR	Terms of Reference
UAA	Utilised Agricultural Area
UCI	Ultimate Controlling Institutional unit
UEMOA	West African Economic and Monetary Union
UIS	UNESCO Institute for Statistics
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNCSD	United Nations Commission on Sustainable Development

UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UN-ESCWA	United Nations Economic and Social Commission for Western Asia
UNFCCC	United Nations Framework Convention for Climate Change
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNODC	United Nations Office on Drugs and Crime
UNSD	United Nations Statistics Division
USGS	US Geological Survey
UV	Unit Value statistics
VAT	Value Added Tax
WB	World Bank
WCED	World Commission on Environment and Development
WDI	World Development Indicators
WDPA	World Database on Protected Areas
WEI	Water Exploitation Index
WEI	World Education Indicators
WGSSD	Joint UNECE/Eurostat/OECD Working Group on Statistics for Sustainable Development
WHO	World Health Organisation
WMO	World Meteorological Organization

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 Commsission 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 target audience is Commission staff working in development cooperation, especially in delegations, and most particularly people who know very little about statistics and would prefer to spend their time on their core tasks. 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;
- Advocate timely consideration of statistical issues over the Commission aid cycle.

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 Commission 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 EC policy aims in the context of European Commission sector policy areas, hence in more detail.

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, however, 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, will be effective or will result in sustained improvements.

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

To find out more…

Please send comments or requests for information on the Guide to: *ESTAT-INTER-COOP@ec.europa.eu*

The World Bank is taking an educational approach to informing development professionals about statistics by preparing a series of e-learning modules. The document linked to is a preliminary version of the module on *'Investing in data collection and dissemination'* (part of the course *Investing in Statistical Capacity*). Please send any comments on this to the e-mail address above.

The European Development Fund has supported *SADC* (the Southern African Development Community) to develop a *standardised course* aimed at teaching the basics of official statistics, covering basic statistical concepts. Click on the 'resources' tab.

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:

- the Millennium Development Goals,
- poverty reduction strategies,
- Managing for Development Results,
- the Paris Declaration and the Marrakech Action Plan for Statistics.

The discussion of 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 consist of data published by government agencies, regional and international organisations such as the UN as a public good, 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:

- Millennium Development Goals (MDG) 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, hence in more detail.

Part D is organised according to the statistics activities defined in the ***UNECE Classification of International Statistics Activities.*** An overview of the correspondent policy areas defined by the European Consensus on Development can be found in Box 4.5 (section B.4.3).

Each chapter follows a standard structure, so as to present 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

The following 10 sections of Part D Statistics for Policy Issues have been prepared; the corresponding policy area, as defined by the European Consensus on Development (see section B.1.5) is added in brackets. (For a full overview over the policy areas defined in the European Consensus on Development and the corresponding statistical activity, see Box 4.5 in section B.4.3):

- D.9. International trade and balance of payments (Trade and regional integration)
- D.10. Government, finance and public sector statistics (Trade and regional integration)
- D.11. Business statistics (Trade and regional integration)
- D.12. Environmental statistics (Environment, sustainable management of natural resources)
- D.13. Transport statistics: road, rail, sea waterway, air, pipeline (Infrastructure, communications and transport)
- D.14. Agricultural, forestry and fishing statistics (Rural development, territorial planning, agriculture, food security)
- D.15. Land use statistics and regional presentations of statistics (Rural development, territorial planning, agriculture, food security)
- D.16. Justice and crime statistics (Governance, democracy, human rights and support for economic and institutional reforms)
- D.17. Sustainable development indicators (Human development)
- D.18. Social protection (Social cohesion and employment)

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
- 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***.

Cross-referencing between chapters is necessary to allow the reader to enter the Guide at any point and to avoid repetition. Such cross-references will be automated all along the further development of the Guide.

Here are three examples 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.5.4 How to decide on a statistical action / The Assessment of the National Statistical System
  - and from there to section C.6.1 How to bring assistance to statistics / Statistical strategy
- Population Census: Table of contents shows section D.19 Population and migration (not yet prepared). Cross-references are then followed to:
  - Section C.6.3. How to bring assistance to statistics / Co-ordinating with other programmes and other development partners
  - Section C.7.4. European Commission types of action in statistics
- Regional projects: Table of contents shows section C.8.8 How to manage statistics actions: Specificities of multi-country / regional projects. Cross-references earlier in the chapter are followed as for Budget Support.

To find out more…

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

OECD Glossary of Statistical Terms

A.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. Please e-mail your comments or a request to be kept informed to the address below (see "To find out more" box).

The Guide has been developed as follows in 2010:

- Coverage of European Neighbourhood Policy and Asia and Latin America statistical cooperation improved;
- 10 chapters of Part D Statistics for Policy Issues have been prepared
- Index fully developed and cross-references automated
- Hyperlinks maintained and up-to-date

In 2011, the following activities will be undertaken:

- Publication of the Guide version 1.0 into French, with hyperlinks provided to french language documents where available;
- Update of the text according to user comments and the developments in international statistical co-operation, occurred after the finalization of version 1.0;
- The following 10 new chapters of Part D Statistics for Policy Issues will be prepared:
    - o Population and migration (Human development)
    - o Labour statistics (Social cohesion and employment)
    - o Education statistics (Human development)
    - o Health statistics (Human development)
    - o Income and consumption (Human development)
    - o Human settlements and housing (Rural development, territorial planning, agriculture, food security)
    - o National accounts, Economic accounts, Non-Observed Economy (Trade and regional integration)
    - o Price statistics (Trade and regional integration)
    - o Air and water quality (Environment, sustainable management of natural resources)
    - o Living conditions and poverty (Human development)
- A Guide version 2.0 in English, French and Spanish, which will include these updates and further developments, will be released."

To find out more…

Please send comments or requests for information on the Guide to:
ESTAT-INTER-COOP@ec.europa.eu

B

Statistics in Development

Statistics for development co-operation

B.1

Part B: Statistics in Development

B.1. Statistics for development co-operation

Box 1.1: The chapter in brief

This chapter explains the recently increased demand for statistics in developing countries by examining the international initiatives which focus on performance measurement and results-based policy making. It commences with the global approaches, covering the Millennium Development Goals, Poverty Reduction Strategies and Managing for Development Results, focusing on the Paris Declaration and the Marrakech Action Plan for Statistics. The discussion of the European Consensus on Development places the global initiatives in a European context..

B.1.1. Millennium Development Goals

The Millennium Declaration, signed in September 2000, committed the 189 signatory nations to work together to achieve eight human development 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

These Millennium Development Goals (MDGs) provide the agreed overall aims of development policy. They form a framework for development partners to work coherently towards common goals. The progress towards these goals is to be assessed through 18 quantifiable targets that are to be reached by 2015. A further four targets were proposed in 2005. In 2007, the MDG monitoring framework was revised to include also these targets.

To measure progress toward the targets, 60 linked statistical indicators were agreed by the United Nations system, the World Bank, the International Monetary Fund and the OECD Development Assistance Committee. These indicators enable regular monitoring of progress toward the targets set by the Millennium Development Goals.

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. As discussed in the outline of the MDG indicators in section B.4.1 and the more detailed examination in Part D, making these measurements and drawing valid comparisons and conclusions are considerable challenges to statistics in developing countries. Managing for Development Results, the Paris Declaration and the Marrakech Action Plan are to a large extent initiatives that were born as the consequence of the demands for measurement of the Millennium Development Goals.

To find out more…

about Millennium Development Goals:
• MDG background:
http://www.un.org/millenniumgoals/background.html

• Official list of MDG targets and indicators:
http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Indicators/OfficialList.htm

B.1.2. National development strategies and the demand for statistics

B.1.2.1. National Development Strategies

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 i ncorporated. 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.

The objective of Poverty Reduction Strategy Papers is to improve the impact of government policies on poverty reduction. The papers incorporate comprehensive analyses of a country's macroeconomic policies, especially structural policies that aim at sustainable fiscal and balance of payments deficits, as well as social policies. They therefore focus on external financing needs, promoting growth and reducing poverty in a long term perspective. PRSPs are intended to be nationally owned, being prepared by governments through a participatory process that involves civil society. Development partners, notably the World Bank and the International Monetary Fund, are also closely involved.

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 at section B.4.2.

To find out more…

about PRSs
• World Bank's website:
http://www.worldbank.org/prsp

B.1.2.2. National development strategies as a framework for policy

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 and the Paris Declaration on aid effectiveness (see section B.1.3.3).

Box 1.2 shows the policy framework of the Kenya Economic Recovery Strategy paper of 2004, which was considered by the World Bank as fulfilling the requirements of a PRSP. The framework shows 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 "More transparent tax structure" (row 1). Other outputs are measurable, at least in principle: "Achievement of more sustainable fiscal framework" (row 1) and "Money supply consistent with real GDP and nominal inflation target" (row 2) are examples.

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

Box 1.2: The policy framework of the Kenya Economic Recovery Strategy

Objectives	Development Outcomes	Outputs	Activities / Policies
1. Economic Growth	1.1 Sustainable fiscal framework	• Achievement of more sustainable fiscal framework	• Set realistic resource envelope … coordinate external resource mobilisation, disaggregate macroeconomic model by sector, update economic and social data
		• Sustainability of fiscal revenues	• Constrain government spending within sustainable fiscal framework
		• More transparent tax structure…	
		• Harmonised taxation in E.A. countries…	
	1.2 Increase in official foreign exchange reserves	• Money supply consistent with real GDP and nominal inflation target	…
	7 further outcomes	…	
2. Human Development and poverty Reduction	2.1 Universal Primary education	• Reduced cost of primary education to families	• Ensure equitable enrolment by targeting disadvantaged groups
		• Increased enrolment of girls, pastoralist, street children, slum children	• Elimination of school levies
		• Availability of learning and teaching materials in primary schools	• Introduction of alternative education delivery methods …
		• Additional classrooms	• Provision of bursaries to students from poor families …
		• Strengthened education management information system	• Expand school feeding programme by 15 000 students
			• Improve quality and internal efficiency through teacher training and redeployment
			• Reform the curriculum to focus on core skills
			• 6 further actions
	2.2 Expanded basic health services	• Increased equity and affordability for low-income patients	…
		• Strategic plan for national social health insurance	
		• Strengthen promotional and preventive health	
		• Increased budget allocations to health	
	6 further outcomes …	…	
3. Gover-nance	3.1 Strengthened public safety, law and order	• New constitution approved	• Complete constitutional review
		• Security force strengthened	• Review and harmonize laws
		• Corruption cases prosecuted	• Disseminate
		• Reduced average time taken from filing to disposal of cases …	• Hire additional security staff to start closing the gap with international / UN standards
		• Computerised registries for Justice institutions	• Retrain, reequip and redeploy police force and other security services
		• Reduced congestion in the prisons	…
	2 further outcomes	…	

B.1.3. Managing for Development Results

B.1.3.1. 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. 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.

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 recently created "African Statistical Coordination Committee" and African Statistical Commission are accompanied by the African Statistical Development Symposium and the Forum of the African Statistical Development (FASDEV) which includes countries and donors. A key instrument is the ***Reference Regional Strategic Framework for Statistical Capacity Building in Africa (RRSF)***. RRSF was prepared to contribute to improved development outcomes and good governance in Africa, by guiding and accelerating sustainable statistical capacity building. It sets out a coherent framework to build this capacity, in line with the Marrakech Action Plan for Statistics (MAPS). The framework provides guidance to countries on how to improve their statistics and increase their use in policy-making and decision-making.

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 that are proposed 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***

B.1.3.2. Principles of Managing for Development Results

The Managing for Development Results 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]".

The five principles of 'Managing for Development Results' (MfDR), 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;

1 Emerging Good Practice in managing for development results – Sourcebook, First issue, June 2006, OECD and World Bank – also see hyperlink in 'To find out more' box below

- 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.

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.

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).

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***

B.1.3.3. The statistical implications of Managing for Development Results: 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. 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 principles on development progress to the planning and statistics systems.

The Action Plan for Statistics consists of:

1. Mainstream strategic planning of statistical systems and preparation of National Strategies for the Development of Statistics (NSDS) for all low-income countries by 2006,
2. preparations for the 2010 census round,
3. Increase financing for statistical capacity building,
4. Set up an International Household Survey Network,
5. Undertake urgent improvements needed to monitor Millennium Development Goals by 2005,
6. Increase accountability of the international statistical system.

The Action Plan therefore identified the key actions in support of publicly available statistics that require international support. It is a mixture of strategic and policy actions (points 1, 3 and 6) and specific statistical actions (points 2, 4 and 5). Points 1-3 require action carried out at the national level (cost estimated in MAPS at an additional $118m per year); 4-6 require international collaboration (cost estimated in MAPS at $24-28m per year).

Several actions are being undertaken in fulfilment of the Action Plan as follows:

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, pp 20-22); there is also discussion of the MTEF (Medium Term Expenditure Framework, p19). PARIS21 maintains ***a list of NSDSs*** at various states of preparation and implementation. 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. (See point 3 below for financing issues.)

In October 2008, PARIS21 issued the report *'National Strategies for the Development of Statistics (NSDS): Worldwide Report on Progress and Emerging Issues'*, identifying what progress has been made in strategic statistical planning and what remains to be done if NSDS targets are to be achieved. This report may serve as an input for the design of support programmes to countries. Additionally, the report aims inspire NSDS country teams to report in greater detail on their own strategic planning efforts.

2. Preparations for 2010 Census Round

- Develop an overall strategy for funding and conducting censuses in low income countries. Research census costs and operational methods to determine practical measures to reduce costs and maximize timely dissemination and use of census results.
- Research 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.

Response: These questions have been addressed by the *UN Population Fund*, the UN Statistics Division *Census Knowledge Base* and, for Africa, by the *2006 Africa Symposium on statistical development* [2].

3. Increase Financing for Statistical Capacity Building (See section C.6.2)

- 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 expected increase in levels of support to statistics was developed in response to this demand, initially 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 World Bank '*Statistics for Results Facility* [3], which provides a dedicated funding mechanism, is an application of these principles. The European Commission's position is that the two elements are sufficient: existing mechanisms can be used for the pooled funding.

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* has been set up as an informal partnership of international organizations seeking to improve the availability, quality and use of survey data in developing countries.

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 results of the review of principal indicators and five yearly reviews of MDGs are described at section B.1.1. A variety of organisations are involved in training and monitoring capacity building: for example, a joint ECA/UNSD workshop was held in May 2008 on coordination of reporting mechanisms and data discrepancies in MDG monitoring in Africa.

2 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

3 The World Bank's 'Statistics for Results Facility' is distinct from the Trust Fund for Statistical Capacity Building (TFSCB) which provides grants to developing countries for statistical capacity building activities, especially for planning. The TFSCB was established by the Development Data Group of the World Bank to strengthen the capacity of statistical systems in developing countries. It provides a global facility, administered by the World Bank on behalf of donors, to make investments at the national, regional and global levels to improve the collection, processing, analysis, storage, dissemination and use of timely, good quality statistics to support poverty reduction and economic and social development.

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) was referred to at point 1 above.

A Reference Regional Strategic Framework for Statistical Capacity Building in Africa (RRSF) was adopted in 2006[4] as a means of implementing MAPS. It provides a basic framework for developing statistical capacity programmes in Africa which is intended to focus on instruments for improving the planning, financing, management, and coordination of statistical development activities to meet demands for statistics of good quality. The framework is built around three themes: meeting users' needs, improving management of statistical systems; and ensuring sustainability.

The RRSF's backers expect that National Statistical Institutes (NSIs) refer to the framework for guidance on statistical capacity building; that international organizations will be using it as an input in their selection of programmes and projects supporting statistical development in African countries; and that all stakeholders would be able to use it to promote effective partnerships and coordination of capacity building efforts by both national and international institutions.

Subsequent to Marrakech, support for statistics development featured at the Third Roundtable on Managing for Development Results. This Roundtable took place in Hanoi in 2007 and focuses in particular on statistical capacity building. Good progress was observed concerning the implementation of MAPS: According to PARIS21, as of May 2009, a total of 56 IDA and Lower Middle Income countries are currently implementing a NSDS and a further 32 are either currently designing or waiting for adoption of a NSDS. 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 will be made more transparent by facilitating parliamentary oversight and implementing greater transparency in public financial management. UNSD has initiated a programme to obtain funding for the census round, the International Household Survey Network has been set up and the Accelerated Data Programme is being piloted. 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 Development of Statistics,*** recognising that a lot has been achieved since 2000 to improve the monitoring of the Millennium Development Goals, but that much still remains to be done to deliver the vision of the Marrakech Action Plan for Statistics (MAPS).

To find out more…

about the ***Marrakech Action Plan for Statistics***
• Managing for Development Results: detailed ***Action Plan***
• ***Reference Regional Statistical Framework*** proposal and ***current status***
Third Roundtable on Development Results, Hanoi 2007: ***Better Data for Better Results***
PARIS21 and its ***national strategy for the development of statistics knowledge base***
World Bank ***Improving Statistical Capacity***
International Household Survey Network

B.1.4. Paris Declaration on Aid Effectiveness

The 2005 ***Paris Declaration on Aid Effectiveness*** aims to improve transparency and accountability in the use of resources for development assistance. Aid donors and recipients are to be mutually accountable and publicly monitored. At country level, the Paris Declaration encourages donors and partners to jointly assess the implementation of commitments on aid effectiveness.

Twelve indicators of aid effectiveness were developed to track and encourage progress on the partnership commitments (see Box 1.3). Targets have been set for the year 2010 for 11 of these commitments. Most of the associated indicators concern the organisation of development cooperation programmes and so do not have any direct implications for statistics. Exceptions are indicator 2, reliable country systems and indicator 11, Results-oriented frameworks, which directly support the use of statistics. Nevertheless, the Paris Declaration principles of ownership, alignment and accountability are likely to have considerable implications for statistics.

4 It was adopted in February 2006 at the 2nd Forum for Statistical Development in Africa (FASDEV-2). The proposal was prepared by African Development Bank, ECA, World Bank and PARIS21. AfDB and ECA oversee implementation.

Box 1.3: The commitments and indicators of the Paris Declaration

The 56 partnership commitments in the Paris Declaration are based on five key principles, to which 12 indicators are attached.

Ownership: Developing countries exercise effective leadership over their development policies and strategies; they coordinate development efforts. Donors support and enable developing countries' ownership by respecting their policies and helping to strengthen their capacity to implement. Indicator:
1. Partners have operational development strategies

Alignment: Donors base overall support on partners' national development strategies, institutions and procedures. Donors therefore draw conditions, whenever possible, from a partner's national development strategy, instead of imposing multiple conditions based on other agendas. Indicators:
2. Reliable country systems
3. Aid flows are aligned on national priorities
4. Strengthen capacity by co-ordinated support
5. Use of country public financial management systems and procurement systems
6. Strengthen capacity by avoiding parallel implementation structures
7. Aid is more predictable
8. Aid is untied

Harmonisation: Donors aim to be more harmonised, collectively effective and less burdensome, especially on countries that have weak administrative capacities, such as fragile states. This implies establishing common arrangements at country level for planning, funding and implementing development programmes (paragraph 32). Indicators:
9. Use of common arrangements or procedures
10. Encourage shared analysis

Managing for results: Donors and partner countries manage inputs and improve decision-making for results. Donors support developing countries' efforts to implement performance assessment frameworks that measure progress toward national development strategic goals (paragraphs 43-46). Indicator:
11. Results-oriented frameworks

Mutual accountability - Donors and developing countries pledge that they will hold each other mutually accountable for development results. Indicator:
12. Mutual accountability

To find out more…

See the OECD Development Co-operation Directorate websites: ***Paris Declaration on Aid Effectiveness*** as well as ***'Monitoring the Paris Declaration on Aid Effectiveness'.***

B.1.5. EU development policies: the European Consensus on Development and its implications for statistics

B.1.5.1. 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. As the EU is a signatory to the Millennium Declaration, The Millennium Development Goals are a critical element of the EU approach.

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.

Cross-cutting issues to be focused on are: the promotion of human rights, gender equality, democracy, good governance, children's rights and indigenous peoples, conflict prevention, environmental sustainability and combating HIV/AIDS.

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. Although these indicators were previously used by the EU, their consistent use in policy monitoring is formalised by this document.

It also states that funds are to be allocated between countries through 'criteria based on needs and performance.' 'The needs criteria include population, income per capita poverty, income distribution and social development, while the performance criteria include political, economic and social progress, good governance and the effective use of aid for development, beginning with own resources' (paragraphs 64, 65).

Thus, the approach to development policies put forward in the European Consensus on Development requires the use of statistics-based indicators in order to set priorities for the EU's development objectives, as well as to demonstrate progress at activity level and towards the achievement of policy goals. The challenge is to transfer this policy commitment into actual demand for statistics and to deliver the information required.

B.1.5.2. Regional policy focus

As noted in the previous section, the European Consensus on Development identifies regional integration as an area where the European Community has a comparative advantage; paragraphs 49 and 72 specifically identify regional cooperation on trade. Paragraph 78 identifies infrastructure as a cooperation area of regional interest; similarly for water issues (paragraph 81), agriculture and food security (84-5) and conflict prevention (89).

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 for Statistics.'

The European Commission's cooperation frameworks also identify indicative areas and roles for statistics at regional level[5] :

- ACP: MDG indicators, Social sectors, Regional integration, Monitoring-related statistical information-gathering capacities of institutions (Paris Declaration 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)

5 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 the European Consensus on Development, see:
The European Consensus on Development - Official Journal of the European Union, 24 February 2006.

On the joint ***Africa-EU Strategy***, the strategy is one of the key partnership documents

Evaluation of the Commission Support for Statistics in Third Countries, 2007

How statistics are made

B.2

B.2. How statistics are made

Box 2.1: 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

B.2.1. Official statistics and their fundamental principles

B.2.1.1. Defining official statistics

Official statistics are the statistics that are 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.

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.

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. Part D of this Guide, Statistics for Development policies, is structured according to the European Consensus Policy areas (see section B.1.4).

B.2.1.2. The fundamental principles of official statistics

To find out more…

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

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 2.2). 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 2.2: The UN's fundamental principles of official statistics and principles of the European Statistics Code of Practice

- *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.

- *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 informtion 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 Joint African Union-UN Economic Commission for Africa Conference of African Ministers of Economy and Finance had approved the draft charter and recommended its submission to the Executive Council of the ***AU*** after its revision by legal experts. On 3 February 2009, the Charter was adopted by African Heads of State and Government. As of July 2009, 9 countries had signed the Charter; it will enter into force when 15 countries have ratified it.

The ***Statistical Conference of the Americas of ECLAC*** identified the European Statistics Code of Practice as a standard for best statistical practices to be promoted in the Latin American and Caribbean region. This 2007 meeting requested Eurostat and ECLAC to prepare an action programme for its implementation in the context of the Memorandum of Understanding between the European Commission and ECLAC. The aim is to establish a frame of reference for good statistical practice appropriate for the Latin American and Caribbean region and to encourage its adoption especially in terms of the Institutional Environment.

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.

To find out more…

The UN fundamental principles, visit: ***http://unstats.un.org/unsd/goodprac/bpabout.asp***

The ***European Statistics Code of Practice*** and ***Eurostat quality website***

African Union Charter of Statistics and the ***list of countries that signed the Charter (as of July 2009)***

Principles Governing International Statistical Activities

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 shouldconform 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.

High response burden due to lacking coordination, missing trust in the integrity and objectivity of the statistical office, as well as doubts about the confidentiality of the information given, may discourage respondents and lead to inaccurate responses. It may also discourage the staff of the statistical office. Lacking coordination and cooperation between authorities may limit the possibilities for cross-checking or benchmarking statistical data against other sources. Furthermore, inefficient use of funds reduces the resources available for internal capacity building in the statistical office, such as staff training, investment in ICT and improved statistical procedures and operations (sampling frames, data collection and processing, quality controls, dissemination, etc). On the other hand, overprescriptive legislation can lead to inflexible statistical organisations and publications.

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.

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 from 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. 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. However, 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.

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

- **Censuses** 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** 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.

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 existence of the data are 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** 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 Census** is a primary source of information about the size of population, its composition, characteristics, spatial distribution and organization into families and households. Because censuses are used as the basis for sample frames for household surveys, the population census provides the basis for data collection and compilation for comprehensive statistical information for economic and social development. Housing and agriculture censuses are also undertaken, sometimes as part of the population census.
- **Price surveys** in consumer outlets are the basis of the Consumer Price Index (CPI), one of the most widely quoted official statistics. Other measures of inflation also make use of producer price surveys.
- **Household Budget Surveys (HBS)** provide data on household consumption, expenditure and income and thus the socio-economic characteristics of the population such as the prevalence of poverty. HBS results are also inputs into a variety of economic statistics, including national accounts. Household budget surveys will also be examined in further detail in Part D.

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:

- **Living Standards Measurement Studies (LSMS)**, initiated in 1980 by the World Bank, LSMS have become an important tool in measuring and understanding poverty in developing countries.
- **Demographic and Health Surveys (DHS)** provide data on a wide range of indicators in the areas of population, health, and nutrition.
- **Multiple Indicator Cluster Surveys (MICS)** household surveys were developed by UNICEF to generate producing statistically sound, internationally comparable estimates of indicators to monitor the situation of children and women. MICS was developed to fill existing data gaps and to inform and complement existing data. It is an important source of information for the MDGs.
- **Education Management Information Systems (EMIS)** organise information related to the management of educational development. It informs the different actors and partners on the state of the education sector, its efficiency, its pedagogical and institutional operation, its performance, shortcomings and needs.

To find out more…

- Population Census: ***http://unstats.un.org/unsd/demographic/sources/census/default.aspx***
- Living Standards Measurement Studies (LSMS): ***http://www.worldbank.org/LSMS/***
- Demographic and Health Surveys (DHS): ***http://www.measuredhs.com/***
- Multiple Indicator Cluster Surveys (MICS): ***http://www.childinfo.org/***
- Education Management Information System (EMIS): ***http://www.unesco.org/en/policies-and-plans/emis/***

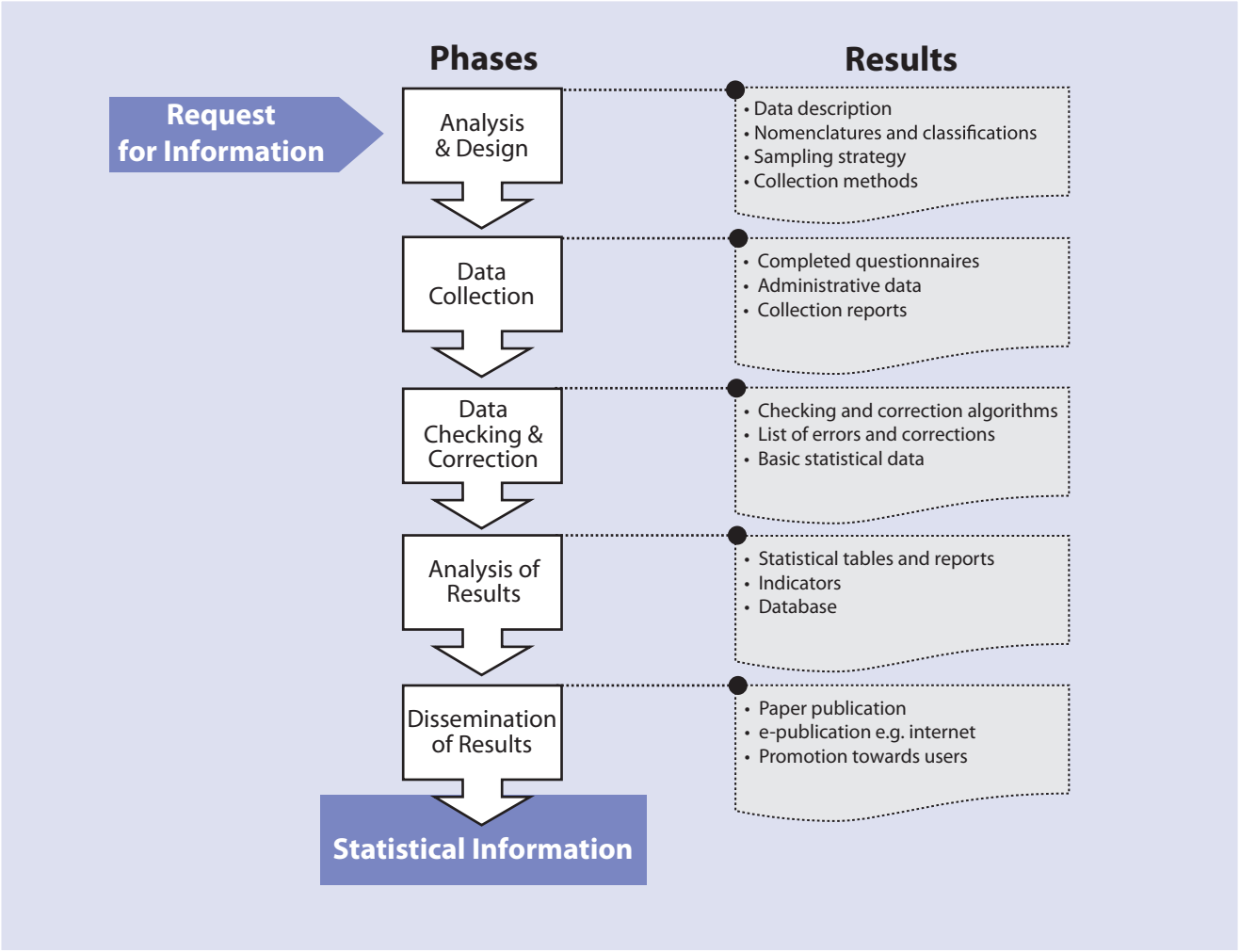
B.2.2.2. The statistical production process step by step

Figure 2.1 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.

The analysis and design stage considers which statistics are to be presented, how they are to be presented and how this output is to be best achieved. It is vital to involve key users of the statistics at the design stage. Only if the users' needs for these specific statistics are taken into account will the statistics actually be relevant to users; 'Relevance' is a main dimension of statistical quality. Data is collected, organised on computer in accordance with the initial design, checked and corrected as necessary. The results are compiled in detail and in summary. The analysis looks at the main features of the results, including comparisons with recent historical data. The statistics are then published in various forms, targeted at different types of user. The methods used (known as metadata) are also published, if this has not been previously done.

Figure 2.1 The organisation of the statistical process



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.

Five groups of users 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 rise 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.

Much user demand for data is fairly stable: many users require statistics to remain comparable over time so that the effect of long-term policies can be assessed. However, new policy fields give rise to new demands for official statistics: examples include economic and social globalisation and climate change. Users now demand statistics to be available in considerable detail through the internet, which can help reduce data dissemination costs. Policy driven demand for additional information requires that a financial commitment is made so that new statistics can be published.

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 to evaluate the effectiveness of their policies, they are often supporters of regional harmonisation of data, so that it becomes regionally comparable. In the past, development cooperation partners commissioned surveys to 'their own' specifications in order to obtain data that met their requirements. National ownership of statistics and elimination of overlapping surveys mean that this practice is now less common.

B.2.3.2. The organisation of a National Statistical System

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.

Box 2.3 describes the semi-autonomous NSI in Uganda, which is responsible for NSS coordination.

Box 2.3: Uganda Bureau of Statistics

Uganda Bureau of Statistics (UBOS) is the principal data collecting, processing, analysing and disseminating agency responsible for coordinating and supervising the National Statistical System.

Formerly the Statistics Department of the Ministry of Finance, Planning and Economic Development, it was transformed into a semi-autonomous body by the Uganda Bureau of Statistics Act No. 12, 1998. The decision to establish the Bureau arose from the need for an efficient and user-responsive agency that would meet the growing demand for statistics in the country.

UBOS itself coordinates 'the development and maintenance of a National Statistical System which will ensure collection, analysis and dissemination of integrated, reliable and timely statistical information.'

The provisions of the UBOS Act include the following

UBOS will be responsible for:

- providing high quality central statistics information services0
- promoting standardization in the collection, analysis and publication of statistics to ensure uniformity in quality, adequacy of coverage and reliability of statistics information;
- providing guidance, training and other assistance as may be required to other users and providers of statistics;
- Promoting cooperation, coordination and rationalization among users and providers of statistics at national and local levels so as to avoid duplication of effort and ensure optimal utilization of scarce resources;
- Promoting and being the focal point of cooperation with statistics users and providers at regional and international levels.

UBOS will be a source of official statistical information.

UBOS may perform the following functions:

- review all initiatives to collect data at the national and local government levels and approve instruments developed for data collection including census frames, registers, sample designs and questionnaires;
- collect, compile, analyze and publish social, environmental, economic and national accounts statistics;
- conduct censuses and surveys as the need arises;
- (collect routine administrative statistics;
- organise and maintain a central depository of statistical reports, publications, documents and data from both within and outside Uganda;
- guide and coordinate local government statistical services

The UBOS Board is made up of up to seven members, including up to three members from major producers and users of statistics. UBOS is required to 'consult and cooperate' with other statistics producers and vice versa. There is no user consultative committee identified on the UBOS website.
http://www.ubos.org

To find out more…

About statistical legislation and practices, see: the '*Good practices database'* of the United Nations Statistical Division.

About the various ways in which NSSs are organised, see '*Models of Statistical Systems*' by Roger Edmunds

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. 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

NSIs can be organised by function, by statistical subject or a mixture of the two. The UK's Office for National Statistics, for example, has directorates for subjects such as 'macroeconomics and labour market' and also for functions such as 'surveys and administrative sources' and 'methodology'. France's NSI, INSEE (Institut National de la Statistique et des Etudes Economiques) is largely organised along subject matter lines, with few functional directorates. In the USA, the activities of an NSI are undertaken by the Bureau of Labor Statistics, the U.S. Census Bureau and other institutions. American textbooks may reflect this structure.

A wide range of developing country NSI structures exists. See for example the structures of the Botswana CSO, Cameroon's INS and the Mozambique INE. Francophone developing countries generally reflect INSEE's structure. 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: *http://www.insee.fr/fr/a_propos/connaitre/organisation/directions.htm*
United Kingdom: *http://www.statistics.gov.uk/about_ns/foi/ons_org_chart.asp*
USA: *http://www.bls.gov/; http://www.census.gov/*
Botswana: *http://www.cso.gov.bw/index.php?option=com_content&task=view&id=55&Itemid=41*
Cameroun: *http://www.statistics-cameroon.org/fr5/manager.php?id=2*
Mozambique: *http://www.ine.gov.mz/home_page/o_ine/dir_organograma/organograma*

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.

Insufficient financial resources are often the cause of a human resources shortage. Many developing country NSIs are unable to pay sufficiently to attract and retain high quality staff. Externally funded statistics operations often pay more (and on time) than nationally funded actions. This can lead to staff leaving national statistics producers or to statistics producers prioritising externally funded surveys at the expense of regular statistics production. A more recent phenomenon is the increased demand from resurgent private sectors for statisticians with a few years' experience. Another problem is the ageing of professional teams and its consequences in weak technical competence especially in new technologies.

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. This lack of dialogue with political decision makers can also be the cause of the financing problems referred to above. Moreover, an NSI's inability to make or adjust its priorities to inform development policy may result from poor communications with decision makers.

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 needs 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. The challenge is to integrate the autonomous projects within the National Statistics System so that the data is collected according to appropriate national classifications, especially geographic, and that the resulting statistics are disseminated widely within the country, including through the National Statistics System. The capacity created by these statistics actions should be used to benefit the National Statistics System and the working methods and concepts and classifications can potentially be used to benefit the National Statistics System.

Such surveys arise because many developing countries' NSIs have difficulties in obtaining and using financial resources effectively. When confidence in the NSI is lost, statistical activities can be transferred to or carried out in parallel by line ministries or the central bank. While there is no necessity that the NSI is the organisation responsible for compiling, for example, the national accounts, it is essential that an appropriate division of properly financed work is maintained between institutions.

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. Its current objective is for every developing country to have designed a National Strategy for the Development of Statistics (NSDS) in order to have nationally owned and produced data for all MDG indicators by 2010.

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 2.4 illustrates the development cooperation roles of certain UN agencies and other international organizations, showing selected publications and databases.

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 compiling and disseminating

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 2.4.

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.

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 economic activities (***ISIC***), the classification of occupations (***ISCO***) or the ***classification of diseases***. Similarly, standard methods for carrying out statistical actions are described in international manuals.

Box 2.4: Selected publications and databases of international organisations

• The ***Statistical Yearbook*** of the United Nations Statistics Division (UNSD) includes a 'World and region summary' of key aggregates. Other sections cover population and social questions, national economic activity and international economic relations.

• The ***World population prospects database*** (***United Nations Population Division***) provides worldwide population series, per continent, region and country.

• UNSD ***Demographic yearbook*** contains official statistics on population from national authorities.

• The external trade database ***COMTRADE*** of the UNSD contains annual data on each country's external trade, per partner country, type of flow and product.

• The ***Statistical yearbook*** of the Food and Agriculture Organisation (***FAO***)

• ***LABORSTA***, the statistical database of the International Labour Organisation (***ILO***), contains statistical information on active population, employment, working conditions, work disputes and household living conditions.

• United Nations Educational, Scientific and Cultural Organisation (UNESCO) Institute for Statistics (***UIS***) ***database*** covers education, science & technology, culture, communication and literacy.

• The ***statistical information system*** of the World Health Organisation (***WHO***) covers population, health, medical infrastructure, demographic and socioeconomic indicators.

• International financial statistics and balance of payments statistics yearbooks, as drawn up by the International Monetary Fund (***IMF***).

• Key development data and statistics and country profiles of the ***World Bank***: ***The World Bank's 'World Development Indicators' (WDI)*** is a comprehensive database on development data, covering more than 800 social, economic, financial, natural resources and environmental indicators.

• The information published by the ***OECD*** covers the whole statistical field with regards to developed countries.

• The UNSD Millennium Development Goals ***indicators database***, covers a wide range of social, economic and environmental indicators for agreed policy goals

• ***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.3.3.

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. For example, in economic statistics the output of the informal and subsistence economies needs to be taken into account. Another example is in social statistics: the definition of a household can differ in some developing regions from the models commonly found in developed countries.

The overall state of a country's adoption of methodologies and classifications can be seen in the IMF's General Data Dissemination System (GDDS) and Special Data Dissemination Standard (SDDS) websites (see 'To find out more' box below). Further details on statistical quality can be found in section C.5.1. below 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.

For example, in household budget surveys, the main purpose is to provide an overview of and measure trends in poverty and welfare at national and sub-national level. The main measures derived are household consumption, income poverty and a range of non-consumption measures, such as in education, health and water sectors. These enable the survey to:

- Provide a set of baseline measures
- Assess trends and track progress resulting from poverty reduction policies. Comparisons with a baseline offer information about changes in poverty and the effect of policies pursued.

Furthermore, this survey is also the basis of the consumer price index weighting scheme and so the classifications used have to be compatible with the consumer expenditure classification. Achievement of all objectives of this survey requires close collaboration of statisticians specialized on social issues, survey specialists, price statisticians, system specialists and others. Attainment of this level of cooperation is a senior management task.

Support in these tasks is provided through the ***International Household Survey Network,*** which is a partnership of international organizations seeking to improve the availability, quality and use of survey data in developing countries.

Box 2.5: Activities of international organisations in statistical co-operation	
Organisation	**Main statistics related activities**
United Nations Economic Commission for Africa (ECA), African Centre for Statistics (ACS) *Statistical Commission for Africa (StatCom – Africa)* *United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), Statistics Division* *United Nations Economic Commission for Europe (UNECE), Statistics Division* *United Nations. Economic Commission for Latin America and the Caribbean (ECLAC), Division for Statistics and Economic Projections (DEYPE)* *United Nations. Economic and Social Commission for Western Asia (UN-ESCWA), Statistics Division*	• Co-ordination of statistical activities in the related region • Technical assistance for member states
United Nations Conference on Trade and Development (UNCTAD)	• 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)	• 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)	• Support to the *2010 Round of 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)	• 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.
International Labour Organisation (ILO), Bureau of Labour Statistics	• 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.

United Nations' Food and Agriculture Organisation (FAO)	**Technical assistance in *agricultural statistics* projects in developing countries:**
	• 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.
United Nations Educational, Scientific and Cultural Organisation (UNESCO), Institute for Statistics (UIS)	**Assistance in statistical capacity building on education, science and technology, culture and communication, including:**
	• A programme for strengthening the *National Education Statistical Information System (NESIS)* in the whole of Africa;
	• 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)	• 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	**Support for *statistical capacity improvement* in developing countries, guided by MAPS, including *financial assistance*, technical assistance and *advisory services*:**
	• 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;
	• The *STATCAP* lending program supports statistical capacity investment. A requirement is that countries have a comprehensive NSDS;
	• 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).
International Monetary Fund (IMF), Statistics Department (STA)	• 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).

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 in recent years has been the 1993 System of National Accounts (SNA93). The European Union has built on the SNA93 to develop the European System of Accounts 1995. ESA95 that provides for more closely defined sources, methods and data transmission.

In May 2008, Eurostat organised in conjunction with the Statistical Division of the UN, 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 SNA2008 and used the following selected principles laid down by the Luxembourg Recommendations to underline the proposed implementation strategy of the SNA2008:

- 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 tool for the production of national accounts
- preparing manuals and handbooks

UNSD agreed on the new SNA08, in February 2008. SNA08 is expected to be implemented by 2014.

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 metadata – 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 2000/01***

More info on: ***Luxembourg Recommendations***

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 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 2.6: 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.8.5.

Box 2.7: 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 18 Member States (as on December 2009). ***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 efficiency 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

Box 2.8: Regional organisations and statistical co-operation hand in hand

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 respective Treaty creating the UEMOA. The resulting Treaty provides, inter alia, 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.

To ensure equitable treatment, the statistical data need to be comparable across all eight Member States of the UEMOA. 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.

Statistics and indicators in the European Commission development aid process

B.3

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

Box 3.1: 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 cooperation projects.

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

The development aid allocates 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 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 efficiency 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 ***Paris Declaration*** puts weight on results-based management, 'Management for Development Results' (***MfDR***), means managing and implementing aid in a way that focuses on the desired results and uses information to improve decision-making.

This process has been backed by donors, seeing the need to deliver more and better aid and increasing the efficiency of the aid delivered in terms of impact in priority areas. 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 yet been supplemented by indicators addressing the results from the beneficiary point of view (e.g. access to basic medical services) and addressing the overall impact of an aid activity (e.g. decreasing death rates from treatable diseases).

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.

To assure the reliability of the statistics, it is important to support good statistical governance in the beneficiary countries. The professional independence of the institutions involved in the national statistical system ensures the credibility of statistics. The resources available to the NSS must be sufficient to assure the long-term capacity to maintain and develop the statistical system.

Another key aspect is that the importance of good data and good indicators goes well beyond efficient M&E. Quality statistics are vital for the development of evidence-based development policies. Quality statistics are crucial for the priorities contained in National Development Strategies and in Country/Regional Strategy Papers. The ***Accra Agenda for Action*** strengthened donor's commitment to working through national systems in the recipient countries based on the developing country's own development objectives, while increasing the aid's value for money. Result-oriented reporting and assessment frameworks and strengthened linkages between development strategies and budget processes are central in this process.

Furthermore, the existence and use of relevant quality indicators supports the development of country-specific and country-owned policies and institutions. Good statistics are essential for efficient public administration. Quality statistics, trusted by the public, increase transparency and promote accountability of the government.

B.3.2. Typology of development indicators

B.3.2.1. Typology according to what the indicator is measuring

In order to classify an indicator according to what state or event it measures, the European Commission uses the ***OECD-DAC's typology***. 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.

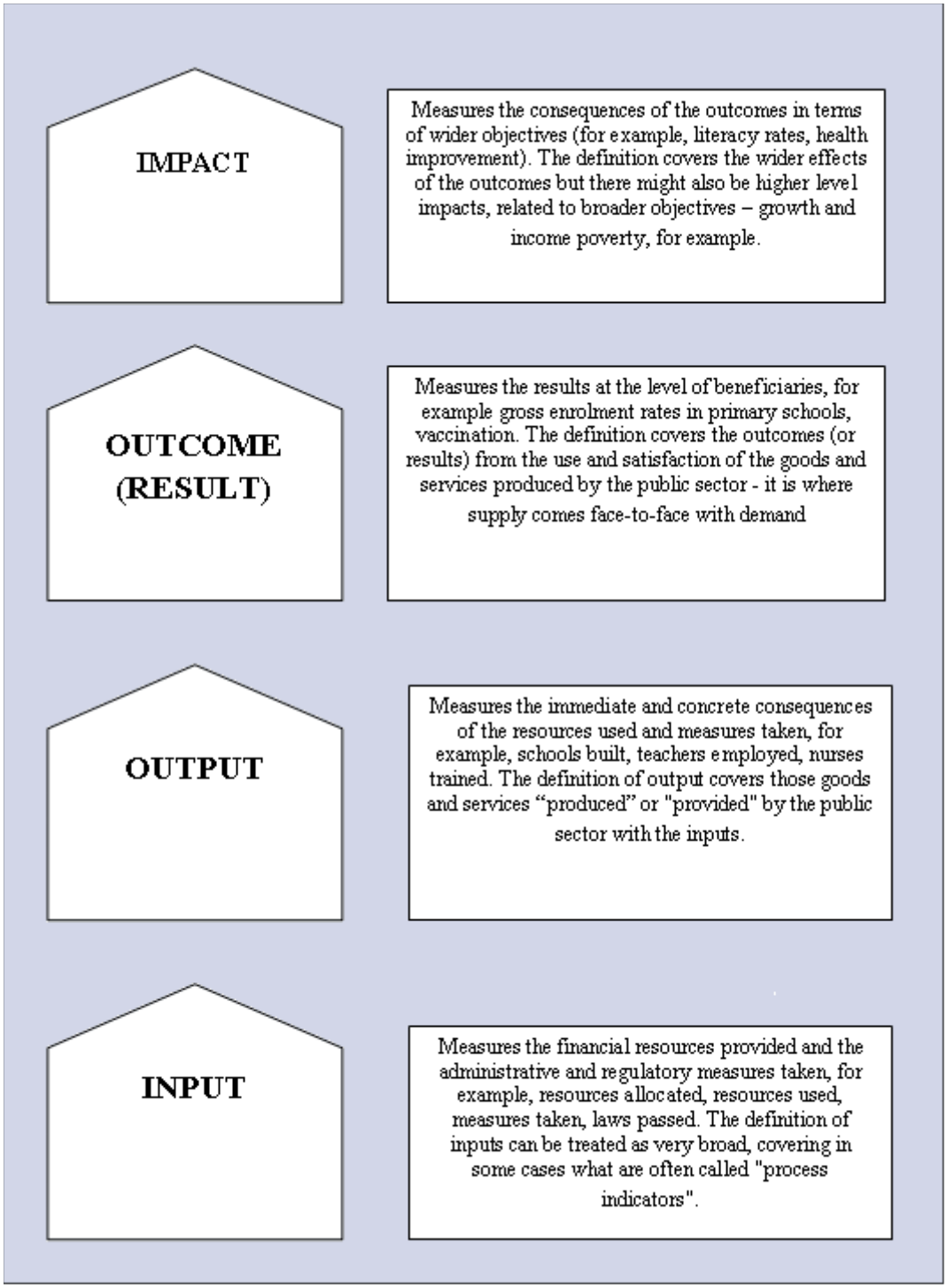
- **Input Indicators** measure the financial, administrative and regulatory resources (often called "process") provided by the Government and donors. It is necessary to establish a link between the resources used and the results achieved in order to assess the efficiency of the actions carried out.

Examples: Share of the budget devoted to education expenditure, Technical Assistance person-days provided

- **Output Indicators** measure the immediate and concrete consequences of the measures taken and resources used. Examples: Number of schools built, number of teachers trained
- **Outcome Indicators** measure the results at the level of beneficiaries. The term 'results indicators' is used as well. Examples: school enrolment, percentage of girls among the children entering first year of primary school
- **Impact Indicators** measure the consequences of the outcomes. They measure the general objectives in terms of national development and poverty reduction. Examples: Literacy rates, unemployment rates.

Figure 3.1 presents a visualisation of the main characteristics of this typology.

Figure 3.1: Typology of indicators



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.

To find out more…

- *UNDP Handbook on Planning, Monitoring and Evaluating for Development Results*
- *Managing for Development Results Sourcebook (3rd Edition)*
- *OECD-DAC network on development evaluation*

B.3.2.2. Typology of indicators by the use made of them

Indicators can also be classified by the use that is made of them in the European Commission programme cycle. We can identify three groups: Group A monitors overall progress at country level, Group B at sector level, often used for sectoral programmes and group C for aid effectiveness indicators

A. 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 10 poverty indicators and macro indicators proposed by DG Development (see section B.3.2), MDGs, the World Bank IDA 14 core indicators, etc.

B. 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.

C. Indicators used for reporting and accountability of countries and donors with respect to their commitments. These include the Paris Declaration indicators (see section B.1.4). In principle, the MDG indicators could be seen as part of this group but in practice they cannot be used to hold countries or donors accountable.

B.3.3 The indicators and statistics to use at each stage of the European Commission Development Cycle

B.3.3.1 Statistics and Development Country Attribution

The need for statistics related to a particular country arises even before the cycle of operations has started. The allocation of funds made available for cooperation by the European Commission to a country is calculated based on a number of indicators. This principle is set up in the legal instruments that constitute the basis for the cooperation between the European Commission and its partner countries. Thus, 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 also states an European Commission commitment to decide on the resources allocated to each country based on objective and transparent criteria.

The following aid allocation model has been developed in the context of the European Commission's cooperation with the ACP for the 10th European Development Fund. A two-step approach was used to determine the programmable country attributions:

- An initial allocation based on a statistical model which analyses country needs and performance criteria, based on data published by international institutions and financial performance data extracted from the Commission's accounting system;
- A possible additional "incentive tranche" is based on more qualitative criteria of democratic governance that cannot easily be analysed within a quantitative model and which are instead assessed in close coordination with the Member States.

Box 3.2: The Cotonou Agreement and Country Resource Allocation

Resource allocation shall be based on needs and performance, as defined in this Agreement.
In this context:

- *needs shall be assessed on the basis of criteria pertaining to per capita income, population size, social indicators and level of indebtedness, export earning losses and dependence on export earnings, in particular from the sectors of agriculture and mining. 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 post-conflict countries; and*
- *performance shall be assessed in an objective and transparent manner on the basis of the following parameters: progress in implementing institutional reforms, country performance in the use of resources, effective implementation of current operations, poverty alleviation or reduction, sustainable development measures and macroeconomic and sectoral policy.*

Cotonou Agreement. 2005. Annex IV, article 3(1)

The initial allocation is determined in four stages:

- First stage – Half of the available funds are allocated pro rata of the initial 9th EDF allocations. The other half is allocated according to population and income per capita data, which have been updated since the 9th EDF.

- Second stage – The following additional needs criteria have been taken into account: demographic dynamics, measured as the share of the young (less than 15 years) in the population; the prevalence rate of AIDS among adults from 15 to 45 years; the human poverty index, developed by the UNDP but with an enhanced malnutrition component; the vulnerability of the country as measured via the volatility of the growth rate of gross domestic product (GDP) around its average over the last 25 years; and geographic isolation. In line with the Cotonou Agreement, further specific criteria are added to this instability measure in order to take into account the structural handicaps of the least developed countries (+ 5%) and of the landlocked or insular countries (+ 10%).
- Third stage – The performance criteria are grouped in three parts:
    i. Financial performance. The aid absorption capacity is measured by a combined factor of the commitment rate halfway between that of the 9th EDF and the ratio between what "remains to be disbursed" and the average annual payments over the last three years, taking into account an aid dependency ratio.
    ii. Economic performance is subdivided into investment climate criteria and sustainable macroeconomic performance indicators.
    iii. Social performance, including relative share of public expenditure devoted to education and health relative to military expenditure and progress made in reaching the Millennium Development Goals (MDGs) in the sectors of education (primary education for all in 2015) and health (reduction by 2/3 of child mortality by 2015).
    iv. Fourth stage - The results obtained are corrected in order to limit excessive aid volatility by limiting the maximum changes in either direction from the 9th EDF.

Results affect the allocation of resources at the third stage. However, at mid-term the weighting of performance on any reallocation decision should be increased. The financial performance should not be the dominant factor; due attention should be given to performance in the focal areas of intervention and to country level performance indicators (social, macro-economic and governance related).

Box 3.3: The DCI Regulation and Country Resource Allocation

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 DCI Regulation. Article 18(2)

Box 3.4: The European Consensus and Country Resource Allocation

2.2 Objective and transparent criteria for resource allocation

64. Within globa*l 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. Doc No 14602/05. Paragraphs 64-65

B.3.3.2. Statistics and Programming

When setting up the cooperation strategy between the European Commission and a partner country, it is crucial to have a clear picture of the situation faced by the country in key development issues. Only if such information is available it will be possible to identify those sectors and areas where the Commission support is needed or might be of particular added value. The tool to be used to obtain that clear picture is a set of indicators. This set will usually include general and sector indicators.

These indicators should be collected at the initial stages of the drafting of a Country Strategy Paper and should be annually revisited in order to measure progress in terms of poverty reduction and social development. These same indicators should also be the main ones to be considered in the context of the mid-term evaluation of the cooperation strategy.

The December 2002 European Commission 'Guidelines for the use of indicators in Country Strategy Papers' defined the basic principles for the definition and use of indicators. More importantly, these Guidelines clearly stated the Commission's intention to be more results-oriented, therefore to focus increasingly on outcome indicators. This led to the selection of 10 key poverty indicators to be monitored in each Country Strategy Paper. These indicators were mostly drawn from the 60 indicators defined to monitor progress towards the MDGs. They were selected on the basis of their inclusion in PRSPs, their use by other donors and data availability. EU Member States, the OECD and the World Bank were involved in the process of designing the guidelines and selecting the 10 key indicators. They are shown in the European Commission ('EC') column in Box 3.5. In parallel to this work on indicators to monitor progress in fighting poverty, the World Bank has increased the result orientation of its Country Assistance Strategies (CASs) for the countries receiving aid through the ***International Development Association*** 14th Replenishment (IDA 14). In a November 2004 paper, "***Measuring results: Improving National Statistics in IDA countries"***, the World Bank outlines a final list of 14 outcome and impact indicators to be monitored in the CASs of each country receiving IDA loans. Of these 14 indicators, 7 are identical to the indicators selected by the European Commission, hence 7 are MDG indicators and 7 are additional non-MDG indicators which focus on growth and private sector development.

The African Development Bank (AfDB) measures country progress on key outcomes using an evolving list of 12 indicators that are also used by the World Bank for IDA countries, as well as 6 indicators which reflect country specific priorities in the areas of governance, regional integration, private sector development, agriculture and information technology. For the African Development Fund 11 (AfDF11) countries, AfDB intends to monitor an additional indicator, EITI (Extractive Industries Transparency Initiative), bringing the overall number of indicators to 19.

Box 3.5: Key indicators for country strategies

Key indicators	MDG	WB	EC	AfDB
1. Proportion of population below 1$/day in PPP[1]	•	•	•	•
2. Prevalence of underweight children	•		•	
3. Under 5 child mortality	•	•	•	•
4. HIV prevalence rate of women aged 15-24	•	•	•	
5. Proportion of births attended by skilled health personnel	•	•	•	
6. Proportion of 1 year old children immunised against measles	•		•	
7. Net enrolment ratio in primary education	•		•	
8. Ratio of girls to boys in primary and secondary education	•	•	•	•
9. Primary school completion rate	•	•	•	•
10. Proportion of population with sustainable access to an improved water source	•	•	•	•
11. Fixed lines and mobile telephone per 1000 inhabitants	•	•		•
12. Formal cost required for business start up		•		•
13. Time required for business start up		•		•
14. Public Financial Management		•		•
15. GDP per capita		•		•
16. Access of rural population to an all season road		•		•
17. Household electrification rate		•		•
18. World Governance Indicators (average score)				•
19. Global competitiveness index				•
20. Staple crop yields index				•
21. Africa's share of Global Trade				•
22. ADF countries trade with Africa				•
23. Internet users (per 1000)				•
Total number of indicators	**11**	**14**	**10**	**18**

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.

Examples of indicators used for the identification of projects and programmes for various sectors can be found throughout Part D.

B.3.3.4 Statistics and Formulation / Implementation

These are the indicators that will constitute a project's logical framework.

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.

In principle, the indicator set that fulfils the information need for effective project formulation should be the same set of indicators that will be used later on for monitoring of project implementation.

Examples of indicators used for the formulation and monitoring of projects and programmes in various sectors can be found throughout Part D.

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.

Examples of indicators used for the evaluation of projects and programmes in various sectors can be found throughout Part D.

B.3.3.6 Statistics and Reporting for Accountability

Development institutions are increasingly required to report on the outcomes of their development actions. This is a consequence of the international reporting obligations to which these organisations have agreed and ultimately of governments' growing awareness of their interest in reporting the results of their development interventions to improve their accountability to their citizens.

As a signatory to the Paris Declaration, the European Commission is therefore committed to providing public data on the 12 indicators explained in detail in section B.1.4. These focus on providing accountability on the operation of aid policies and mechanisms. The indicators are published at two yearly intervals by the OECD – see reference in the 'To find out more' box below.

This public information is a major advance on the situation a few years ago, when the main Commission development information consisted largely of funds allocated and disbursed by country and by region, together with breakdowns by broad types of expenditure and the broad sectors targeted. No serious conclusions could be drawn from this information as to the effectiveness of development aid or the extent to which policy objectives were being met.

To find out more…

DG Development Country at a Glance ***model tables***
OECD ***website on Assessing Progress on Implementing the Paris Declaration and the Accra Agenda for Action***
UNECE guides 'Making data meaningful': Part 1: ***"A guide to writing stories about numbers"***, Part 2: ***"A guide to presenting statistics"***

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 is also provided on EFTA countries, the USA and Japan for comparison purposes.

Eurostat data is also available on ***candidate and potential candidate countries*** (CPC); and ***Eastern European Neighbourhood (ENP) countries and Russia***. Data for both the CPC and the ENP can also be accessed through the Data Navigation Tree on the Eurostat website, under '***Statistics database***' – 'Database' – 'General and Regional Statistics' – 'Non EU countries'. The data organisation and coverage reflects that of Eurostat:

- Key indicators on EU policy: structural indicators
- Regional statistics (candidate / potential candidate countries only)
- Economy and finance
- Population and social conditions
- Industry, trade and services
- Agriculture, forestry and fisheries
- External 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 ***MEDSTAT programme*** page, through the '***Database***' menu point, or through the Data Navigation Tree under '***Statistics database***' – 'Database' – 'General and Regional Statistics' – 'Non EU 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, the Caribbean and Pacific (ACP)*** and ***Asia and Latin America (ALA)*** can be found. Eurostat has also produced a flyer on International Statistical Cooperation and posters on statistical cooperation with ***ACP*** and ***ALA***.

Only Commission staff can access data and indicators for both the ACP and ALA through the Data Navigation Tree on the Eurostat website, under '***Statistics database***' – 'Database' – 'General and Regional Statistics' – 'Non EU countries - ACP/ALA/HIC'.

These indicators notably include data on the 10 key indicators for country strategies and the 'country at a glance' macroeconomic indicators (see section B.3.2). The internal, easy and free access to the indicators needed for the joint annual report and country strategies data is for the mere reason to centralise the comparable data tha can otherwise be found in the websites of the World Bank, IMF, UN and FAO.

The ***Login for European Commission staff*** requires the internet password. The login page can be accessed by clicking 'Log in' (next to the 'User' symbol) on the Eurostat homepage, or by clicking on the 'User' symbol in any of the sub-pages.

For registered users, the following data is available, globally and by region:

- Balance of payments and exchange rates
- Monetary sector
- Government budgets
- National accounts and price indices
- Agricultural production (tonnes)
- Agricultural production (number)
- Demographic indicators - population by age-classes
- Social indicators
- Millennium Development Goals Indicators

Statistics across policy sectors

B.4

B.4. Statistics across policy sectors

Box 4.1: 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 MDG 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 provides cross-references between the Commission's defined policy sectors and statistical activities.

B.4.1. Millennium Development Goals, Targets and Indicators

Section B.1.1 showed how the 8 overall development goals laid out in the Millennium Declaration are linked to 18 specific targets to be attained by 2015, which themselves are measured by 60 indicators.

Box 4.2 shows the relationship between Millennium Development Goal 1, its two associated targets and the six indicators used to measure progress toward the targets. The process is repeated for each of the MDGs. The entire table is shown on the UNSD website – see 'To find out more' box below.

The Millennium Declaration therefore requires each country to produce 60 statistics-based indicators periodically, 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 developing world as a whole are progressing to the Millennium Development Goals. Although the MDG indicators have stimulated demand and co-ordinated international support for sustainable national statistical capacity-building, they have also led to debates about the quantity and quality of the data and associated metadata (the description of the basis of the data), as represented in the official database. The most common concern is the lack of developing country data, especially recent data, in the database

In particular, there are continuing debates about how indicators are defined, produced and coordinated at national level, how they are communicated to the international organisations responsible for specific indicators in the global database, how they are adapted to be comparable with other countries' data and how they are represented in the global MDG database. These questions fundamentally concern data availability, comparability and national ownership of the indicators.

Box 4.2: Millennium Development Goals, Targets and Indicators

Goals and Targets from the Millenium Declaration	Indicators for monitoring progress
Goal 1: Eradicate extreme poverty and hunger	
Target 1: Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1. Proportion of population below $1 (PPP[1]) per day
	1a. Poverty headcount ratio (percentage of population below the national poverty line)
	2. Poverty gap ratio (incidence multiplied by depth of poverty)
	3. Share of poorest quintile (20% of population) in national consumption
Target 2: Halve, between 1990 and 2015, the proportion of people who suffer from hunger	4. Prevalence of underweight children under five years of age
	5. Proportion of population below minimum level of dietary energy consumption
Goal 2: Achieve universal primary education	
Target 3: …	6. …

Box 4.3: Building a statistical indicator of poverty

Eradication of poverty is the first of the Millennium Development Goals (MDGs). To measure progress towards the first target, MDG indicator 1a is the 'poverty headcount ratio', which is defined as:

'The proportion of the national population whose incomes are below the official threshold (or thresholds) set by the national Government. National poverty lines are usually set for households of various compositions to allow for different family sizes. Where there are no official poverty lines, they may be defined as the level of income required to have only sufficient food or food plus other necessities for survival.'

Data on household income, consumption and expenditure are generally collected through household budget surveys. 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.

A further four targets were proposed in 2005, although these have not yet been incorporated. These targets were agreed at the 2005 World Summit. The sixty-first session of the General Assembly in 2006 recommended the incorporation of these commitments into the set of targets used to monitor the Millennium Declaration.

- Goal 1: to full and productive employment and decent work for all, including for women and young people
- Goal 5: to achieve universal access to reproductive health by 2015;
- Goal 6: to come as close as possible to universal access to treatment for HIV/AIDS by 2010 for all those who need it;
- Goal 7: to significantly reduce the rate of loss of biodiversity by 2010.

The existing target on developing decent and productive work for youth, now under Millennium Development Goal 8, would be encompassed by the new target (under Goal 1).

Box 4.3 shows how an MDG indicator is developed based on existing statistics.

The MDG indicators and the official database are discussed in greater detail in Part D. Part C discusses whether and how to provide European Commission support in order to improve MDG indicators.

To find out more… about Millennium Development Goals:

MDG indicators – organisation and official international database: ***http://unstats.un.org/unsd/mdg/default.aspx***

List of MDG goals and related indicators (as of January 2008)

Indicators for Monitoring the Millennium Development Goals. Definitions, rationale, concepts and sources. United Nations Development Group. New York 2003

MDG reports of the Secretary-General on additional MDG targets and other issues

To see how MDG indicators are used: ***The MDG Report 2010***

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. The PRS analysis is structured to promote country policies and activities that can meet the overall country economic and social goals. The levels of analysis were defined in section B.1.2.

Box 4.4: Indicators used in the Kenya PRSP

Objectives	Development Outcomes	Indicators	Data Source
2. Human Develop-ment and poverty Reduction	2.1 Universal Primary education	• Increase primary school gross enrolment rate from 90% to 100% by 2005 and net primary school enrol-ment rate from 80% to 85% by 2007	• School census, Kenya DHS (see section B.1.2) , Welfare Monitoring Survey
		• Reduce gender gap in access to primary and secondary education	
		• Transition from primary to secondary from 47% to 70% by 2005	
	Outputs		
	• Reduced cost of primary education to families	• Primary school fees elimi-nated by 2003 …	• Ministry of Education, Education NGOs
	• Increased enrol-ment of girls, pastoralist, street children, slum children	• Primary school enrolment of pastoralist increased from 20% to 40% by 2006 …	• School census, Kenya DHS, Welfare Monitoring Survey

Indicators are required at each of these levels of the PRS analysis. Box 4.4 shows how the Kenya PRSP (whose overall structure was examined in Box 1.2) proposes the use of indicators and identifies data sources to measure progress towards development outcomes and outputs in education. 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. The PRSP website includes a section on support to 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 nation al 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.

B.4.3. Mapping European Commission policy intervention areas to statistical activities

Each of the policy areas where the European Commission has a 'comparative advantage', as identified by the European Consensus (see section B.1.5), 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.

Box 4.5 shows each European Commission policy area, the chapter numbers where these are used in Part D: Statistics for Policy Issues, the corresponding statistical activities and an outline of the various sources of these statistics. The statistical activities are intended to be comprehensive, as they are based on an exhaustive classification of statistics subjects [6]. A statistics field may appear under more than one policy area heading.

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/3I8LYLXO80***

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

6 New UNECE Classification of International Statistics Activities – agreed at the Conference of European Statisticians (CES) bureau meeting, October 2005

Box 4.5: European Commission Policy intervention areas and corresponding statistical activities

Chapter	Policy intervention areas	Statistical activities	UNECE Classification of statistics activities	Some sources of data	Producers of statistics
D.9	Trade and regional integration	International trade and balance of payments	2.6	External trade, customs data, bank surveys	NSI, Ministry of Trade, Revenue Authority, Central Bank
Version 2.0		Macroeconomic statistics	2.1	Business and agricultural censuses, surveys and registers, bank survey data, international trade data, informal sector surveys, national accounts compilation	NSI, Central Bank
Version 2.0		Economic accounts	2.2	Business and agricultural censuses, surveys and registers, bank survey data, international trade data, informal sector surveys, national accounts compilation	NSI, Central Bank
Version 2.0		Price statistics	2.7	Prices surveys, household expenditure surveys	NSI
D.10		Government finance, fiscal and public sector statistics	2.5	Government finance systems, business surveys	NSI, Ministry of Finance
D.11		Business statistics	2.3	Business censuses, surveys and registers	NSI, Ministry of Commerce
		Manufacturing statistics	2.4.3 (part)	Business surveys and registers	NSI, Ministry of Commerce, Ministry of Agriculture
		Banking, insurance and finance statistics	2.4.6	Bank surveys, business registers and surveys	Central Bank
		Globalisation	3.3.4	Analysis of existing statistics	NSI, Central Bank
	Environment, sustainable management of natural resources	Mining statistics	2.4.3 (part)	Mine administrative reports, business registers and surveys	Ministry of Mines / Commerce, NSI
D.12		Environmental statistics	3.1(part)	Analysis of existing statistics	NSI
Version 2.0		Air and water quality statistics	3.1 (part)	Physical measurement data	NSI
D.13	Infrastructure, communications and transport	Transport statistics: road, rail, sea, waterway, air, pipeline	2.4.4	Business registers and sector surveys	NSI, Ministry of Transport
		Telecommunications, postal and information society statistics	3.3.3	Business registers and sector surveys	NSI, Ministry of Commerce
		Construction statistics	2.4.3 (part)	Business registers and sector surveys	NSI, Ministry of Commerce
	Water and energy	Energy statistics	2.4.2	Business registers and sector surveys	NSI, Ministry of Commerce

Chapter	Policy intervention areas	Statistical activities	UNECE Classification of statistics activities	Some sources of data	Producers of statistics
Version 2.0	Rural development, territorial planning, agriculture, food security	Housing statistics	1.7	Population & housing censuses, registers of population	NSI
D.14		Agricultural, forestry and fishing statistics	2.4.1	Agricultural censuses, surveys and registers	NSI, Ministry of Agriculture
D.15		Land use statistics and regional presentations of statistics	3.2	Land use register, agriculture censuses, surveys and registers, satellite detection data, survey data	NSI, Ministry of Agriculture
		Tourism statistics	2.4.5	Tourism surveys, migration administrative data	Ministry of Tourism, NSI
D.10	Governance, democracy, human rights and support for economic and institutional reforms	Government finance, fiscal and public sector statistics	2.5	Government finance systems, business surveys	Ministry of Finance
D.16		Justice and crime statistics	1.8	Legal system administrative data, household surveys	Justice Ministry
		Political and other community activities	1.10	Electoral system and parliamentary administrative data	Electoral Commission, Parliament / National Assembly / Congress
	Conflict prevention and fragile states				
	Human development	Millennium Development Goals indicators	3.3.5	Compilation and analysis of existing statistics	NSI, social ministries
Version 2.0		Living conditions, poverty and cross-cutting social indicators	3.3.1	Household surveys	NSI, social ministries
Version 2.0		Population and migration statistics	1.1	Population & housing censuses, registers of population & buildings, vital registers, household surveys, border and immigration authorities administrative data	NSI, registration authorities, immigration authorities
Version 2.0		Education statistics	1.3	School administrative data, education establishment surveys, household surveys	NSI, Ministry of Education
Version 2.0		Health statistics	1.4	Health centre administrative data, health establishment surveys, sentinel surveys, household surveys, vital registers	NSI, Ministry of Education, registration authorities
Version 2.0		Income and consumption statistics	1.5	Household surveys	NSI
		Time use statistics	1.11	Household surveys	NSI
D.17		Sustainable development indicators	3.3.6	Compilation and analysis of existing statistics	NSI
		Gender and special population group statistics	3.3.2	Compilation and analysis of existing statistics	NSI

Chapter	Policy intervention areas	Statistical activities	UNECE Classification of statistics activities	Some sources of data	Producers of statistics
		Science and technology	2.9	Analyses of research journals and patent records	Registration authorities
		Culture	1.9	Data on places of entertainment, museums, libraries, mass media, book production	NSI, culture ministry
Version 2.0	Social cohesion and employment	Labour	1.2	Business registers & surveys, household surveys, employment administrative data	NSI, Ministry of Employment
Version 2.0		Labour cost	2.8	Business registers & surveys, household surveys, employment administrative data	NSI
D.18		Social protection	1.6	Social security administrative data, household surveys	NSI, social security authorities

C

Support for Statistics

How to decide on a statistical action

C.5

Part C: Support for Statistics

C.5. How to decide on a statistical action

C.5.1. The importance of National Statistical Systems

Box 5.1: 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.5.1.1. 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 co-operation is an engine of economic growth, development and security. The European Union 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 EU 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 and the Accra Agenda for Action 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 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. The European Commission's Country Strategy Paper (CSP) and Joint Annual Report (JAR) are now required to include standard '***Country at a Glance***' tables of core indicators. In the absence of an agreed performance monitoring system, these can provide a core indicator set for the non-specialist to analyse; they should not be used as the target for support.

Availability and reliability of the data is a basic indicator of the condition of the statistical system. These tables 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. Consumer price index (CPI) and external trade (im-

ports and exports) data in nominal prices should be available within one and three months respectively, based on international recommendations. Data that is constructed from many sources, notably GDP and other national accounts data, should be available within a year of the reference period. 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 MDG 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 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 5.2. 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.

Box 5.2: Key questions for examining national data availability

- 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:
  - o Are rates of change over time believable?
  - o Do national data broadly concur with data from international sources?
  - o Can detailed data be aggregated to published totals (where technically possible)?
  - o 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?

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.

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 5.3 below.

Box 5.3: 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 the 10 Key Indicators and the 'Country at a Glance' economic indicators – see section B.3.4. The data are mostly sourced from international organisations, in particular the World Bank and IMF. The Eurostat database uses the same structure as the mandated country tables so it is directly comparable with data collected on these indicators from national sources

In some cases, data from national sources exists that is not replicated in the international databases. This can occur either because of difficulties in communications or because of a belief by the international organisation that the data is of insufficient quality. Sector knowledge will often be needed to distinguish between these two situations.

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 Millennium Goals Indicators 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.

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.

To find out more…

- Standard format for DG Development ***Country at a Glance*** tables
- The United Nations Statistics Division lists internet addresses of developing country ***NSI websites***
- ***Eurostat database*** on non EU-27 countries from international sources (see section B.3.4)
- IMF ***Statistical Annexes***
- The UNSD Millennium Development Goals ***indicators database***, covering a wide range of social, economic and environmental indicators for agreed policy goals
- PARIS21 and the World Bank: The ***Accelerated Data Program (ADP)***

C.5.2. Assessing the capacity of 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.6.2.

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, as explored in Box 5.4.

Box 5.4: Case study: Surveys and financial constraints on human resources

Faced with inadequate or unpredictable funding, NSI senior management can face a very difficult challenge to maintain a stable, reputable organisation. A common challenge in this situation is to maintain a stable workforce when salaries are inadequate, paid late or both. Response strategies can potentially persist after the financial problems have been resolved.

Without adequate or predictable salary income, staff per diems for work away from base can become necessary to assure a basic level of income for the staff working at the NSI. Surveys have been carried out without serious attempts to reduce or eliminate duplication of effort. Staff can be drawn away from non-survey activities, causing delays in publishing these statistics. Improved donor coordination has now considerably reduced the number of overlapping surveys demanded, although the problem has not been eliminated.

Poor survey planning can be a legacy of past wage constraints. When a survey is poorly planned and budgeted, a larger than necessary household sample is unusually interviewed. Not only is this a misuse of scarce resources, the lack of sample analysis prior to the survey means that some statistical inferences, particularly at the local level, may not be valid. A larger sample size means that survey processing takes longer, delaying the results and reducing their usefulness. Moreover, concentrating project finance on the survey stage may mean that funds are not available (or even planned!) for results publishing. Finally, there can be a consequent lack of interest in publishing and analysing the results, notably in longitudinal analysis over time.

Lack of publication of survey results can also occur as a result of political pressure. If the survey has been poorly planned and budgeted, it may be difficult to find out the cause or causes of a failure to publish results.

Good survey planning requires the following:
- A pre-survey sampling analysis,
- A credible survey and processing timetable and
- A publication plan that incorporates analysis of the results and is included in the survey budget

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. A key method is the ***'Statistical Capacity Building Indicators'*** analysis developed by the PARIS21 Task Team on Statistical Capacity Building Indicators.

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 DGs 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.

Box 5.5 presents Eurostat's pilot questionnaire that aims to document key aspects of national statistical systems in ALA countries. This study addresses the set-up of the statistical system, its main actors, professional independence, legal basis and resource situation.

Box 5.5: Examination into the functioning of the National Statistical System – Eurostat pilot questionnaire

Eurostat has initiated an informal comparative study of the National Statistical Systems of selected Asian and Latin American (ALA) countries, using a simple approach based on best practices in statistical organisation compiled in the ***United Nations Handbook of Statistical Organisation***. The results of this study are put into Eurostat's knowledge database, giving Eurostat a better overview of the national statistical system in these countries. The information forms a strong basis for assessing the NSS's current statistical capabilities and ability to maintain and build on the results from statistical development projects. In particular, the existence and status of a NSDS is covered as a central topic, together with instruments such as PRS, GDDS and SDDS. A certain political support for the provision of accurate information on the statistical system is required. The results provide important information for identifying priorities for future cooperation and for negotiations on the programming statistical cooperation activities. The information provided to Eurostat is not made public and may only be shared with third parties following the express written permission of the source country.

Pilot questionnaire:

General information about the National Statistical System

- Existence of a National Statistical Institute or equivalent
- NSI is an independent entity or part of a ministry (which)
- The statistical institute has the power to allocate its own budget as it sees fit
- Periodicity of the statistical institute's budget setting/budget plan
- Is there internal governmental access to statistics prior to release?
- Is there a Code of Practice as to how the statistical system should operate?
- Does the NSI have free/paying data?
- Micro data availability
- Are national statistics collected by more than one institution?
- Role and responsibilities of the central bank in statistics
- Which institutions are responsible for collecting statistics on: national accounts; foreign trade; balance of payments; employment?
- Which other institutions collect which other national statistics?
- How are these institutions related?
- Which legal role does the statistical institute have in the context of organisations responsible for official statistics?

The chief statistician

- Is there a chief statistician?
- The hierarchical level of the head of the statistical authority: Minister/senior political position; Highest (non-political) public servant; Other authority
- Is the chief statistician a political appointment?

The national statistical council and statistical programming

- Is there a National statistical council or another coordinating agency?
- Who are the official members of this body?
- Does the national statistical council operate under a regulatory framework/statute?
- Frequency of meetings (according to regulations and in practice)
- Is the national statistical council in charge of preparing the statistical programme and budget?
- Who approves the statistical programme or budget?
- Length (in years) of the statistical programme

The statistics law / statistics act

- Date of legislation
- Date of last update
- Who or what body ensures that statistical laws are carried out?

International fulfilments

- Does a National Strategy for the Development of Statistics (NSDS) exist?
  - Stage of preparation
  - Is the NSDS officially budgeted?
  - Previous NSDS
  - Does a statistical master plan exist?
- Is there a Poverty Reduction Strategy (PRS)?
- Is the country a subscriber to General Data Dissemination System (GDDS) / Special Data Dissemination Standard (SDDS)?

Resources

- Number of NSI staff (of which, number of statistical graduates)
- Number of staff dealing with statistics in ministries, etc (of which, number of statistical graduates)
- Annual budget of the statistical institute
- Number of computers in the statistical institute
- Network in the statistical institute

As a case study, Box 5.6 reproduces a set of Terms of Reference for the assessment of the national statistics systems in Central Asia. In addition to the general and specific objectives of these assessments, the Terms of Reference outline both the methodology to be used and the outputs to be provided.

Box 5.6: Case study: Assessment of the statistics systems in central Asia

Global objective

- The global objective of this contract is to improve the relevance, quality and sustainability of the European Commission technical assistance to Central Asian countries in the field of statistics.

Specific objectives

- For the Central Asian countries Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, to carry out an assessment of the current state of the statistical system, paying special attention to its effectiveness and credibility;
- To assess the impact of assistance provided through TACIS, in particular with regard to its relevance for the development of the statistical system, the ownership of the results and their sustainability;
- To contribute to the formulation of a strategy for future cooperation in statistics between the European Commission and the Central Asian countries (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan), in line with the key priorities of the Commission Strategy for Central Asia for 2007-2013, as specified in the Commission Regional Strategy Paper.

Requested services and methodology

- On the basis of the scope outlined in these terms of reference and the briefing at the start of the assignment, the contractor will propose the methodology and planning (including the duration and organisation/number of missions) subject to the approval of the European Commission project manager.
- Review of the European Commission strategy documents for the cooperation with Central Asia, especially the Regional strategy paper 2007-2013.
- Review of the relevant documents related to the current situation and the actors of the official statistics system in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan (e.g. legislative documents, Country reports, the Multi-annual working programmes and Assessments drawn up with assistance by the World Bank, IMF, etc., reports of previous international and bi-lateral assistance programmes).
- Highlight basic practical recommendations for the national statistical systems to develop their capacities to meet the six essential principles of independence, mandate for data collection, adequacy of resources, quality commitment, statistical confidentiality, impartiality and objectiveness. Missions to each of the five concerned countries. The experts will visit central and regional statistical institutes, other institutions dealing with statistical production: Ministries of Economy, the Central Bank, the Ministry of Finance, etc., to meet with the top management and with the managers responsible for the domains covered by the assessment, as well as to identify and contact the main users (at government, private and other levels when appropriate).
- the offer should allow in the budget for both experts to travel to all five countries concerned whilst the contractor will in the design of the final methodology propose whether or not the experts may split up to achieve the assignments objectives
- Production of reports on the respective countries.
- Proposals for the post-TACIS statistical cooperation strategy will be formulated and coordinated with the different stakeholders. These proposals will meet the following main requirements:
  - Be based on the European Commission strategy for the cooperation with Central Asia for 2007-2013
  - Determine a few general statistical areas, in line with the provision of the European Commission Regional Strategy Paper for Central Asia, where statistical production in the CA countries could be brought to the harmonised level, approaching the EU and international standards.
  - Contain feasibility assessment and recommendations on establishment and sustainability of a regional structure or network which would coordinate the countries' cooperation in statistics
  - Contain feasibility assessment and recommendations on establishment and sustainability of a regional statistical training centre.
- Technical cooperation with the European Economic Commission of the United Nations is potentially possible during the implementation of this project. At advice of EUROSTAT, the Contractor will establish the contacts with the UNECE in order to optimize and to coordinate the contributions both parties will make to the Assessment of the system of Official statistics in Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.
- For the preparation of the Reports and Recommendations, the Contractor shall normally respect the following conditions:
  - Finalise the requested outputs in cooperation with the project manager and the relevant services of the European Commission.

Required outputs

1. Assessment of the TACIS 1994-2008 assistance impact with a particular focus on Statistics 7 – 10;
2. A detailed assessment of the institutional and technical capacities of the national statistical institutes, of other national administrations in charge of statistics (e.g. Central Bank, Customs, Ministry of finance, Ministry of transport, Ministry of labour, etc.), and explaining the existing legal basis for coordination of statistical production among relevant institutions;
3. An objective assessment of the current situation of:
   - The professional independence of the national statistical system from political and other external interferences in producing and disseminating official statistics;
   - The mandate of the national statistical system to collect information to support national policy decision making;
   - The adequacy of resources of the national statistical system to fulfil its responsibilities;
   - The existence of quality guidelines based on international recognised standards and a commitment to follow them;
   - The level of implementation of the concept of statistical confidentiality;
   - The level of impartiality and objectivity of the national statistical system in the choice of sources and statistical techniques, in the information on the methods and procedures, in the approach towards statistical releases, in non-excessive burden of respondents and cost-effectiveness.
4. Specification of the major needs for further reforming in certain statistical areas in line with the European Commission strategy for the cooperation with Central Asia for 2007-2013
5. Conclusions on the relevance of further equipment provision;
6. Determining the statistical areas - if appropriate, in relation to targets (2), (3) and (4) - where cross-cutting activities involving all Central Asian countries would be feasible to reach the similar level of statistical output quality in each country in line with international and/or EU standards.
7. Presenting to the stakeholders the information on the results of the assessment.

Within the frame of MESTAT II 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 5.7.

Box 5.7: Country Statistical Situation Reports in MEDSTAT

Within MEDSTAT, providing European Commission statistical assistance to southern and Eastern Mediterranean states, 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;
- T infrastructure, data processing and data dissemination;
- training and human resources, and;
- nine thematic activities, comprising national accounts and external trade, agricultural, environmental, energy, social, migration, transport and tourism statistics.

The CSSRs, statistical sector reports and Project Orientation Reports (PORs) were developed on the basis of orientation missions in the countries. The CSSR serves as a central input for a National Statistical Development Strategy (NSDS) and associated activities and for the POR, whereas the sector reports and POR lead directly into the national road maps for statistics. The CSSRs are developed in cooperation between the MEDSTAT team, comprising experienced domain experts, and the NSI. The MEDSTAT Road Map Coordinator for the country and the Principal National Coordinator coordinate the process.

The CSSRs are public documents. The first versions were published in 2006, following detailed evaluations of individual country requirements. They were updated in 2009, especially with a view to progress made towards international comparability and harmonisation.

To find out more…

•***Institutional Assessments and Capacity Development: Why, what and how?*** Aid Delivery Methods. Concept Paper. EuropeAid. September 2005.

• MEDSTAT ***Country Statistical Situation Reports*** of southern and eastern Mediterranean countries

• PARIS21 ***Statistical Capacity Building Indicators (SCBI) Task Team***

• The IMF approach is a less institutional analysis than that shown here. For this view see their pages on the ***Data Quality Assessment Framework***

• Eurostat 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:

8. **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
9. **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
10. **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).

11. **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.

12. **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.

Eurostat publishes on its internet ***standards, handbooks and guidelines*** developed within the European Statistical System relating to quality management and quality reporting.

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 5.5 in section C.5.2 provides an example of a practical checklist for documenting structural quality aspects of a NSS. Box 5.6 provides an example of Terms of Reference for an assessment of national statistical systems. As a further example, Box 5.7 gives information on the assessment methodology followed within the MEDSTAT II programme.

Box 5.8 below 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 5.8: 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:

- The statistical action will ensure quality by implementing the appropriate ***sector DQAF.***
- 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.

The place of the NSI in the partner country's medium term national development plans or programmes such as a PRSP or a MDG-based national development strategy can provide very useful information. A NSI that is marginalised in these plans or even the existence of a specific programme indicators unit usually indicates that the NSI either has technical deficiencies or does not have the confidence of decision makers for other reasons. The identification of 'competing' duplicate statistical series shows lack of confidence within the sector concerned.

Assessments of data quality, sectoral and global, should be summarised in the CSP and JARs. These are written 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. Similarly, the National Indicative Programme should identify the need to improve statistics in areas where cooperation is being proposed, whether or not a specific statistics related action is being planned. A summary of data assessment in a CSP can look something like the information in Box 5.9.

Box 5.9: Case study: Statistics in Nigeria's CSP / NIP 2001-07

A number of statistics can be found in the document. Furthermore, three paragraphs in the CSP chapter on the country's situation allude to the state of official statistics:

"According to the weak existing official statistics, manufacturing is only 6% of GDP…" [page 11]

"Overall, macroeconomic management is hampered by the lack of adequate statistics. Work has begun, with European Commission and other donor supports, to strengthen the Federal Office of Statistics." [page 12]

"The reliability of any data on trends is questionable: for the infant mortality rate and the under-five mortality rate, some data suggest a decline of less than 7% over a 30 year period, while other data indicate a decrease of around 25% over a 20 year period." [page 17]

The NIP mentions the planned support to statistics as follows: "Federal level public management finance: the specific objective is to support Nigerian reform of federal public finance management. The major likely intervention is a second phase of the current Economic Management and Capacity Programme (ECMAP), with a probable emphasis on strengthening of the Federal Office of Statistics." [page 33]

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 5.10, and the ***Data Quality Assessment Framework (DQAF)***, presented in Box 5.11. Further quality frameworks are the ***Quality Framework for OECD Statistical Activities*** and the ***ISO 9000 quality standard***

Box 5.10: 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 5.11: 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.

Eurostat is currently developing a Database on International Statistical Cooperation (DISC) for European Commission's staff, which contains much of the above information on assessments of national and regional statistics systems and statistics actions supported by the European Commission. More information on DISC can be found in Box 7.3 in section C.7.3.2.

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) quality dimensions***
- ***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

- UNSD '***Country profiles of statistical systems***'
- World Bank ***Poverty Reduction Strategy*** papers/reports; ***Joint Staff advisory/Assessment Note***s
- ***MDG country reports*** UNDP website
- ***PARIS21 consortium*** – information on statistics systems and NSDSs
- MEDSTAT ***Country Statistical Situation Reports*** of 10 Mediterranean countries

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)***

How to bring assistance to statistics

C.6

C.6. How to bring assistance to statistics

Box 6.1: 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?

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[7] . 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 aims to demonstrate how statistics will inform the monitoring of progress in the implementation of the development strategy. It therefore needs to show what statistics will be collected, published and how. It also needs to identify the resources, both financial and human, 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, skills and commitment. Similarly, it needs to address how the National Statistics System will publish quality[8] 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 ambitious strategies are never implemented, strategies should seek to collect the minimum set of indicators. Sequencing and getting the basics right first are critical.**

Since staff numbers, skills and motivation are the key elements in producing statistics and salaries are the largest cost of producing statistics, a good statistics strategy will include a clear, detailed exposition of the human resources requirements.

Box 6.2: 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

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 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

7 Paris Declaration paragraph 44, Partner countries commit to: 'Endeavour to establish results-oriented reportin7g 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

8 See section C.5.3 for analysis of quality in statistics

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 NDSD 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[9]. 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[10] :

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.

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. Where external consultants are used, the challenge is 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.

9 See section B.2.4.
10 A Guide to Designing a National Strategy for the Development of Statistics, p7

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 - Agreement with national and international partners
1 Road Map	Organisation decided and resources allocated	- 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 Sample 16-Month Calendar for Phases 0 to 4

Phases	Budget Year-2				Budget Year -1												Year one
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1
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. As of mid-2008, 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 May 2009)

	Countries currently implementing a strategy	Countries with existing strategy expired or without strategy and currently designing or planning an NSDS	Total
Africa	18	22	40
Asia and Pacific	12	15	27
Latin America and Caribbean	3	6	9
Europe	0	2	2
Total	33	45	78

To find out more…

about National Strategies for the Development of Statistics, visit PARIS21's website: ***www.paris21.org***

A Guide to Designing a National Strategy for the Development of Statistics – key summary document

Knowledge Base – PARIS21's database of NSDS-related documents

Map of NSDS in Africa

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'[11] .

'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.'[12]

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.

Leaving aside crisis situations, in which policy objectives are very short term and any work on statistics supports the immediate response to the crisis, 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.

Capacity building in statistics reduces the barriers to effective production and dissemination of quality statistics that were outlined in Part B. 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.8.8). 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. 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.**

11 Institutional Assessment and Capacity Development: Why, what and how? EuropeAid Aid Delivery Methods Concept Paper 09/2005

12 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'

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):

- A PARIS21 report on Statistical Capacity Building Indicators gives a list of 16 quantitative and 18 qualitative indicators for capacity assessment, as well as an analysis of how to implement the analysis.
- 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.
1	Syllabus for training at defined level, capable of international accreditation, implemented widely throughout region	Syllabus and training materials available; courses wholly and/or partly based on materials being delivered; courses accredited	Materials availability: website and CD-ROM available from regional secretariat. Course delivery: course notices on internet and prospectuses. Accreditation: accreditation authorities	Materials availability: website flexibility. Course adoption: institutional regulations. Accreditation: accrediting institute regulations and capacity.
2	Training Short Courses at professional level delivered at regional level	Short courses delivered: course reports, including documented expected outcome at country level; follow-up reports	Course reports; follow up reports	Requirement for documentation of expected outcome included in each ToR; follow-up can be effectively implemented
3	Training methodologies transferred to national level	Short courses delivered: course reports, including documented expected outcome; follow-up reports	Course reports; follow up reports	Methodology can be transferred effectively to Member States

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

The World Bank's ***STATCAP*** financing programme is designed to make investments in statistical capacity easier and more effective. Under STATCAP, countries obtain loans, credits, or grants to finance the improvement of statistical capacity through an investment project. Investments are usually needed to improve institutional capacity (including statistical policy, regulatory and institutional framework, independence, confidentiality, dialogue with data users, statistical operations, statistical procedures), to improve statistical infrastructure (such as business registers, sampling frames, classifications, database structures and geographic information systems), and to improve physical working conditions, including the use of information technology. It is implemented using the principles agreed by PARIS21 on country ownership and donor coordination.

The cornerstone of a STATCAP project is the National Strategy for Development of Statistics (NSDS), prepared through consultation with both data providers and data users. Work to develop a NSDS may be financed through a grant from the Trust Fund for Statistical Capacity Building (TFSCB). A STATCAP project may concentrate on improvements in one or more particular sectors, or it may take a comprehensive approach, provided that work is carried out within the framework of the NSDS.

Countries must comply with good statistical practice and put in place appropriate and sustainable implementation arrangements. Countries are encouraged to use international standards and frameworks.

A recent new tool to fund statistics, run also by the World Bank is the Statistics for Results Facility. While the TFSCB has been an effective mechanism for supporting the preparation of NSDSs, it was neither designed nor financed to provide substantial and sustained investment in statistical capacity. To help scale-up investment in statistical capacity, therefore, the Statistics for Results Facility (SRF) was launched at the Ghana meeting in September 2008.

The Facility has been created by a partnership of aid donors and institutions and is seen as an important mechanism to implement action (iii) of MAPS (see section B.1.3.3.). The SRF consists of both a new approach (using sector wide approaches, and greater attention to aid effectiveness principles), and new funds. An important part of the Facility is the creation of a Catalytic Fund, managed by the World Bank with funding from the Governments of the Netherlands and the United Kingdom. Once it is fully operational, it will provide grants to countries to implement National Strategies for the Development of Statistics using the new approach. The Catalytic Fund will also be able to provide funding for project preparation and supervision, which will be managed, where necessary and appropriate, by in-country "lead" donors in statistics. As of October 2009, the Bank will invite the first five pilot countries to apply: Afghanistan, DR Congo, Ghana, Rwanda and Nigeria. The pilot phase is expected to last until around 2012.

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 (NSDSs)***", 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 commits the development partners to coordination. The European Consensus on Development (section B.1.5) 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 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 Paris Declaration responsibility for coordinating external assistance. 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 ***2010 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. Eurostat is developing a Database on International Statistics Cooperation (DISC), to be available within the European Commission, containing information about EU support for statistics development.

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. The Database on International Statistics Cooperation (DISC) will provide a source of information to improve coordination.

The European Commission's support to statistics

C.7

C.7. The European Commission's support to statistics

Box 7.1: 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.

C.7.1. Objectives for statistics actions: statistics in strategy and programme documents

This section looks at how to decide whether statistics needs to be mentioned in country / regional strategy and programme documents and how to ensure that the mention of statistics fully supports the European Commission's and the partner country/region's development objectives[13] . The section also looks at how to verify the authority for a statistics action in strategy and programme documents. Box 7.2 below summarises the action points.

Statistics are instrumental in achieving policy goals, as discussed in chapter B.1. In particular, statistics that are insufficient to permit the use of indicators to prepare, monitor and evaluate a specific programme are a barrier to the implementation of that 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 because they do not permit policy measures to be adequately prepared, monitored and evaluated. 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 identified. Support will enable statistics to inform decision making by **meeting the relevant quality criteria, including the UN Fundamental Principles of Statistics**[14].

Actions in support of statistics should normally be compatible with medium-term statistics strategy or planning documents, where they exist. These strategies should be compatible with national development plans or poverty reduction strategies. See section C.6.1 for further information.

The availability of good quality statistics are a pre-condition for proper strategic analysis and for programming and design of concrete interventions. Ideally, the strategy and programming documents should discuss the state of the statistics system, its strengths and weaknesses and remedial and quality improving actions required. Strategy and programme documents will clearly facilitate European Commission statistics action if the **diagnosis section identifies poor quality statistics and the response strategy identifies necessary interventions in statistics**. If both these points are missing, it will be much more difficult to justify support to statistics; for example, a very strong argument must be made that support to statistics is required to reach the main objectives of the strategy paper). This argument can be made by linking support for statistics to the effective operation of the programme, for example linking quality statistics to the availability of statistics-based indicators for programme design, monitoring and evaluation.

Box 7.2: 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 national and/or regional partner country and region development strategy – (section B.1.4) and it is therefore mentioned in the Strategy Paper and Indicative Programme or equivalent document – section C.5.2.
- Statistics actions, including their scope, should be normally 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.7.2. Matching outputs to objectives: the logical framework of a statistics action

This section shows how to develop the statistics supporting actions that can achieve the policy goals discussed in section C.7.1. It provides an overview to the discussion of implementing statistics actions in chapter C.8. The statistics actions under discussion should be compared with the problems with statistics analysed in section C.5.2. The logical framework and the project cycle management terminology are applicable both to traditional projects and to other implementation instruments.

The purpose of any European Commission statistics intervention is to support the development partner to produce good quality[15] statistics sustainably in order to inform

13 The section is based on the terminology of the ACP Country Strategy Papers and National Indicative Programmes. However, the methodology is intended to be more widely applicable.

14 Official statistics and their fundamental principles are discussed in section B.2.1; quality in statistics is discussed at greater length in section C.5.3.

15 i.e. meeting the relevant international criteria, including the UN fundamental principles of statistics

decision-making. This statement is a model for any statistics action, to be included in the logframe description of the project purpose. A similar statement is included in section C.6.2 at Box 6.6: Logical framework for regional statistics training programme.

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 in all regions of cooperation and development aim at one or more of the following three **specific objectives**[16] :

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)

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 statistics capacity building, where the impetus from worthwhile activities can easily be lost.

At the **operational objectives** level, six common types of outputs can be identified, which together correspond to the range of statistics-related problems described in section C.5.4:

1. Strengthen statistics relationships with decision makers; set medium term strategy to meet policy-oriented goals (strategy).
2. Section C.6.1 considers policy-level relations and statistics strategies.
3. Strengthen legal and regulatory framework, inter-institutional relationships (framework).

- The framework for statistics is considered together with strategies in section C.6.1.

4. Strengthen capacity to develop, maintain and disseminate quality statistical information required to formulate, implement and monitor policies (capacity)

- This is the largest activity in implementing an NSDS.

5. Develop the international comparability of statistics. In some cases this requires harmonisation with the European Statistical System (ESS) (capacity / harmonisation)

- 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. In this situation, capacity building actions are undertaken in support of the objective.

6. Strengthen capacity of stakeholders to access, analyse and interpret statistical data (users)
7. Provide direct support to produce and disseminate specified statistics (production support)

- 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, these 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, even for capacity building actions: training materials, attendance lists, trainer's reports and student evaluations are examples.

To find out more…

- ***Project Cycle Management Guidelines***, Aid Delivery Methods Programme. European Commission EuropeAid 2004
- ***Evaluation of the Commission Support for Statistics in Third Countries***, 2007

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.

16 Evaluation of the Commission Support for Statistics in Third Countries, 2007, page 9

- 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[17].
- 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 capacity building measures. An example is the ***Mozambique United Nations Development Assistance Framework 2007-2009***, which includes a wide range of support to statistics at national, provincial and local level. The EDF10 programme in Mauritania proposes general support to statistics reform as part of good governance. Support to statistics SWAps is the objective of the 'scaling up' joint funding strategy discussed in section B.1.3.
- SWAps 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 European Commission development statistics

Eurostat's role in statistical development co-operation is to provide an advisory service to the European Commission external General Directorates, in particular to Commission delegations. Advice is given to the national statistical institutes and regional organisations of the European Commission's development partners with the agreement of the relevant external service. This Guide to Statistics in Development Cooperation is being developed to help fulfil this role. Eurostat is consulted on the preparation of the Country/Regional Strategy Papers, National/Regional Indicative Programmes and Joint Annual Reports. The Evaluation of the Commission Support for Statistics in Third Countries concluded that 'The systematic recourse to the technical competence of EUROSTAT was very beneficial in terms of quality.'

Eurostat's objective in development statistics cooperation is to support EU external relations policies by providing appropriate and focused statistical technical assistance. For countries covered by the European Neighbourhood Policy (ENP), Eurostat's objective is to support the development of these countries' statistical systems with a view to providing a basic set of harmonised data that meet the ESS requirements.

Administratively, Eurostat's International Statistical Cooperation unit (D2) works in development with the European Commission's external service's African, Caribbean and Pacific programmes and Asian and Latin American programmes, as well as with relations with international organisations and with high income countries. The unit responsible for Statistical Cooperation with European and Mediterranean Countries (D1) works with European Neighbourhood Policy countries as well as with EU candidate and potential candidate countries.

Eurostat is responsible for fulfilling the European Commission's Paris Declaration obligation (see section B.1.3) to report on development cooperation activities that involve statistics. Its Database on International Statistics Cooperation (DISC) is being developed to provide this information concerning the European Commission support programmes. A dialogue between EU Delegations and Eurostat is therefore developed to update the information in DISC on statistics-related actions.

Box 7.3: Database on International Statistical Cooperation (DISC)

DISC is a Eurostat project, designed to become the European Commission's internal portal to international statistical co-operation for EU Delegations. This institutional knowledge database is currently in a period of consolidation. Three main functions have been developed, which respond to the following questions:

- **What activities are ongoing/foreseen by the European Commission to support statistical development and where?** This module itemises all those statistical projects or projects with a statistical component funded by the European Commission and provides a tool to respond to the annual PRESS survey (see section B.1.3.3.). DISC therefore not only encapsulates institutional memory on statistical activities but also promotes active participation by the European Commission to donors' coordination for international statistical co-operation.
- **How is the partner country's statistical system?** This module gathers basic information on National Statistical Systems from international sources, including data on their statistical legal base, international fulfilments, financial and human resources.
- **What is the internal information available at Eurostat concerning the quality of statistics within the projects cycle of the European Commission development co-operation?** The « Note on Operational Reviews module » is a service-oriented module, integrating information from the other two modules with Eurostat's analysis and feedback of the JAR, CSP-NIP and RSP-RIP.

Please send requests for information on DISC to:
ESTAT-DISC@ec.europa.eu

17 Definition from Paris21: A Guide to Using a System-wide Approach to Implement National Strategies for the Development of Statistics (NSDS)

Eurostat provides a coordinating instrument within the EU through its Advisory Group, which all EU Member State NSI and development agencies involved with statistics are members of.

The ***Community Statistical Programme 2008 to 2012*** bases its activities in the fields of Development cooperation and of Economic, financial and technical cooperation with third countries on the European Consensus. The Statistical Programme lays out Eurostat's overall development objective[18] as to 'prepare and implement regional development programmes and to ensure a close link between statistical actions and the wider objectives of EU programmes.'

Eurostat's statistical programme states that its development cooperation[19] activities will be as follows:

- The overall objective is to support EU external relations policies by providing appropriate and focused statistical technical assistance … statistical cooperation is increasingly focused on strengthening the measurement and monitoring of poverty, with a particular emphasis on the Millennium Development Goal (MDG) indicators.
- Technical advice and support is provided in the area of measuring the impact of EU development programmes and with regard to the statistical element of EU regional development programmes in general.
- Areas for support include multilateral surveillance, improvement of national accounts, price statistics, agricultural statistics, statistics on natural resources and on the pressures on the environment, foreign trade, business statistics and statistical training.
- Technical cooperation activities stress the importance of a user focus, and promote the value of multi-annual programming.
- Main initiatives for 2008 to 2012 with respect to developing countries (especially African) are:
  - the visibility of statistics in national and regional development plans will be increased,
  - technical advice and scientific support will be provided, where possible, for the conduct of statistical development programmes, in particular at regional level; to support projects with statistical implications and harmonisation of statistics in countries benefiting from EU aid; and to contribute to the assessment of the statistical priorities for the planning and programming of EU statistical cooperation activities,
  - particular emphasis, taking into account the gender dimension, will be put on measuring and monitoring poverty, progress on social cohesion, environmental sustainability and the MDG indicators.
- The objective of economic, financial and technical cooperation with third countries in statistics[20] , for countries covered by the European Neighbourhood Policy (ENP), is to support the development of these countries' statistical systems with a view to providing a basic set of harmonised data meeting EU requirements in areas where EU policies call for such data. The statistical assistance for these countries is implemented through the European Neighbourhood and Partnership Instrument.
- Main initiatives for 2008 to 2012 with respect to countries covered by the ENP are:
  - the key areas of economic statistics, national accounts and price statistics, external trade, migration statistics and social statistics will be developed. In addition, other sectors like energy and environment statistics – and, more broadly, sustainable development indicators – should progressively emerge as a key input for policy making,
  - cooperation will also aim at building-up and enhancing the institutional capacities of the national statistical offices and inter-institutional cooperation.

To find out more…

- ***Guide to the Programming, Design and Management of General Budget Support***, DGs AIDCO, DEV, RELEX, 2007 (***internal link for EU Delegations***.)
- Community Statistical Programme 2008 to 2012: ***Eurostat webpage*** and ***legal text***
- ***Eurostat pages on international statistical co-operation with ACP and ALA, High Income Countries and co-operation with International organisations***
- ***Eurostat pages on international statistical co-operation with Mediterranean countries and ENP***
- ***Evaluation of the Commission Support for Statistics in Third Countries, 2007***
- Eurostat flyer on International Statistical Cooperation and posters on statistical cooperation with ***African, Caribbean and Pacific countries*** and ***Asian and Latin American countries***.

Eurostat statistical cooperation first point of contact:

- African, Caribbean and Pacific (ACP) and Asia and Latin America (ALA):
  - e-mail: ***ESTAT-INTER-COOP@ec.europa.eu***
- European Neighbourhood Policy:
  - e-mail: ***ESTAT-D1-REQUESTS@ec.europa.eu***

Eurostat DISC - Database on International Statistics Cooperation
Please report or request information about European Commission or EU Member State development cooperation actions that have a statistics component: ***ESTAT-DISC@ec.europa.eu***

18 Cross-cutting issues 2: relations with stakeholders – technical cooperation with third countries, page L344/21
19 Title XX, page L344/42

20 Title XXI, page L344/43. The legal framework is Council Regulation (Euratom, EC) No 1279/96 of 25 June 1996 concerning the provision of assistance to economic reform and recovery in the New Independent States and Mongolia (OJ L 165, 4.7.1996, p1); Communication of 9 December 2004 from the Commission to the Council on the Commission proposals for action plans under the European Neighbourhood Policy (ENP).

C.7.4. European Commission types of action in statistics

C.7.4.1. Overview

The section aim is to look at types of statistics action in which the European Commission is often involved 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.

This analysis and many action points in this section are based on the 2006 Evaluation of the Commission support for statistics in third countries. Early outputs from the Eurostat DISC Database on Statistical Cooperation have been used among other sources to classify recent interventions. Detailed information about recent programmes in the field of international statistical co-operation is regularly updated in ***PRESS***.European Commission support for statistical interventions can be categorised into the following type of action:

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 7.4: 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 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.
- Establishing a permanent exchange of data between partner countries and Eurostat (perhaps based on a Memorandum of Understanding on data exchange, such as Eurostat has agreed with Mediterranean countries) permits partner country data to be published via Eurostat's free dissemination database and so increases the user base.

The ***2007 Evaluation*** examines (page 33) support for the demand and use of quality statistics to prepare decisions and to monitor the effects of their implementation, including the interpretation of statistical data. The key findings were:

- The issue of raising the demand for statistics and their understanding by decision-makers is mentioned in many projects but little firm action was being planned.
- The number of seminars and workshops addressed to users was very limited.
- Provision for promoting statistics was included in most projects but was generally not sustainable beyond project termination.
- No projects had been undertaken on producer-user dialogue or on advocacy.
- Projects in preparation had begun to include the advocacy dimension.

C.7.4.2. Support to the whole statistical system at national level

A strategic approach to statistics redevelopment aims to support a locally owned and led programme to develop a country's NSS in a comprehensive and co-ordinated way, typically centred on implementing a national strategy for the development of statistics (NSDS or similar) and moving towards use of country systems and procedures for implementation. The preparation of a statistical strategy that covers at least the main parts of NSS provides a framework within which support can be provided to deliver co-ordinated financial and technical assistance.

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
- Host 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 (introduced in section C.6.2), 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. The 2006 Evaluation of the Commission support for statistics in third countries observed that system-level problems with statistics had rarely been addressed by European Commission statistical co-operation. Well developed statistics strategies should address this observation.

Examples of European Commission support to the whole statistical system are:

- Angola Institutional support to INS Angola (10 ACP ANG)
- Burkina Faso. Community support to the National Institute for Statistics and Demography (INSD) and to the statistical services of the social ministries (8 EDF) and Support to Poverty Reduction (9 ACP BK 6)
- Madagascar, Programme d'Appui budgétaire pour la Réduction de la Pauvreté, 2004-2007: actions included reform of national statistical system including finalising the NSDS, as well as support to a household survey. Carried out in cooperation with the World Bank. (9 ACP MAG 8)
- Senegal - Support for national good governance programme – Institutional statistical reform. (9 ACP SE 12)
- Kenya PRBS II - Poverty reduction budget support: Support to implementation of Central Bureau of Statistics (CBS) strategic plan. (9 ACP KE 3)
- Mali - Multi-annual Poverty Reduction Support Programme (PPAB) 2003-2007 – Strengthening of statistical system and micro-economic analysis including NSDS. (9 ACP MLI 6+7)

Box 7.5: 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…

- ***A Guide to Using a System-wide Approach to Implement National Strategies for the Development of Statistics*** (NSDS) – PARIS21, 2007

C.7.4.3. Support for large scale operations

The largest scale statistics operations are population censuses. Further information about population censuses will be provided in Part D. Examples of European Commission support to population censuses are:

- Nigeria 2005 Census Support Initiative. Activities are: payment of census staff, capacity building, public perception study, transparency and accountability measures (website), provision of technology for data processing, national monitoring projects, external monitoring. (9 ACP UNI 5)
- Mozambique Support to the 2007 Population and Housing Census. (9 ACP MOZ 30)
- Burundi Support to good governance: Contribution agreement with UNFPA for 2008 census. (9 ACP BU 13)

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.

Statistics-related interventions have been identified in agriculture and education. Other sectors where statistics components can be found include health, external trade and fisheries. Identification of relatively small but important statistics components of major sector programmes can be difficult.

Sector statistics will be addressed in greater depth in Part D: Statistics for Policy Issues.

Box 7.6: 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 7.7: 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 5.5).
- 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.

Examples are:

- Swaziland – Support to education and training: Education management and coordination. Support the development of planning and management structures. Assist with collecting reliable and up-to-date statistical information for use in training and deploying teachers, managing financial and human resources. (9 ACP SW 3)
- Ghana – Strengthening monitoring and evaluation capacities in the decentralised Ministry of Food and Agriculture: To increase monitoring and evaluation capacity of Direc-

torate Generals of Agriculture at regional and district level. The aim is to provide of adequate, accurate and timely data/information. (9 ACP GH 8)

- Comoros – Programme to strengthen the education sector in the Comoros (PASEC)

Result 3: to reinforce the operational and management capacities of the Ministry of Education and coordination mechanisms are in place. Statistical reports will be produced at the end of each year through a data information system. (9 ACP COM 4)

C.7.4.5. Strengthening regional statistics

Regional integration requires comparable statistics to inform common regional policies. The regional statistical capacity approach was recognised by the 2006 Evaluation as resulting in '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.

Informing **regional policies** to encourage free trade areas and customs unions led to support for statistics interventions in **international trade**. **Economies of scale** and an interest in developing the use of **common statistical concepts** led to support for **statistical training** at regional level. These areas, as well as **national accounts**, 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, increasing interest at regional level in the Millennium Development Goals and their indicators 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 and national accounts.

Common regional statistics actions have often been based around development and implementation of common statistics tools: **Eurotrace** for international merchandise trade, **Eretes** for national accounts. 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 will deal more specifically with training activities. Examples of regional statistics-related projects are:

- SADC: Regional statistical training project. Expected results include: a Regional Statistical Training Strategy (RSTS) and development of national training strategies; improved regional training capacity to support the training strategies. 8 ACP RAU 5. Further details are shown in Box 7.7.
- SADC: Support Member States on Customs Modernisation and Transformation Towards Customs Union. Includes IT systems, WAN for connecting with Member States, and a customs and trade statistics database. EDF9
- SADC: The Capacity Building for Regional Integration Project (CBRI) 9 ACP SAD 015. This programme receives funding from the European Commission, it started in July 2009 and it is expected to end in 2012. Its purpose is to increase SADC institutions' capacities to drive and coordinate the regional integration agenda, notably through the development of direct financial support (using SADC's own procedures) as the main mechanism for SADC-ICP development cooperation, e.g. through an EU-SADC Contribution Agreement. The Statistics Component of the CBRI is aimed at building statistical capacity of the SADC Member States to collect, analyse and produce regionally comparable trade related and macro economic related data through the development of a Regional Statistical Development Strategy and an Integrated Trade Statistics Database. In particular, the Statistical Component of the CBRI is designed to contribute to achievements in the following four result areas:
  - Result Area 1: Harmonisation of International Merchandise Trade Statistics (IMTS);
  - Result Area 2: Support for Regionally Comparable Macro Economic Data;
  - Result Area 3: Regional Strategy for the Development of Statistics; and
  - Result Area 4: Capacity Building for the SADC Statistics Programme.
- CEMAC: PAIRAC - Strengthening regional integration in Central Africa. The programme comprises strengthening of national cells in charge of the multilateral surveillance in each country, harmonisation of basic statistics (national accounts and prices), macro-economic modelling, and a focus on dissemination of statistical information. 9 ACP RCE 6
- COMESA: Regional integration support programme (RISP)/4. Improved and harmonised production of statistical data and improved capacities at the national statistical institutes and in the regional organisations, including use of econometric modelling. 9 ACP RSA 019

Box 7.8: Project example: SADC Regional Statistics Training Project: 8 RAU 005

This project, which ran from July 1999 to December 2007, aimed to develop and implement a regional statistical training strategy for the SADC region and its Member States.

The project's expected results included:

- Development and implementation of a Regional Statistics Training Strategy for SADC
- Development of national training strategies for SADC Member States
- Improved regional training capacity to support the national training strategies
- Producers of statistics throughout SADC being able to better meet users' needs for data through training in management, communications and technical skills.

The project implemented a range of activities to achieve these results:

- Regional short courses for statistics professionals and trainers in statistics, including:
  - Sample Survey Design, 07/2002, and 10/2003
  - National Accounts, 06/2003,
  - GIS, 10/2005,
  - HRD, 12/2005,
  - Organization and Management of NSIs, 03/2006,
  - Foreign Trade Statistics, 07/2006,
  - Business Surveys and Frames, 10/2006,
  - Data analysis, 02/2007,
  - Training of Trainers course, 05/2007,
  - Survey and Statistical Methods, 06/2007,
  - Economic Statistics, 02/2007,
  - Agriculture & Food Security Statistics, 08/2007,
- National training courses in statistics in most SADC Member States
- National training audits and identification of national training needs and prioritisation
- Development of regional and national training plans and training materials
- Development of a common syllabus for intermediate level training

The original project budget was €5.8 million, of which €4.8 million was funded by the European Commission and the remainder by SADC's own contribution. The project was initially planned to end in 12/2005. Following Mid-Term Review in late 2003, project implementation was extended to end-2007 without additional cost. At this time, the project logical (planning) framework was adjusted to reflect a lower project budget and address the training needs of the producers and users of statistics more coherently. Following a financial review in June 2007, the European Commission contribution was reduced to €3.85mn to reflect the late project start.

The project was managed by the SADC Secretariat and co-ordinated by a Regional Steering Committee of representatives from SADC Member States and the SADC Secretariat, with the European Commission as an observer. Eurostat acted as technical advisors to the European Commission Delegation in Botswana, which managed the Commission's side of the project.

Box 7.9: Action points

- 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***)
- Eurostat ***approach to Statistics Training in Developing Countries***

How to manage statistics actions

C.8

C.8. How to manage statistics actions

Box 8.1: The chapter in brief

The 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. This chapter presents guidance on how to prepare the various types of projects/programmes to support statistics capacity building and major statistical projects. It provides practical advice for preparing and evaluating terms of reference at each stage of project/programme preparation: key points for terms of reference are included in this chapter. The presentation is based on EuropeAid standard procedural documents.

Section 7.2, 'Matching outputs to objectives: the logical framework of a statistics action', provides the overview for this chapter and the linkage to earlier material. It also provides the starting-point for this chapter: the expected results (specific output) of the programme or project have been determined in general terms.

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)

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.
    - o 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 8.2 provides a checklist that covers drafting Terms of Reference and evaluating responses for identification or pre-feasibility studies.

Box 8.2: Terms of reference checklist for a statistics identification or pre-feasibility study

This box applies the 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 such as an NSDS that the preparer is aware of (section C.6.1)
- Political sensitivities that can have statistical implications should be outlined: e.g. a requirement to collect data in each region, even if this is not justified by the technical analysis
- Any required institutional framework for the intervention should be specified.
- The likely administrative framework (e.g. budget support, contribution agreement, classic project) should be specified and the administrative interlocutors 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.
- Technical alternatives: the study should evaluate alternatives by referring to how the data will be used.
  - In some large scale surveys, the final choice of technical alternatives is preferably left to the feasibility / formulation stage, when a sampling expert can be used to define efficient means of achieving the technical objectives.
- Capacity building alternatives: the evaluation should consider the impact of different approaches on the sustainability of statistics production and dissemination; it should also consider the relevance and likely effectiveness of the capacity building measures.
- Frequency and means of technical reporting and monitoring. This is especially important for contribution agreements and actions undertaken within a budget support framework, as the absence of a specified reporting mechanism can leave the intervention without an effective means of 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 – the improved statistics, capacity built and / or users more appreciative of statistics - are likely to inform policy decisions in the sectors concerned.
- Rejection of a proposed intervention is most likely to relate to lack of statistical sustainability. Sustainability issues and whether they can be addressed by the intervention need to be assessed especially in the evaluation of the counterpart institution. Typical issues are a mismatch between the counterpart's technical attainment and working methods that are required by the counterpart; statistics confidentiality, where this cannot be improved through capacity building; or when the minimum resources required for the sustainability of statistics operations are not expected to be maintained.
- 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. In both cases, the choices made will influence both costs and the possible uses of the data.
- 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. How much capacity is built and how effectively it is built can affect sustainability.

4. Methodology

- The proposal methodology should ensure that sufficient information is available to make the above decisions.
- The Assessment of the National Statistical System, section C.5.2, 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).
- Cap 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 with users: t would be better that these meetings are held with the participation of the key stakeholder in the project.
- Examination of the last National Statistical System publications (in paper and internet version).

But 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.

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 8.3. 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. The stakeholders may include: the Ministry in charge of the National Statistical Institute, the Statistics Council, the National Statistical Institute and other producers of statistics, possibly a regional institution. 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. Study of the legal framework for statistical activities, influence of the political sphere on statistical activity and 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:
  - **Type of project -Issues to be studied**
  - Global statistical capacity building
  - In addition to the previously mentioned analysis of institutional abilities:
  - How does the NSS/NSI meet the data needs for national development policies?
  - Has a NSDS been defined? If yes, how is it implemented? If no, why?
  - What is the strategy as regards dissemination and use of NICT?
  - Review of the main statistical works: matching of the users' needs, production and dissemination process, quality. A full audit of the statistical production may be carried out within this framework.
  - Are human resources appropriate to the NSS/NSI mission: volume, technical skills, etc?
  - Same question for technical and financial resources.
  - Proceed with a SWOT analysis of the NSS, NSI and/or the targeted statistical body.
  - Sectoral statistics
  - Users' needs: Quick review of data quality (see above and chapter C.5.) in the relevant field
  - Role and place of the body in charge of statistics in the domain
  - In-depth analysis of the statistical processes: implemented methodologies (regional harmonization, international standards), data production process (collection, processing tools), analysis and dissemination, data quality.
  - Large-scale project (Population census, agricultural census,…)-Full analysis of the project technical aspects (methodology, organization, data processing tools and procedures, work schedule, technical and human resources). Detection of possible unsolved problems.
  - Analysis of the overall budget, of the various contributions and envisaged mechanisms of co-ordination and management.

- 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. Specific structures are often built, to the detriment of global co-ordination and point out the problem of the sustainability of these actions. A weak capitalization has been noticed despite the support offered over the last 10 years.
- 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 implementation of the legal and regulatory framework needed for the statistical activity (especially in the revision of the NSI statutes)
  - Delays in the survey implementation, in particular for censuses.
  - Delays in the provision of national resources (budgetary and/or technical resources).
  - Availability and stability of the national statistical teams.
  - Perpetuation of the project results. This matter must be thoroughly analysed when, at the end of the project, the involved NSI/services have to periodically reproduce the tasks, for example, data collection or publications.
  - Role of the technical assistance at the implementation stage and terms of reference for consultants. The technical assistance usually intervenes at two steps in the statistical co-operation projects:

To transfer competences towards beneficiary institution teams: implementation of new methodologies (SNA93, internet, GIS, survey methods, harmonization with international or regional standards), audit of existing measures and proposals for improvement. More and more often, this support can be brought through a South-South co-operation, but it must not be realized to the detriment of the country or institution providing expertise.

To provide the beneficiary institution with additional human resources for the achievement of some activities within the project. This mechanism, which is similar to subcontracting, may be very useful to consolidate local teams' abilities or to face additional workload resulting from the implementation of new mechanisms. This must however be conceived in a framework of ownership and sustainability.

Methodology

In the statistical domain, the methodology section should always plan:

- Meetings with users: 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). It would be better that these meetings are held with the participation of the key stakeholder in the project.

• 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.

- **Type of project -Profile of the expertise**
- Statistical capacity building
- A multidisciplinary team formed of: a statistician with experience covering the institutional and technical aspects of official statistics, completed by a good knowledge of administrative environment in the countries of the area,
- an expert in capacity building (administrative reform, human resources, management) with a knowledge of the administrative environment in the countries of the area.
- Sectoral statistics
- Statistician with a proven expertise in the domain, completed by a good knowledge of the administrative environment in the countries of the area.
- Large-scale project (Population census, agricultural census …)-Statistician with a proven expertise in the domain, completed by a good knowledge of the administrative environment in the countries of the area.

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:
  - o Legal framework of the statistical activity,
  - o Work on a National Strategy for the Development of Statistics,
  - o Organisation and functioning of the National Statistical System and National Statistical Institute; functioning of the services producing statistics elsewhere.
  - o National Statistical Council planned or implemented.
- Sector support to statistics:
  - o 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.
  - o 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 step

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*[22]. '

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.

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

22 EuropeAid Office. Evaluation Unit March 2001.

Evaluation criteria for statistical projects

Relevance	• 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? • Are they consistent with the NSDS? • 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.
Effectiveness	• Mid-term assessment: do the means committed fit with the effective results? • 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) • 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?
Efficiency	• Sectoral statistics: are the expected data available? Are they good quality (or has the quality improved?) following the criteria of statistical quality. • Global statistical capacity building: to what extent have the results helped to implement the NSDS?
Impact	• Sectoral statistics: what is the appraisal of the sector managers on the project impact? • Global statistical capacity building: how deeply did the project impact the rest of the NSS works?
Sustainability	• Sectoral statistics: do the ownership of the project results and the beneficiary service resources enable future data production on a periodical basis? • 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)?

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 Management Cycle Guidelines'***.

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 8.4.

Box 8.4. 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 Commission : relevance, efficiency, effectiveness, impact and sustainability, coherence and added value of the Commission[22] .

- **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.

22 The five first criteria have been put into place by the DAC at the OECD.
The European Commission added the last two.

C.8.5. Specificities of multi-country projects

The increasing regional dimension of European Union statistical projects over the past 20 years have already been highlighted on several occasions and multi-country projects in this field have been recognised[23] as a great success of EU statistical cooperation.

There is no specific methodology to managing 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 stakeholders involved, the statistical domain(s) covered, the level of integration needed. They imply a specific implementation phase.

C.8.5.1. Stakeholders

There can be many stakeholders in such projects, since there are generally two levels involved: a regional and a national level. The number of participating countries multiplies the number of stakeholders at this second level.

- At the regional level, a **regional institution** will probably have received a statistical mission within the framework of the regional agreement which links the member States for their economic/political co-operation. This institution can usually coordinate or implement the statistical co-operation project and should be the relevant first partner of the European Commission statistical co-operation.
- At a national level, stakeholders may be the **National Statistical Systems** or other sectoral organisms producing official statistics, such as ministries of Health, Education or Agriculture.

Analysing these stakeholders, their institutional capacity and their communication policy, represents a very important element in the identification and formulation phases.

C.8.5.2 Statistical domains

The European Union's regional statistical co-operation projects depend on policies supporting regional integration, the definition and implementation of which relies on statistics. These policies deal with a **wide range of domains**, varying with regional groups. For example:

- combating drought in the Sahel with the CILSS,
- free trade area in the ASEAN,
- common market in the MERCOSUR,
- economic and monetary areas in the UEMOA.

Statistics and statistical domains related to these policies are more or less important depending on the co-operation domain. The feasibility and formulation studies should clearly determine the scope of statistical data needed for common policies.

23 Evaluation of the Commission support for statistics in third countries, ADE S.A., February 2007.

C.8.5.3. Statistical integration

- **Regional harmonisation of data** in the domains concerned, in order to make comparisons between the different member States. (See also section B.2.4.)

The intervention must be able to consider both the regional and national dimensions. Some activities have to be managed at a regional level, others at a national level. It should not be forgotten that harmonisation frequently adds to the already heavy burden of improving nation-wide statistics.

Regional harmonisation of data

Harmonisation objectives must be defined in a realistic way. Two degrees of harmonisation can be envisaged and must be studied.

- Harmonisation of concepts, nomenclatures and methodologies: international recommendations are adjusted to Member States' specific requirements and to their situations.
- Harmonisation tools: common tools are defined and put in place. Missing or poor processing tools in the Member States create conditions favourable for the sharing of tools.

Box 8.5: Regional harmonisation of methodologies and tools

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) is to be shared by all Member States.

Harmonisation of statistics processing tools:

The COMESA States have chosen Eurotrace to produce external trade statistics. This software has been developed by Eurostat.

Production of regional statistics

When a regional institution also has a statistical component of its mission, this often include the compilation of harmonised, comparable statistics for the whole region. Data collection is normally still carried out at the level of the member states of the institution. This data collection must go through the same steps as for the simple harmonisation level studied above, but additionally includes **data transfer procedures**.

These procedures should clarify the list and format of data to be transferred, the mode and transfer schedule. Data are then processed in order to obtain regional statistics. Lack of data in a Member State (or even late transfer) disturbs the production process of regional statistics, except if estimations are used for the state concerned.

Box 8.6: Region-wide statistical data collection in the UEMOA

Each UEMOA State produces a harmonised price index. It is based on a methodology common to all eight Member States. In each 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. They are used in the calculation of a regional index.

Occasionally, States were unable to produce their index for several months due to a hard-disk failure in the computer which was hosting CHAPO. During all this time, the UEMOA Commission was unable to produce the regional index.

C.8.5.4 Implementation of regional statistical co-operation projects

Implementation is usually coordinated by the regional institution, but activities are set up at a national and/or at a regional level. Monitoring these projects is more difficult, due to their complexity (high number of stakeholders, activities on two levels).

It has to be adjusted in order to ensure all stakeholders' strong commitment and to allow the follow-up of activities at both levels.

Information must be transferred from the national level to the regional level and vice versa. The use of new information and communication tools is recommended. However, this requires that all parties both meet the technical requirements and have the competence to use them.

C.8.6. Statistical Training

The European Union has funded a number of projects for the initial training of statisticians (scholarships, study awards, funding and other assistance to statistical training schools) as well as for vocational training.

These actions have been largely appreciated. The ***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.

Vocational training has been supported by the European Commission at national and regional levels. 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.

Box 8.7: The regional project of statistical training for SADC

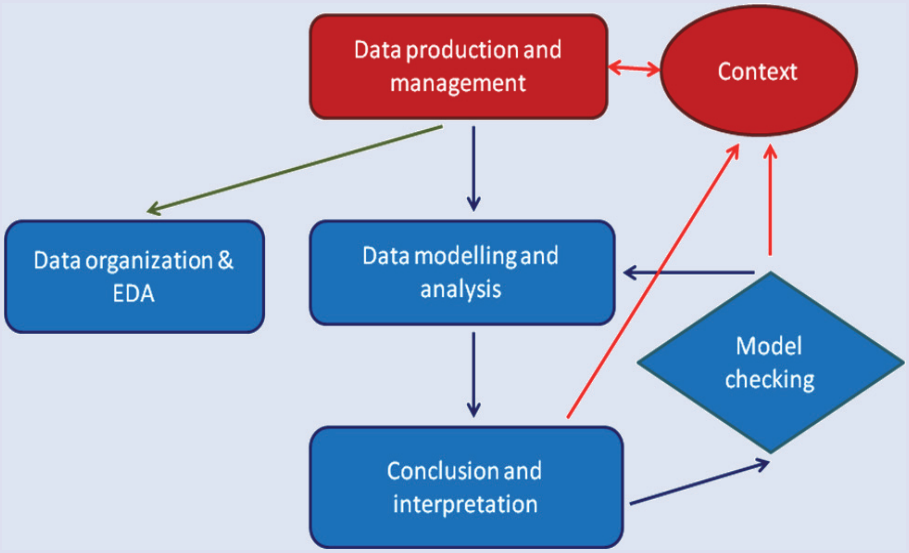
The project aimed to strengthen the ability of staff to produce the statistics needed for policy and decision-making. It also assisted in the use of statistics to support most important policies of the SADC and its Member States.

It was implemented over 5 years (January 2001 – December 2005). The following results were reached:

- National and regional training strategies were defined.
- The regional training capacity to implement these strategies was strengthened.
- More users of statistics were skilled in using information provided by official statistics.
- The producers of statistics better respond to the needs of users of official statistics thanks to technical, management and communication training.

Box 8.8: 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 segment of the diagram Data production and management, while universities focus mainly on the blue area Data organization and EDA (exploratory data analysis), data modelling and analysis, conclusions and interpretation and model checking… The participants of a SADC 'training of trainers' workshop in 11/2008 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 cannot be used by National Statistics Systems (NSS) without further training.



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
http://www.sadc.int/index/browse/page/337

Eurostat is currently developing **ASTRA** (Assessment of Statistical Training), a management information system to assess the need on training in statistics. Its general objective is to enhance the effectiveness of statistical trainings, particularly in the ACP countries.

The main reason behind the decision to develop such a management tool was the fact that active experience in statistical development and training over years, as well as exchange with countries and evaluations, have shown that there is a redundant difficulty to identify clearly and to monitor systematically the demand for statistics related training at the level of the NSI but also at the level of the NSS.

Hence the specific goal of the ASTRA development is to put together the demand and the supply of statistics-related trainings by linking all actors (NSI/NSS, Statistical Training Institutions, regional organisations and donors) involved in a process that starts at the demand side from the statistical producing units, aggregates the demand at each level of the NSS and ends with the supply side of the training institutions.

The system offers the opportunity to all these actors to bring in their views from their very specific perspectives and roles. It is intended to provide a practical contribution to the statistical capacity building initiatives and the implementation of NSDS.

The realisation of ASTRA is a toolbox which contains three tools:

1. The assessment reports are information and decision making tools for the NSIs, other statistical producers in NSS, regional organizations, donors and statistical training centres. Their establishment follows a logical progression as shown below.
2. The database, basically considered as an input tool, generates the assessment reports and feeds the decision making process.

To find out more…

More info on ASTRA is available on *Circa*

The handbook describes the MIS-ST system and provides instruction for the decision making process and for all the

successive steps of the operation. It refers specifically (where indicated) to other sources/references (action plans, NSDS, GDDS, regional programmes, national policies, PRSP, international obligations, donor financing, etc….) that need to be taken into consideration through the whole process.

C.8.7. Other methodological support

If training remains a core aspect of statistical capacity building, support can take other forms at each step of the statistical process:

- **Building statistical infrastructure:**
  - provision of Geographical Information System (GIS) software to help in the design of a census, of a sample,
  - provision of communication hardware and software for instance for the building and maintenance of registers (of enterprises, of administrations, of organisations) for contacts with data providers, with data users…
  - documentation, methodological and general,
  - sufficient paper diffusion of international classifications and standard methodologies in all concerned data producing organisations, where internet access is limited,
  - ease of general access to internet,
  - diffusion of cost-effective methodologies, elaborated in other countries.
- **Data collection:**
  - standard questionnaires,
- **Data processing:**
  - up-to-date statistical software, which is more and more efficient,
  - development of standard tools for the processing of surveys, the automation of production of short-term indicators
  - archiving tools.
- **Analysis**:
  - again, modern statistical software offers more and more powerful analytical tools,
  - examples of analysis made in other countries.
- **Dissemination:**
  - a GIS software is also needed at this step, for a presentation of geographically disaggregated data which could attract potential new national users, making decision at local levels,
  - provision of standard tools for the dissemination of databases to general public (for instance, the Devinfo software, originally built by UNICEF meets a great success),
  - website designing tools.

From the list above, it is obvious that the supply of **new information and communication technologies** tools play the second major role. Of course, it must be accompanied by the adequate training.

C.8.8. Support in strategy and management

Section C.5.4 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 recent '***Evaluation of the Commission support for statistics in third countries***' also noted for instance 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 8.9. 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 field work. Data collected often have little significance. Nevertheless, these operations have the merit of going on mobilising the few people who will be of great help once normal statistical work has been resumed.

In such **fragile countries**, only surveys are able to respond, often only partially and in limited geographical 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. An example of such an operation is the 1-2-3 survey conducted to estimate the impact of the non-observed economy in the Democratic Republic of Congo in 2004-2005.

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 for both population and infrastructures, because any administrative structure capable of setting up such operations no longer exists and because this operation would take too much time. 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 technical 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 archaic. This work is most commonly carried out within the framework of a project linked to the reconstruction programme. This approach was adopted after the end of the 1993 conflict in Lebanon.

In both cases, the aim is to **favour the re-launching of statistical activities as a preliminary to any reconstruction of statistical capacities**. But this reconstruction should figure among the concerns of the general reconstruction programme or as a 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 sphere of activity. Before launching any national statistical operation similar to those presented above, contact with the NGOs is essential. The information they may provide will be used in defining the surveyed sample. In the absence of local authorities, they could also relay the information about populations surveyed.

In order to support the fragile states and states emerging from critical situations such as crises or wars, in July 2009, Eurostat launched a service contract to prepare the handbook "***Essential SNA: building the basics***" (available by the end of 2010). The main foreseen activities are:
The handbook will be particularly relevant for Least Developed Countries and micro-states to produce the most essential tables for a "minimal" implementation of SNA.
The handbook will include best practice for analysis of basic data to ease the start-up phase of NSIs facing the challenge of producing NA data in accordance with a SNA for the first time. The handbook will be based on and fully compatible with Volume I and II of SNA 2008

Please send comments or requests for information on the Handbook "Essential SNA: building the basics" to: ***ESTAT-INTER-COOP@ec.europa.eu***

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 national data users remains a characteristic of a number of National Statistical Systems of developing countries and improvement of this dialogue should be included in any strategic plan of development of statistics, for example by complementing the training of statisticians (data producers) by a training of the users.

On these issues, PARIS21 has already organised several international meetings and developed advocacy material that can be very helpful.

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. The European Commission has supported regional statistical capacity for regional integration in most of the partner areas. For instance, the statistical component of the 9th European Development Fund Regional Integration Support Programme (RISP) for COMESA sought to improve and harmonise the production of statistics and to improve the capacity of the NSIs and the regional organisations.

Regional integration process requires statistics that enable comparisons between countries and regions. Common regional statistics actions have often been based around development and implementation of common statistics tools. Eurostat develops and supports the implementation of the ***Eurotrace software for external trade of goods statistics*** and the ***ERETES software for national accounts*** in several regions and developing countries. Besides updating to the latest international standards and maintaining the tools, Eurostat can provide the service of a specialist to train the partner institutions. Other international organisations, such as UNCTAD and UNICEF, also support implementation of software solutions within their fields.

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 issue of IT for statistics has several vital dimensions:

- Hardware (including networking technology) and its specifications
- Installation, maintenance, upgrade and eventual replacement
- Software
- Training and documentation

The hardware requirements of an NSI and/or the NSS must be carefully reviewed in cooperation with the beneficiaries, to assure that the equipment specified 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, for instance considering that whenever there is shortage of equipment, basic workstations tend to be used also for statisticians needing to run heavier routines, or that equipment might be exposed to variations in voltage and high temperatures. Bringing in equipment from abroad might expose to difficulties with the national restrictions on imported goods or simply to get service, spare parts or upgrades.

Larger-scale investments in IT structure 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. This is particularly the case for transfer of software developed for particular tasks in other statistical organisations. Scheduling should take this into account. In particular, training activities should be scheduled so that one can be certain that required equipment and software installations are in place. When a project provides a software tool, clear guidance should be given on the necessary frequency and cost of future maintenance and adjustments.

The availability of efficient, quality equipment and software has a positive effect on staff morale, productivity, and quality of outputs. However, trained ICT staff are often sought-after by the private sector and may leave for more attractive jobs elsewhere. One consequence of this is that proper documentation of routines and set-up is critical.

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. The physical protection of a statistical institution - the actual location of the documents, computer records, microfiches, photographs and other materials – has to be considered. The virtual protection has to be also taken into account: - the electronic perimeter traced by the agency's internal communications system, which is presumably connected to its stores of individual data. A well-functioning firewall technology and encryption routines, as well as software for statistical disclosure control are also important.

D

Statistics for Policy issues

External trade

D.9

Part D: Statistics for Policy issues

D.9. External trade

Box 9.1: 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). The relationship between policy areas and statistics fields is presented in Box 4.5 (section B.4.3).

Chapter D.9 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.

D.9.1. 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[24] 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.
- 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.

24 Statistics on cross-border transactions recorded in the balance of payments

D.9.2. 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.12 Agricultural, forestry and fishing statistics and chapter D.13 Transport 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 9.2 outlines the method used by Eurostat to collect data on trade with non-EU countries and within the EU.

Box 9.2: 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[25]); 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[26], '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. 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

25 Monetary value of exports minus imports of goods and services
26 Trade in Goods and Services: Statistical Trends and Measurement Challenges (October 2001)

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.9.3. 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***[27]. Other data sources are central banks, the European Central bank being responsible for publication of Eurozone data.

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 defi-

27 The IMF balance of payments database requires subscription

nitions 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.9.4. 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[28].

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[29]. 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 9.3. This example is based on those which were used in comparison of trade statistics between EU and ***COMESA*** and among COMESA Member States.

28 as of November 2008

29 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 9.3: 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.9.5. 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 9.4 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 9.5 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 9.4: Case study: Terms of reference for installing 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 9.5: 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
UEMOA – summary data only
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

Government finance and public sector statistics

D.10

D.10. Government finance and public sector statistics

Box 10.1: 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.

D.10.1. 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.
- 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.

D.10.2. Concepts and definitions

D.10.2.1. 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)***.

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 pur-

poses 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.10.2.2. 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.10.2.2. 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 ***2010 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.10.2.3. 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 10.2: 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.10.2.2. 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 10.3: 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.18). 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 are more relevant: they present the relation of 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.10.3. 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 10.4: 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 5.10).

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.10.4. 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 10.5: 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.10.5. 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 10.6: 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:

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.

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.

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.

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.

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: *ESA 1995 and ESA95 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*

Business Statistics

D.11

D.11. Business statistics

Box 11.1: 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.13.) or agriculture, forestry and fishing (see chapter D.14.). 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.11.1. 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.11.2. 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.11.2.1. The main types of business statistics

D.11.2.1.1. 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 counties, 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.15.)

D.11.2.1.2. 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.11.2.1.3. 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.11.2.1.4. 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.11.2.2. 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 coordination 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.11.3. Sources of data

D.11.3.1. 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 11.2: 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 11.3: 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.11.3.2. 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 MEDSTAT countries in developing their statistical systems. Eurostat is also compiling key statistics based on international sources for Africa, the Caribbean and Pacific (ACP) and Asia and Latin America (ALA); these data are available to European Commission staff only, through Login on Eurostat's website (see section B.3.4.). However, business statistics data are limited for these countries.

D.11.4. Analysing data quality and identifying problems

D.11.4.1. 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 11.4: 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.11.4.2. 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.11.5. 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 11.5: 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 11.6: 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 (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*
The *UN Expert Group on Informal Sector Statistics (Delhi Group)*

Environmental Statistics

D.12

D.12. Environmental statistics

Box 12.1: 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. Please note that air quality and water quality are treated in a separate chapter, as are emissions of greenhouse gases (see chapter D.17 on sustainable development statistics and indicators).

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
- Water – statistics on emissions to water and water resources
- 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. This is reflected in the current chapter. Comments and suggestions for updates and improvements are appreciated ***(ESTAT-INTER-COOP@ec.europa.eu).*** To be informed of the most recent developments in this statistics domain, it is recommended to follow the references given throughout the chapter.

D.12.1. 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, help describe causes and effects of environmental conditions and make it possible to track implementation of environmental policies and to assess their efficiency. Environmental indicators can be measured and reported at different scales. For example, a town may track air quality along with water quality and count the number of rare species to estimate the health of the environment in their area. 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.

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 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.

Like other indicators they have to be interpreted in context and be complemented with country specific information to acquire their full meaning. 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:

A. Relevance to national environmental priorities;

B. Relation to international environmental policy;

C. Role as a means of communication for public awareness;

D. Measurability;

E. Availability of time series;

F. Predictive ability: capacity to track the effectiveness of pursued environmental policy.

Box 12.2: 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.12.2. Air – statistics on emissions to air and ozone depleting substances

D.12.2.1. Concepts and definitions

Key environmental indicators in this environmental sector are (*UNECE classification*):

A. Emissions of pollutants into the atmospheric air

B. Ambient air quality in urban areas (covered in chapter DXX which will be added in this guide in 2011))

C. Consumption of ozone-depleting substances

Indicators related to air emissions mainly concern sulphur dioxide (SO_2), nitrogen oxides (NO_x), ammonia (NH_3), particulate matter, carbon monoxide (CO), 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 accounting of the amount of pollutants discharged into the atmosphere. It usually contains the total emissions for one or more air pollutants, originating from all types of emission sources in a certain geographical area and within a specified time span, usually a specific year. Statistics used are the total emission volumes and the volumes broken down by economic activities as 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 energy transformation industry, (2) non-industrial combustion plants, (3) combustion in 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 km^2 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 burning of fuels, particularly petroleum products. In some countries, agriculture and burning of savannas are also important contributors, but estimating these emissions is difficult 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 not only for assessing pressure on atmospheric air quality in the country as a whole, but also for identifying pressure from particular sectors like energy, transport, industrial processes, agriculture and waste management.

Information on pollutant emissions is also necessary for the assessment of transboundary 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 the European level, the *IPPC Directive* concerning integrated pollution prevention and control sets out the main principles for the permitting and control of installations based on an integrated approach and the application of best available techniques (BAT), which 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 are those concerning the production and use of substances which deplete stratospheric ozone (ODS): total amount produced, sold or consumed in a country. The issue is to know whether and to what extent the emissions of ozone-depleting substances are reduced according to the schedule agreed at the international level by 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 amend-

ments of London, Copenhagen, Montreal and Beijing. The Montreal Protocol sets a target to eliminate the production and use of ODS.

D.12.2.2. Source 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***[30] acting under the CLRTAP and European Environment Agency 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, for instance, ENP East countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine), Kazakhstan and Kyrgyzstan.

In practice, two basic methods of emission inventory are generally applied in the EMEP guidebook: the first, detailed one is based on direct measurements of emissions, while the second is an estimation based on technological calculations through the use of surrogated statistics like data on production volumes, fuel and raw materials consumption. In this last case, the surrogated values are multiplied by an emission factor specific for each pollutant and each type of emission source.

Input data and statistics are usually collected at the city and regional levels before being aggregated at the 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 remains with:

- The information submitted by the companies for obtaining environmental permits of exploitation;
- The monitoring data on emissions measured by the companies themselves (self-monitoring) or by the institutions in charge of verifying the respect by the companies of national emission limit values.

As for the ozone depleting substances, data collection should cover substances in annexes A–C and E of the Montreal Protocol, whether existing alone or in a mixture. Data on production, imports and exports of ODS are generally collected annually by national statistical agencies and/or national focal points responsible for reporting under the Montreal Protocol.

The ***UNEP Ozone Secretariat*** has developed forms for reporting data under the Montreal Protocol, covering imports, exports, production, amounts destroyed and imports from and/or 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, based on data 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, among other methods. National figures are used directly, without adjustment.

To find out more…

- DG Environment: ***Air*** and the ***IPPC Directive on industrial emissions of air pollutants***
- ***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)

30 "European Monitoring and Evaluation Programme": Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe

D.12.3. Water – statistics on emissions to water and water resources

D.12.3.1. 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 (m^3) 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 requ***ires 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.12.3.2. 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 Fourth Assessment Report: Climate Change 2007.***

Household water use per capita can be determined based on the measured volume supplied mainly through the public water supply systems. Use of water by the population 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 has been collecting ***estimates of national average figures*** from governments as part of its water supply and sanitation monitoring activities, published by the WHO and UNICEF. The selected indicators provide information related to ***"Goal 7: Ensure environmental sustainability" of the MDGs,*** in particular with respect to whether Goal 7c "*Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation*" are being reached (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

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)

D.12.4. Waste – statistics on waste generation, movements of hazardous wastes, recycling and disposal

D.12.4.1.Concepts and definitions

Key environmental indicators in this environmental sector are (*UNECE classification*):

A. Waste generation

B. Transboundary movements of hazardous wastes

C. Waste reuse and recycling

D. 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 m^3 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.

Box 12.3: 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:

- Simple questionnaires completed by the driver/ collectors of waste
- Separation of waste at source in a "controlled" (i.e. school or hospital) environment
- 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:

- Composition of wastes from a given source
- Volume of each waste type
- Weight of each waste type
- 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 m^3/capita/day)

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.

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.12.4.2. 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.12.5. Biodiversity and protected areas

D.12.5.1. 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 ***Streamlining European 2010 Biodiversity Indicators (SEBI 2010)*** and its 26 indicators is a pan-European initiative, launched in January 2005 to develop appropriate indicators to assess achievement of the 2010 target at European level. Data are currently available for 22 of the 26 indicators.

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.12.5.2. 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 (UNCBD)*** and the ***International Year of Biodiversity 2010***
- ***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 ***'European Union's biodiversity action plan: Halting the loss of biodiversity by 2010 – and beyond'***
- EEA: ***European Topic Centre on Biological Diversity (ETC biodiversity), EUNIS diversity database*** and ***'Progress towards the European 2010 biodiversity target - indicator fact sheets'***
- ***Streamlining European 2010 Biodiversity Indicators (SEBI 2010)***
- Eurostat: ***Biodiversity statistics***
- European legislation: ***Birds Directive, Habitats Directive*** and Communication from the Commission ***Halting the loss of biodiversity by 2010 — and beyond***
- ***Pan-European Common Bird Monitoring Scheme (PECBMS)***

D.12.6. Land cover and land use statistics

D.12.6.1. 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.14. on agricultural, forestry and fishing statistics), in urban statistics to calculate population density (see chapter D.15. 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.17. 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 for ***Kyoto Protocol reporting on Land use and Land Use Change and Forestry***) down to more than 80 LC/LU types for biotope/habitat mapping (e.g. ***EUNIS European Nature Information System Habitats*** 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 multipurpose 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.12.6.2. 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***"[31] is a reference for further reading on land information methodologies, data collection approaches and survey methods.

Box 12.4: Examples of Land Information Systems

GlobCover is an ESA initiative in partnership with JRC, EEA, FAO, UNEP, GOFC-GOLD and IGBP. The ***GlobCover project*** has developed a service capable of delivering global composite and land cover maps, using as input observations from the ENVISAT satellite mission. The ***GlobCover Portal*** provides access to 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 ***GEO Data Portal*** 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 ***450 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*** is establishing a digital geo-referenced database on land cover and a geographic referential for the whole of Africa, including geodetical homogeneous referential, toponomy, roads and hydrography, in the ***Multipurpose Africover Database for the Environmental Resources (MADE)***. The core strategy of Africover is 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.

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[32]: ***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)***

31 Currently under revision

32 A focal point on land cover/use statistics has been created in Eurostat with the mandate to revise and harmonize existing sources in EU. In this framework a dedicated secion of the website on LUCAS is going to be set up and an amended version of the manual is foreseen.

D.12.7. 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. In principle, all these institutions, at all levels from local to national, have or should have developed their own procedures to ensure quality 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 input data: for example, for waste, the role of the sampling personnel is important as their capabilities directly influence the accuracy of the results e.g. lack of understanding about segregation or contamination of samples during sampling, transportation and analysis in the laboratory can significantly affect the results. It would be an asset to use certified and trained personnel for sampling, especially when samples for laboratory analysis are being obtained.
- Representativeness and completeness: the indicator integrates all input data needed in terms of e.g. spatial and time coverage, of relevant activities to be considered. For example, emission inventories will cover all SNAP sectors.
- 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.
- Comparability: this is ensured by using similar as well as international standards. The use of standardized methods as far as feasible (depending on costs and complexity) ensures 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 reference year. Lacking traceability and documentation may limit data quality and comparability.

Thus, quality control procedures covering the different aspects related to these criteria should be developed and implemented at the different levels of the data chain, from 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 12.5, where 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.12.2.

Box 12.5: 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.12.8. Improving sector statistics

As mentioned earlier, more than one institution is involved throughout the process of evaluating environmental 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 for:

- 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 12.6: 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 12.7 below, could be used as reference and basis.

A 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.

Box 12.7: EEA Core Set of Indicators (CSI) - selected areas

Air pollution

- *CSI 001 - Emissions of acidifying substances*
- *CSI 002 - Emissions of ozone precursors*
- *CSI 003 - Emissions of primary particles and secondary particulate matter precursors*
- *CSI 004 - Exceedance of air quality limit values in urban areas*
- *CSI 005 - Exposure of ecosystems to acidification, eutrophication and ozone*

Biodiversity

- *CSI 008 - Designated areas*
- *CSI 009 - Species diversity*
- *CSI 007 - Threatened and protected species*

Terrestrial

- *CSI 014 - Land take*
- *CSI 015 - Progress in management of contaminated sites*

Waste

- *CSI 017 - Generation and recycling of packaging waste*
- *CSI 016 - Municipal waste generation*

Water

- *CSI 022 - Bathing water quality*
- *CSI 023 - Chlorophyll in transitional, coastal and marine waters*
- *CSI 020 - Nutrients in freshwater*
- *CSI 021 - Nutrients in transitional, coastal and marine waters*
- *CSI 019 - Oxygen consuming substances in rivers*
- *CSI 024 - Urban waste water treatment*
- *CSI 018 - Use of freshwater resources*

The CSI also covers the areas Agriculture, Climate change, Energy, Fisheries and Transport.

Box 12.8: 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 resulted in a ***proposal for a Regulation on European environmental economic accounting*** in spring 2010. 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, Revised European Strategy for Environmental Accounting***
European Environment Agency (EEA): ***Fast track implementation of simplified ecosystem capital accounts for Europe*** - history of environmental accounting
World Conservation Union - 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"
Shuchi Pahuja: ***Environmental Accounting and Reporting: Theory, Law and Empirical Evidence***

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 *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 *'Guidelines for the application of environmental indicators in Eastern Europe, Caucasus and Central Asia'* (2007)
UN Commission on Sustainable Development (UNCSD)
UN Statistics Division (UNSD): *Environmental indicators* and the *Millennium Development Goals database*
United Nations Environment Programme (UNEP)
World health Organization (WHO): *Environment and health information system*

Other sources

Organisation for Economic Co-operation and Development (OECD): *Environmental statistics* , *data and indicators* and *'Key Environmental Indicators' (2008*)
Convention on Biological Diversity (CBD)
European Environment Agency (EEA) Core Set of Indicators

Transport Statistics

D.13

D. 13. Transport statistics

Box 13.1: 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.9.).

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 and Box 4.5 (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.13.1. 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 13.2: 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.13.2. 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 13.3: Data collections for transport statistics in the EU

Main legal acts on transport statistics

Council Regulation (EC) Nº 1172/98 on statistical returns in respect of carriage of goods by road;
European Parliament and Council Regulation (EC) Nº 91/2003 on rail transport statistics;
European Parliament and Council Regulation (EC) Nº 437/2003 on statistical returns in respect of carriage of passengers, freight and mail by air;
Council Directive Nº 95/64/EC on statistical returns in respect of carriage of goods and passengers by sea;
European Parliament and Council Regulation (EC) Nº 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.13.3. 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 13.4: 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
  - o Achieve agreements with data providers
  - o Implement tools to ensure access to data needed
- Development of methodologies for the production of requested statistics
  - o Collection of documentation on best practices
  - o 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 13.5: 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. These are available through the ***AICD Document Library***. 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 ***Programme for Infrastructure Development in Africa (PIDA***) (2010).

D.13.4. 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 13.6: 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):

$$Deviation_{Mirror} = \frac{\left|Pax_{country\ A} - Pax_{country\ B}\right|}{\left(\frac{Pax_{country\ A} + Pax_{country\ B}}{2}\right)} \times 100$$

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.13.5. 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 13.7: 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 13.8: 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, :
Weighting factor =
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

Agricultural, Forestry and Fishing Statistics

D.14

D.14. Agricultural, forestry and fishing statistics

Box 14.1: 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.14.1. 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.9);
- 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.12.);
- 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.14.2. 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.12.) or statistics on rural development (see chapter D.15.). 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.14.2.1 to section D.14.2.7 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.14.2.1 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) Nº 138/2004***, amended by ***Regulation (EC) No 212/2008***).

The EAA is a satellite account to the national accounts (***European System of Accounts - ESA95***), 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 11.5 in chapter D.11; a strategy for assessing non-observed agricultural activities in the national account setting is outlined in Box 14.2 below:

Box 14.2: 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:

- Identify an appropriate conceptual and analytical framework for assessing the non-observed sector;
- 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;
- 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;
- 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;
- 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.14.2.2. 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.14.2.3 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[33], 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 11.5 in chapter D.11).

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.12);
- 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.

33 More information on the development of farm registers is available in the "Global Strategy to Improve Agricultural and Rural Statistics".

D.14.2.4 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 2001* 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.14.2.5 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.12.6) 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 (*European System of Accounts - ESA 1995*), and provide complementary information to the ESA95. 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.14.2.6 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.17) 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 in a development stage where concepts and definitions of a proposed list of indicators are being fixed. The resulting system of agri-environmental indicators should monitor the integration of environmental concerns into agricultural policy. There are also further efforts required for conceptual and methodological improvement of existing indicators and for collection of the necessary data. In the framework of this development, there is for the moment a focus on collection of data on fertilisers, nutrient (N, P) balances, plant protection products/pesticides, and landscape indicators.

D.14.2.7 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'***

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 14.3: 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
  - Agricultural output (million EUR) – of which crop output and animal output in %;
  - Gross value added at basic prices (million EUR);
  - Agricultural input expressed as total intermediate consumption (million EUR);
  - Agricultural income – Indicator A (% change on previous year).
- Farm structure
  - Holdings – number (of which UAA < 2ha, ESU < 1, holder < 35 years, holder > 64 years, each in %) and UAA per holding in ha;
  - Labour force – persons in holdings of more than 1 ESU (of which holders and women in %), agriculture as % of total employment.

D.14.3. 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 14.4).

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 14.4: 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.14.4. 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 11.5 and Box 14.2). 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 georeferenced 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.12.6.)

Box 14.5: 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.

D.14.5. 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 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.

Box 14.6: 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)
Fifth International Conference on Agricultural Statistics (ICAS-V): Integrating Agricultural Statistics into National Statistical Systems
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***
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)

Regional and Small Area Statistics

D.15

D.15. Regional and small area statistics

Box 15.1: The chapter in brief

This chapter covers information on how to develop regional and small area statistics relevant to the European Commission development co-operation. 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.

D.15.1. 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.

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 ***SDI (Spatial Development Initiative)*** 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.

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 15.6). 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.15.2. 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. The most recent amendment, ***Regulation (EC) No 176/2008***, followed the accession of Bulgaria and Romania to the EU.

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 15.2).

Box 15.2: 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 15.3 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 15.4: Small areas below NUTS 3 level – SIRE database

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.11 Business statistics, chapter D.14 Agricultural, forestry and fishery statistics, chapter D.18 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 15.5: 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.15.3. 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 15.6).

Box 15.6: 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 ***Interreg III***. 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.15.4. 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.

D.15.5. 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. 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.

To find out more…

Regional statistics

SDI (Spatial Development Initiative) 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 2009 (SAE2009)

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)
European Environment Agency (EEA) Core Set of Indicators

Information on spatial (regional) data in developing countries

Global Spatial Data Infrastructure Association - GSDI, newsletters (*Africa*, *Asia*, *Latin America and Caribbean)*

Justice and Crime Statistics

D.16

D. 16. Justice and Crime Statistics

Box 16.1: 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.***

D.16.1. Policy applications

D.16.1.1. 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.[34] 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 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.

34 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.

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 throughput information, monitoring case outcomes and conducting victim surveys.

D.16.1.2. 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.16.1.3. 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 16.2: 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.16.4.) 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.16.3.). 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.16.5.).

Box 16.3: 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.16.2. 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 members states to prevent and combat terrorism, unlawful drug trafficking and other serious forms of organised crime.

D.16.3. 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.16.4. below).

D.16.4. 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.16.5. 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:

- Everyone has the right to the protection of personal data concerning him or her.
- 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

- 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 Statistic

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 Surveys Questionnaire, 2006
European Crime and Safety Survey (EU ICS); a comparative analysis of the EU ICS 2005 survey is presented in '***The Burden of Crime in the EU***'
Victimisation Surveys in Comparative Perspective by K. Aromaa and M. Heiskanen (HEUNI)
Wetenschappelijk Onderzoeken Documentatiecentrum (WODC):
Criminal Victimisation 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 (eight edition)***
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
Criminal Justice Systems in Europe and North America 1995-1997
Criminal Justice Systems in Europe and North America 1990-1994
Global Report on Crime and Justice by G. Newman (Ed.), Oxford University Press
Eurostat:
Crime and Criminal Justice (Statistics in Focus 36/2009)
Crime and Criminal Justice (Statistics in Focus 19/2008)

Sustainable Development Indicators

D.17

D.17. Sustainable Development Indicators

Box 17.1. The chapter in brief

This chapter describes the meaning of sustainable development and the statistical steps necessary to define a set of Sustainable Development Indicators (SDIs). 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 D17.5 on building a statistical action.

As SDIs are a cross-cutting theme, a detailed description of data sources is largely unnecessary because they would overlap with other modules; see e.g. chapter D.12 on environmental statistics, chapter D.13 on transport statistics and chapter D.18 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 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.

D.17.1. Policy applications: what these indicators are used for

The most well-known definition of sustainable development comes from the United Nations World Commission on Environment and Development (WCED) (also known as the 'Brundtland commission') in its report '***Our common future***' (1987): "... development which meets the needs of the present without compromising the ability of future generations to meet their own needs". In other words, progress aiming at a better quality of life for everyone, both now and in the future. Sustainable development integrates immediate and longer-term objectives and actions, both at local and global level and seeks a balance between social, economic and environmental issues.

The ***United Nations Commission on Sustainable Development (CSD)*** is the high-level forum for sustainable development within the United Nations system. It was 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 is responsible for reviewing progress in the implementation of the ***Rio Declaration on Environment and Development*** (1992) and ***Agenda 21*** (1992), the action plan for global, national and local actions by the United Nations system, governments, local administrations and major groups in every area where humans impact on the environment. The CSD also provides policy guidance to follow up the ***Johannesburg Plan of Implementation (JPOI)*** (2002) at the local, national, regional and international levels.

At the European level, the 2006 ***EU Sustainable Development Strategy (EU SDS)*** sets out a single, coherent strategy on how the EU will more effectively meet the challenges of sustainable development. It reaffirms the overall aim of achieving a continuous improvement in the quality of life of citizens through sustainable communities that manage and use resources efficiently and tap the ecological and social innovation potential of the economy, ensuring prosperity, environmental protection and social cohesion.

Measuring progress towards sustainable development is a key aspect of international, European and national sustainable development strategies. 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 at all levels to adopt sound national sustainable development policies. The Johannesburg Plan of Implementation and the CSD encouraged further work on indicators for sustainable development by countries, in line with their specific conditions and priorities. CSD invited the international community to support efforts of developing countries in this regard.

Eurostat plays a leading role in providing indicators and monitoring to what extent the EU is on track to achieving the concrete goals set out in the EU SDS. To this end, Eurostat has developed an ***EU set of sustainable development indicators (EU SDIs)***, on the basis of which Eurostat every two years publishes a ***Monitoring Report*** which underpins the Commission communication to the Council and the European Parliament.

D.17.1.1 What is sustainable development?

'Sustainable development is a normative concept, rather like 'justice' or 'democracy'. The general meaning of the concept is clear, but there is no simple definition of it. In its report '***Our common future***' (1987) (also known as the 'Brundtland report'), the World Commission on Environment and Development 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 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. This requires policy changes in all countries, with respect both to their own development and to their impacts on other nations' development possibilities.

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.

The ***UN Commission on Sustainable Development (CSD)*** was established to review progress in the implementation of Agenda 21 and the Rio Declaration on Environment and Development. The role of the CSD as a high level forum on sustainable development also includes providing policy guidance to follow up the Johannesburg Plan of Implementation at the local, national, regional and international levels. The CSD has opened its annual sessions to broad participation from both governmental and non-governmental actors. CSD promotes dialogue and build partnerships for sustainable development with governments, the international community and the major groups identified in Agenda 21 as key actors outside the central government who have a major role to play in the transition towards sustainable development. These major groups include women, youth, indigenous peoples, non-governmental organizations, local authorities, workers and trade unions, business and industry, the scientific community, and farmers.

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.17.1.2 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.

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.17.3.3. below, together with the practical application of this in Argentina (see Box 17.4). 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 ***Sustainable development in the European Union - 2009 monitoring report of the EU sustainable development strategy*** 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.17.2 Concepts and definitions

D.17.1.2 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 12.2 in chapter D.12 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.17.2.2 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.17.3 .Sources of data and metadata

D.17.3.1. United Nations (CSD) sustainable development 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 contains 96 indicators, including a subset of 50 core indicators (presented in Box 17.2 below.) The larger indicator set allows for a more comprehensive and differentiated assessment of sustainable development by countries. The CSD indicators are placed in a framework of themes and sub-themes.

The CSD core indicators fulfil three criteria:

- They cover issues that are relevant for sustainable development in most countries;
- They provide critical information not available from other core indicators;
- They can be calculated by most countries with data that is readily available or could be made available within reasonable time and costs.

Box 17.2: 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

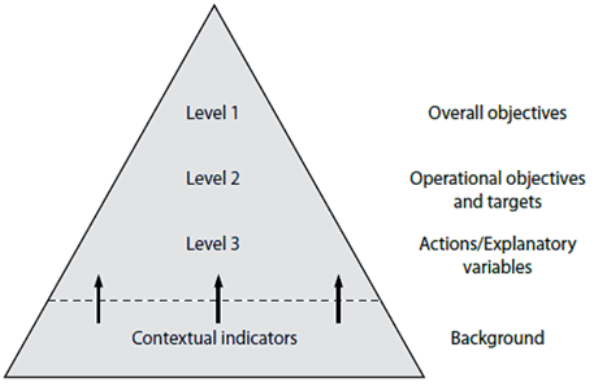
D.17.3.2. EU Sustainable Development Indicators

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 - 2009 monitoring report***. Out of more than 100 indicators, eleven 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 17.3 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 17.3: EU headline sustainable development indicators, by theme

Socioeconomic development
- Growth rate of real GDP per capita

Sustainable consumption and production
- Resource Productivity

Social inclusion
- At-risk-of-poverty rate, by gender

Demographic changes
- Employment rate of older workers

Public health
- Healthy life years and life expectancy at birth, by gender

Climate change and energy
- Greenhouse gas emissions
- Share of renewables in gross inland energy consumption

Sustainable transport
- Energy consumption of transport relative to GDP

Natural resources
- Common bird index
- Fish catches taken from stocks outside safe biological limits

Global partnership
- Official Development Assistance as share of gross national income

Good governance
- No headline indicator

D.17.3.3. 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 17.4 is a good example of a national adaptation

Box 17.4: 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 SISDA 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 17.5:

Box 17.5: 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.17.4. 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 profile system developed by Eurostat for the EU SDIs*** 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 profiles framework is generic and focused on common key quality criteria for indicators, it is straightforward to adapt and implement in any statistical system, both in developing and developed countries.

Box 17.6. Eurostat's Quality profiles for EU SDIs

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 comparability

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.17.5. Improving sector statistics

D.17.5.1. 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.17.5.2. 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.17.3.2.) 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 profile system developed by Eurostat for the EU SDIs*** 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

- United Nations: ***Indicators of Sustainable Development - Guidelines and Methodologies*** (1997)
- Eurostat: ***Sustainable development in the European Union - 2009 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 report of the Sustainable Development Indicators Task-Force***, 57th Meeting of the Statistical Programme Committee CPS 2005/57/20
- Examples of national frameworks: ***Argentina***, ***Vietnam*** and ***South Africa***
- A ***list of sustainable development indicators and policies in EU Member States, selected other countries and inn international organisations*** is given on ***Eurostat's SDI website***

Policy documents

- World Commission on Environment and Development: ***Our Common Future*** (1987); (a ***user-friendly HTML version of the 'Brundtland Report'*** is available on the 'World in Balance' website)
- United Nations Conference on Environment and Development: ***Rio Declaration on Environment and Development*** (1992) 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: ***Mainstreaming Sustainable Development into EU Policies: 2009 Review of the European Union Strategy for Sustainable Development***; Communication COM(2009) 400

Other resources

- United Nations ***Division for Sustainable Development;*** contains ***Case studies*** and ***Databases***
- United Nations ***Commission on Sustainable Development (CSD)***
- Eurostat: ***Sustainable Development Indicators (EU SDI)***
- OECD: ***Development Co-operation Directorate (DCD-DAC)*** and ***Sustainable development***
- United Nations Development Programme and United Nations Environment Programme: ***Poverty-Environment Initiative (PEI)***
- DG Environment: ***Sustainable Development***

Social Protection

D.18

D.18. Social Protection

Box 18.1: 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.18.1. 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[35].

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;
- 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.

35 Together with fundamental principles and rights at work, decent and productive employment, and social dialogue.

- 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[36].
- 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

D.18.2. 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.18.2.1. 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 18.2 lists the social risks or needs defined in the European ESSPROS survey, based on administrative data. In addition, the example in Box 18.2 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

36 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.

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. 18.2.2. Content of the functions

Box 18.2 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 adaption 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). The ***differences between these systems*** show some differences in the classification of benefits by risks and needs. The systems, with corresponding data bases are:

- **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.
- **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.
- 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.18.2.3. 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.18.2.4. 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 18.2 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 18.2: 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.18.3. 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.18.4.3 'Household surveys' below;
- An estimate of the post-transfer poor, see D.18.4.3 'Household surveys' below;
- An estimate the reduction in inequality that is attributable to the redistributive effect of the social protection system, see D.18.4.3 'Household surveys' below.

D.18.4. 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 ***7 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.18.4.1. 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 (ESA95)*** (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.18.4.2. and section D.18.4.3. respectively.

D.18.4.2. 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.18.4.3. 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.[37]

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[38].

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.

D.18.5. 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;

37 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.

38 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.

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:

- 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.
- Aim at producing as far as possible the statistics and indicators listed in section D.18.3. 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;
- 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;
- Most of the action that should be taken is implied in the comments on data quality in those descriptions. Additional considerations are mentioned below;
- 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.

D.18.5.1. 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.18.5.2. 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.18.5.3. 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 multipurpose 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.18.5.4. 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***

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***

Index

Index

A

absorption capacity 69, 129

Accelerated Data Programme (ADP) 37, 89, 90

accessibility 46, 89, 96, 97, 98, 165, 176, 186, 266

accidents 201, 202, 203, 255

accountability 24, 32, 34, 35, 37, 38, 47, 65, 68, 71, 87, 118, 119, 164, 165, 167, 269, 270

accounting standards 160, 163, 167, 266

Accra Agenda for Action (AAA) 34, 37, 65, 71, 87

accrual basis 159, 165

accuracy 46, 48, 96, 97, 98, 100, 176, 194, 220, 232, 255, 256, 257, 266, 267

activity monitoring 88

adequacy of resources 45, 94, 96, 240

administrative data 47, 48, 49, 51, 79, 89, 165, 166, 174, 178, 203, 221, 232, 262, 268

administrative reform 129, 165, 229

administrative regions 202, 228, 229, 232

administrative register 47, 203, 230

administrative sources 49, 53, 54, 163, 166, 171, 174, 178, 180, 202, 207, 208, 231

administrative unit 228, 229, 230, 233

advocacy 32, 35, 87, 103, 104, 118, 139

Afghanistan 109

Africa 23, 34, 36, 37, 39, 40, 46, 58, 61, 62, 70, 72, 106, 107, 108, 115, 116, 120, 150, 151, 155, 163, 165, 176, 187, 192, 193, 196, 201, 204, 210, 214, 220, 221, 227, 232, 233, 237, 249, 258, 270

Africa Infrastructure Country Diagnostic (AICD) 204, 210

Africa, Caribbean and Pacific (ACP) 23, 34, 36, 37, 39, 40, 46, 58, 61, 62, 68, 70, 72, 89, 106, 107, 108, 113, 115, 116, 118, 119, 120, 136, 150, 151, 153, 155, 163, 165, 176, 187, 192, 193, 196, 201, 204, 210, 214, 220, 221, 227, 230, 232, 233, 237, 249, 258, 270

African Centre for Statistics (ACS) 58

African Charter on Statistics 39, 46

African Development Bank (AfDB) 37, 61, 70, 165, 204

African Development Fund (AfDF) 70

African Statistical Commission 34

African Statistical Coordination Committee 34

African Statistical Development Symposium 34

African Union (AU) 46, 61, 120, 121, 201, 227, 230, 231, 233

Africover 193, 220

Afristat 62, 138

Agenda 21 218, 247, 248, 249, 250, 252, 254, 255, 257, 258

agricultural census 58, 79, 128, 129, 216, 222, 223

agricultural holding 216, 217

Agricultural Labour Input (ALI) 214

agricultural policy 193, 214, 215, 216, 217, 218, 219

Agricultural Price Statistics (APS) 34, 35, 37, 58, 109, 213, 215

agricultural production 72, 191, 213, 215, 216, 217, 220, 221, 222

agricultural production statistics 213, 217, 220

agricultural sector 214, 215, 216, 252

agricultural statistics 58, 116, 180, 213, 216, 222, 223

agricultural structures 213, 216

agricultural survey 216, 222

agricultural, forestry and fishing statistics 25, 58, 72, 79, 95, 116, 128, 129, 130, 145, 180, 191, 192, 193, 209, 211, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 230, 248, 252, 255

agriculture, forestry and fisheries 25, 26, 38, 39, 43, 49, 54, 56, 58, 68, 70, 72, 79, 115, 119, 120, 121, 134, 171, 180, 184, 185, 187, 189, 191, 195, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 227, 230, 251

agri-environmental indicator 191, 213, 218

agri-environmental statistics 218

agri-monetary statistics 213

AGRIT 192

aid allocation 55, 68

aid dependency 69

aid effectiveness 32, 34, 37, 38, 68, 109

AIDS 31, 38, 69, 76, 251, 264

air pollutants 184, 185, 251

air quality 183, 184, 195, 251

air transport 204, 205, 206, 207

airports 203, 204, 205, 206, 207

Andean Community of Nations (CAN) 61, 120

Angola 118

anonymisation 89

aquaculture 218, 220

AQUASTAT 187, 220

area frame survey 192, 193

Argentina 192, 249, 253, 254, 258

ARIMA 175

Armenia 185

artificial capital 250

Asia 26, 39, 58, 61, 72, 93, 94, 106, 115, 116, 155, 176, 197, 201, 233, 270

Asia and Latin America (ALA) 26, 39, 72, 89, 92, 93, 115, 116, 176

Asian Development Bank (ADB) 61, 167

assessment methodology 92, 97

Assessment of Statistical Training (ASTRA) 136

Association of South East Asian Nations (ASEAN) 61, 120, 134, 155

ASYCUDA 58, 151, 155

asymmetries 148, 205

attributions 68

availability 33, 36, 48, 57, 61, 70, 75, 87, 88, 93, 96, 98, 99, 108, 113, 129, 140, 148, 159, 163, 164, 173, 183, 184, 186, 196, 205, 231, 241, 249, 256

Azerbaijan 185

B

Balance of Payments (BOP) 25, 54, 56, 58, 72, 77, 79, 93, 98, 145, 146, 147, 148, 150, 155, 219

balance sheet 161, 163, 217, 219

Balkans 151

Bangladesh 264

Bank of Central African States (BEAC) 61

base year 57, 88, 175

Basel Convention 189, 190

Belarus 185

Belgium 229

benchmarking§ 47, 48, 65, 87, 164, 174, 268

beneficiaries 65, 66, 87, 110, 118, 127, 129, 130, 132, 140, 166, 261, 264, 265, 266, 267

benefit level 262, 263

best available techniques (BAT) 184

biodiversity 76, 183, 184, 190, 191, 195, 218, 249, 251

Birds Directive 190, 191

birth rate 77

Bosnia and Herzegovina 188

Botswana 53, 121, 196

Broad Economic Classification (BEC) 147

Brundtland commission 247

Brundtland report 247, 258

budget compilation 159, 166, 167

budget support 25, 36, 39, 68, 71, 78, 109, 115, 116, 118, 119, 126, 165, 269

budget unit 159, 163, 164, 165, 166

Bulgaria 229

Bureau of Transportation Statistics (BTS) 203, 210

Burkina Faso 118, 137, 192

Burundi 119

business demography statistics 171, 173, 175, 180

business investment 171

business register 47, 79, 109, 173, 174, 175, 178, 179, 180, 209

business services 147, 171, 173

business services statistics 173

business statistics 25, 79, 116, 169, 171, 172, 173, 174, 175, 176, 177, 178, 180, 202, 230

business survey 79, 121, 173, 174, 177, 180

C

Cameroun 53

candidate and potential candidate countries (CPC) 72, 115, 176, 172, 202, 230

capacity assessment 34, 107

capacity building 24, 34, 35, 36, 37, 47, 55, 58, 90, 92, 95, 97, 103, 106, 107, 108, 109, 114, 115, 117, 118, 119, 120, 125, 126, 127, 128, 129, 130, 132, 133, 136, 137, 139, 161, 237

capture fisheries 218

CARDS 166, 188

cargo 202

Caribbean 46, 58, 61, 72, 106, 115, 116, 151, 176, 233, 249, 253, 270

Caribbean Community and Common Market (CARICOM) 61, 120, 155, 270

cash basis 159, 160, 163, 165

cash surplus/deficit 162

cash transfers 264, 265

Catalytic Fund 109

census 25, 34, 35, 36, 37, 46, 48, 49, 52, 53, 57, 58, 77, 79, 89, 97, 106, 110, 114, 117, 119, 128, 129, 130, 131, 137, 139, 155, 179, 180, 203, 213, 216, 222, 223, 230, 269

Census Trust Fund 34

Center on Emission Inventories and Projections (CEIP) 185

Central African Economic and Monetary Community (CEMAC) 61, 120

Central America

Central Asia 93, 94, 197

Central Bank of West Africa (BCEAO) 61

Central Product Classification (CPC) 72, 172, 202

checklist 88, 97, 107, 125, 126, 127, 132, 152

chief statistician 93

child mortality 31, 69, 70

children's rights 38

Chile 196

China 155, 192

civil law 237

clarity 46, 96, 266

Classification of Products by Activity (CPA) 202

Classification of the Functions of Government (COFOG) 162, 266, 267

classifications 43, 45, 52, 54, 55, 57, 58, 60, 61, 87, 88, 90, 92, 95, 96, 97, 109, 119, 137, 147, 148, 150, 154, 155, 162, 163, 165, 172, 175, 180, 191, 202, 205, 210, 216, 219, 220, 222, 227, 229, 231, 232, 266, 269, 270

climate change 51, 185, 187, 191, 195, 217, 218, 221, 248, 249, 251, 253

Club of Rome 196

Code of Practice 44, 45, 46, 47, 93, 95, 96, 104, 240, 266

coherence 24, 46, 52, 71, 96, 103, 126, 128, 129, 133, 137, 194, 207, 232, 266

Combined Nomenclature (CN) 147, 190, 191

COMEXT 72, 152

Commission aid cycle 23

Commission on Sustainable Development (CSD) 197, 247, 248, 249, 250, 251, 254, 258

Commission Strategy for Central Asia 94

Common Agricultural Policy (CAP) 58, 109, 140, 219, 221

Common Fisheries Policy (CFP) 218, 219

common law 237, 239

Common Market for Eastern and Southern Africa (COMESA) 61, 120, 134, 140, 148, 149, 150, 155

Community Statistical Programme 116

Comoros 120

comparability 46, 48, 55, 60, 61, 75, 89, 95, 96, 114, 120, 146, 159, 175, 176, 178, 194, 205, 228, 231, 232, 255, 256, 257, 266

competitiveness 70, 172, 201, 227, 228

completeness 165, 194, 216, 220, 221, 232, 266

composite indicator 257

Computer Assisted Personal Interviews (CAPI) 221

COMTRADE 56, 147, 148, 155, 175

conceptual framework 149, 205, 250, 253, 254, 263, 264

confidentiality 36, 45, 46, 47, 48, 51, 94, 96, 109, 126, 140, 174, 180, 240, 242

conflict prevention 38, 39, 79

consistency checks 207, 221

consolidation 115, 139, 163

construction 79, 107, 139, 147, 172, 174, 175, 189, 222, 261

construction statistics 79

Consumer Price Index (CPI) 49, 57, 77, 87, 98 , 145, 270

consumption 26, 49, 57, 75, 76, 77, 79, 166, 184, 185, 187, 190, 196, 201, 202, 203, 208, 214, 218, 219, 239, 251, 252, 253, 255, 261

context indicator 71

contextual indicator 252

Convention for the Protection of Individuals with Regard to the Automatic Processing of Personal Data 243

Convention on Biological Diversity (CBD) 190, 191, 197

Convention on Long-Range Transboundary Air Pollution (CLRTAP) 184, 185

Convention on the Protection and Use of Transboundary Watercourses and International Lakes 186

cooperation intervention 71

cooperation strategy 69, 70, 94

Coordinating Working Party (CWP) 218, 223

Coordination of Information on the Environment (CORINE) 192, 193

core indicator set 87

Core Inventory of Air emissions (CORINAIR) 185

Core Set of Indicators (CSI) 195, 197, 214, 233

Core Welfare Indicator, Questionnaire (CWIQ) 58, 268

corruption 33, 87, 150, 251

cost effectiveness 46, 96

Cotonou Agreement 39, 65, 68, 69

countries in transition 165, 220

Country Assistance Strategy (CAS) 70, 192, 193, 223

country at a glance 71, 72, 87, 88, 90

Country Environmental Profile (CEP) 155, 195

Country Financial Accountability Assessment (CFAA) 165, 167

Country Statistical Situation Report (CSSR) 95, 99

country strategies 31, 70, 72, 87, 113, 195

Country Strategy Paper (CSP) 31, 87, 97, 115, 128, 133, 195

Countryside Survey 192

CountrySTAT 219, 220, 223

credibility 45, 65, 94, 96, 150, 164, 207, 221

crime statistics 25, 79, 237, 238, 239, 240, 241, 242

Crime Trends and Operations of Criminal Justice Systems (CTS) 239, 243

criminal act 239, 241, 242

Criminal Justice Assessment Toolkit (CJAT) 243
criminal justice systems 237, 239, 243
crops 214, 216, 217, 218, 219, 221, 222
cross-border regions 228, 231
cross-checking 47, 177, 194, 241
cross-country comparisons 51, 87, 184
current account 146, 252
customs 47, 53, 54, 58, 79, 94, 120, 145, 146, 147, 148, 149, 150, 151, 152, 153, 185, 189, 201, 227, 237, 241
customs declaration 146, 150
customs union 120, 146, 147, 227
cybercrime 241

D

DAC Joint Venture on Managing for Results 34
Dakar Declaration on Development of Statistics 37
data availability 70, 75, 88, 93, 99, 163, 196, 205, 256
data collection methods 131, 208, 219, 220, 221
data processing 55, 58, 95, 119, 127, 128, 130, 137, 192, 232
data producers 52, 53, 89, 98, 139
data quality 24, 58, 90, 92, 95, 97, 98, 99, 100, 128, 130, 148, 150, 163, 164, 174, 176, 187, 194, 205, 220, 222, 231, 255, 269, 270
Data Quality Assessment Framework (DQAF) 58, 95, 97, 98, 99, 150, 155
data sources 47, 49, 55, 60, 77, 87, 88, 90, 114, 147, 148, 155, 166, 178, 180, 208, 210, 223, 247, 250, 257, 261, 266, 268, 269
data transfer 134
Database on International Statistical Cooperation (DISC) 99, 110, 115, 116, 117
debt 32, 58, 62, 68, 77, 98, 145, 159, 161, 162, 163, 164, 167, 249, 252, 255
debt management 58, 159, 161
Debt Management and Financial Analysis System (DMFAS) 58, 161
debt reduction 32
decent work 58, 76, 261
Decent Work Agenda 261
decision makers 32, 51, 54, 61, 97, 100, 103, 104, 106, 114, 118, 219, 247, 249
decision making 24, 32, 34, 35, 38, 65, 94, 100, 104, 108, 113, 114, 119, 135, 136, 139, 213, 248 252, 255, 257, 262
Declaration on professional ethics for statisticians 46
deforestation 217, 220, 221
Delhi Group 178, 180
demand for services 171, 173
demand for statistics 24, 31, 35, 39, 52, 90, 106, 118, 136
democracy 25, 32, 38, 79, 247
Democratic Republic of Congo 109, 139, 192
Demographic and Health Surveys (DHS) 49, 77, 268
demographic data 88, 98, 163
demographic statistics 77, 98
descriptive statistics 43
desertification 186, 201, 221, 222, 251
development aid process 24, 63, 65, 75
development assistance 31, 34, 37, 99, 115, 145, 252, 253
Development Cooperation Financial Instrument (DCI) 68, 69
development cooperation 23, 25, 31, 38, 51, 55, 60, 68, 87, 90, 97, 114, 115, 116, 120, 140, 183, 195, 197, 227, 258, 261, 264
development cycle 68
development goals 23, 24, 31, 34, 35, 37, 38, 51, 55, 56, 69, 72, 75, 76, 79, 90, 120, 197, 201, 248, 254
development outcomes 32, 33, 34, 77, 89
development partners 24, 25, 31, 32, 51, 56, 77, 87, 91, 109, 110, 113, 115, 125, 165, 204
development planning 35, 159, 165, 180, 248
development policy 31, 38, 54, 55, 103, 109, 128, 227, 261
development statistics cooperation 115
Devinfo 137
DG Environment (ENV) 185, 187, 190, 191, 193, 197, 223, 258
disaggregation 96, 117, 150, 265
documentation 35, 88, 89, 96, 99, 104, 107, 108, 130, 137, 140, 146, 153, 194, 203, 231, 232
domestic debt 161
domestic violence 238
donor coordination 35, 91, 109
donors 31, 32, 34, 35, 36, 37, 38, 55, 65, 68, 70, 87, 109, 115, 119, 129, 136, 165, 171, 174, 176, 232, 269
driving forces 183, 184, 249, 250
Driving Forces-Pressures-State-Impacts-Response (DPSIR) 184, 249
drugs 237, 239, 243, 264
duplication 24, 52, 91, 103, 109, 217, 267

E

Earth Summit 247, 256
ecological footprint 257
e-commerce 146

economic accounts 26, 79, 213, 214, 215, 217, 219, 230, 231

Economic Accounts for Agriculture (EAA) 213, 214, 215, 217

Economic Accounts for Forestry (EAF) 217

economic activities 55, 171, 172, 173, 174, 175, 177, 180, 184, 186, 187, 189, 202, 194, 202, 251, 252, 265

Economic Community of West African States (ECOWAS) 61, 120, 155, 180

economic data 55, 87, 88, 98, 120, 173, 177, 222

economic development 52, 171, 172, 174, 176, 184, 201, 227, 228, 232, 249, 252, 253, 262

economic growth 31, 32, 33, 87, 145, 183, 187, 201, 247, 249, 254, 261

Economic Partnership Agreements 39

economic reform 116

economic sector 171, 183, 196, 216, 255

economic statistics 49, 57, 77, 79, 88, 90, 116, 120, 121, 150, 171, 176, 177, 180

ecosystem 184, 186, 190, 191, 195, 196, 248, 250, 251, 255

Ecuador 196

Education for All (EFA) 58, 69, 164, 167, 269, 270

Education Management Information System (EMIS) 33, 49, 269

education statistics 26, 79

effectiveness 32, 34, 37, 38, 46, 51, 54, 68, 71, 87, 94, 96, 100, 109, 126, 132, 133, 136, 172, 183, 237, 241, 262, 268

efficiency 33, 45, 49, 58, 62, 65, 71, 96, 131, 132, 133, 153, 159, 165, 171, 174, 183, 186, 189, 195, 250, 254, 257, 262

Egypt 148

emission factors 194

emission inventory 184, 185

emission volumes 184

emissions 183, 184, 185, 186, 193, 194, 195, 249, 251, 253

emissions to air 183, 184

emissions to water 183, 186

employment 25, 26, 31, 38, 55, 56, 66, 76, 77, 79, 93, 139, 159, 171, 172, 173, 174, 175, 178, 179, 180, 201, 202, 203, 207, 213, 214, 215, 217, 218, 219, 221, 247, 252, 253, 261, 262, 263, 264, 265, 267

energy 38, 39, 43, 72, 75, 78, 79, 95, 116, 171, 172, 184, 187, 189, 192, 195, 201, 202, 203, 204, 210, 221, 247, 248, 249, 250, 251, 252, 253, 255, 256

Energy Efficiency Initiative (EEI) 172

enterprise 44, 45, 47, 51, 106, 137, 146, 160, 162, 166, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 187, 188, 201, 202, 203, 209, 222, 255

enterprise survey 146, 179, 222

entrepreneurship 171, 173, 175

environmental accounting 196

environmental indicator 43, 56, 90, 183, 184, 186, 187, 191, 194, 195, 197, 213, 218

environmental statistics 25, 62, 79, 181, 183, 190, 197, 213, 218, 219, 222, 231, 247, 249

Eretes 120

establishment 47, 79, 89, 94, 104, 109, 136, 166, 171, 176, 180, 190, 191, 204, 213, 228, 229, 237, 238, 249, 254

estimates 49, 58, 88, 89, 90, 96, 163, 166, 175, 178, 185, 187, 193, 215, 220, 221, 222, 231, 267, 268

ESYRCE 192

Ethiopia 222

EU set of sustainable development indicators (EU SDIs) 247, 249, 252, 255, 256, 257

EU Sustainable Development Strategy (EU SDS) 247, 248, 249, 252, 256, 258

EURAREA 231, 233

Euro-Mediterranean partnership (MEDA) 120

Europe 2020 196

EuropeAid (AIDCO) 95, 100, 106, 107, 108, 114, 116, 125, 131, 195, 197

European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) 202

European Central Bank (ECB) 147, 155, 191

European Charter of Fundamental Rights 242

European Code of Conduct on Division of Labour in Development Policy 109

European Consensus on Development 23, 24, 25, 31, 38, 39, 40, 43, 65, 68, 69, 78, 109, 116, 145, 201, 213, 261

European Crime and Safety Survey (EU ICS) 243

European Development Fund (EDF) 23, 68, 69, 115, 118, 120, 136, 140, 230

European Environment Agency (EEA) 185, 187, 190, 191, 193, 195, 196, 197, 217, 219, 223, 233

European Environment Information and Observation Network (EIONET) 197

European Free Trade Association (EFTA) 56, 72, 256

European infra-regional information system (SIRE) 230

European Institute for Crime Prevention and Control (HEUNI) 240, 243

European Monitoring and Evaluation Programme (EMEP) 185

European Nature Information System Habitats (EUNIS) 191

European Neighbourhood Policy (ENP) 26, 39, 56, 72, 109, 114, 115, 116, 176, 185

European Observation Network for Territorial Development and Cohesion (ESPON) 231, 233

European Size Units (ESU) 219

European Social Charter 261

European Social model 261

European Space Agency Environmental Satellite (ENVISAT) 193

European Spatial Development Policy (ESDP) 227

European Statistical System (ESS) 35, 37, 45, 47, 55, 61, 96, 99, 103, 114, 115, 117, 176, 261, 262, 263, 264, 270

European Statistics Code of Practice 44, 45, 46, 47, 96, 103, 240, 266

European System of Accounts (ESA) 60, 61, 120, 134, 140, 148, 149, 150, 155, 160, 162, 163, 165, 166, 167, 193, 214, 217, 219, 253, 254, 266

European System of Integrated Social Protection Statistics (ESSPROS) 261, 262, 263, 264, 270

European Topic Center on Air and Climate Change (ETC ACC) 185

European Topic Center on Sustainable Consumption and Production (ETC SCP) 190

European Working Group on Small Area Estimation (EWORSAE) 233

Europol 240

Eurotrace 120, 121, 134, 140, 151, 152, 153, 154, 155

evaluation 23, 34, 35, 37, 39, 40, 51, 58, 65, 68, 70, 71, 78, 87, 88, 89, 92, 95, 98, 100, 105, 113, 114, 115, 116, 117, 118, 119, 120, 121, 126, 128, 131, 132, 133, 134, 135, 136, 137, 139, 165, 185, 188, 208, 213, 214, 230, 249, 253, 254, 257, 262, 265, 267, 269

evaluation indicator 71

Evaluation of the Commission Support for Statistics in Third Countries 39, 40, 114, 115, 116, 117, 118, 121, 134, 135, 137

evaluation process 71

evidence-based policy making 54, 87, 100

exchange rates 72

expenditure 35, 49, 57, 66, 69, 71, 76, 77, 78, 79, 118, 139, 145, 160, 161, 162, 164, 165, 177, 196, 203, 204, 214, 238, 241, 242, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270

expense 48, 53, 130, 161, 162, 163, 164, 166, 177, 249, 265

exports 88, 145, 146, 148, 149, 150, 185, 203, 218, 219

external debt 98, 145, 161, 249

external deficit 145

external trade 25, 39, 43, 53, 56, 58, 61, 62, 72, 79, 87, 93, 95, 116, 119, 120, 121, 134, 140, 143, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 175, 201, 248

Extractive Industries Transparency Initiative (EITI) 70

F

factor incomes 261, 268

factors of business success 173

farm register 216

farm structure survey (FSS) 192, 216, 219

feasibility / formulation 126, 127

field survey 192, 193

finance statistics 58, 77, 79, 98, 159, 160, 161, 163, 164, 165, 166, 167, 266

Financial Intermediation Services Indirectly Measured (FISIM) 160

financial performance 68, 69

financial services 147, 160

financial stability 145

financial statements 159, 160, 164

fiscal policy 145, 159, 162, 164

fiscal statistics 159, 163

fisheries 43, 72, 119, 195, 213, 214, 218, 219, 220, 221, 223, 248, 251

fishery resources 218

fishery statistics 218, 219, 220, 223, 230

fitness for use 90, 240

Food and Agriculture Organisation (FAO) 56, 58, 72, 187, 193, 214, 216, 217, 218, 219, 220, 223

food security 25, 26, 38, 39, 79, 121, 216, 217, 218, 220

forecasting 43, 48, 55, 90, 213, 217, 220, 222, 227

Foreign Affiliates Statistics (FATS) 145, 146, 172

foreign debt 58, 161

Foreign Direct Investment (FDI) 145

forest inventory 191

forest resources 213, 217, 220

Forest Resources Assessment (FRA) 213, 217

forestry 25, 72, 79, 145, 171, 187, 189, 191, 192, 211, 213, 214, 217, 219, 220, 221, 230, 248

Forestry Country Information 220

forestry statistics 191, 217, 220

formulation phase 71, 130, 134

Forum of the African Statistical Development (FASDEV) 34, 37

fragile states 38, 79, 138, 139

France 53, 192, 229, 266

free trade area 120, 134, 147, 227

freight 147, 148, 150, 201, 202, 203, 209

freshwater abstraction 186, 194

freshwater resources 186, 187, 195

functional regions 228

fundamental principles 24, 43, 44, 45, 46, 47, 54, 96, 98, 108, 113, 261, 266

funding 36, 37, 38, 39, 53, 89, 91, 100, 109, 115, 119, 120, 130, 135, 227

funding mechanism 36, 130

G

Gambia 267, 270

gender equality 31, 38, 265

gender gap 77

GENEDI 207

General Data Dissemination System (GDDS) 57, 58, 60, 93, 98, 99, 104, 108, 114, 137, 148, 150, 155, 163, 167

general trade system 148

Generally-Accepted Accounting Principles (GAAP) 176

genuine savings 257

GEO Data Portal 193

Geographical Information System (GIS) 121, 129, 137, 140, 190, 221

geo-referencing 192

Georgia 185

Germany 229

Ghana 109, 119

Gini coefficient 255, 268

Global Donor Platform for Rural Development (GDPRD) 214

Global Environment Outlook (GEO) 193

Global Livestock Production and Health Atlas (GLiPHA) 220

Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD) 193

global partnership 31, 36, 58, 253

Global Strategy to Improve Agricultural and Rural Statistics 214, 216, 217, 218, 223

globalisation 51, 79, 146, 171, 172, 173, 196

GLOBCOVER 192

good governance 32, 34, 38, 39, 69, 87, 115, 118, 119, 161, 253, 269

good practices 44, 53, 96, 98, 109, 173, 216, 218, 219

Gothenburg Summit 248

government debt 159, 161, 162, 163

government deficit 159, 167

government expenditure 145, 266

government finance 58, 79, 98, 157, 159, 160, 161, 163, 164, 165, 166, 167, 266

Government Finance Statistics Manual (GFSM) 163, 167, 266

government finance statistics (GFS) 58, 98, 159, 160, 161, 162, 163, 164, 165, 166, 167, 266

government financial operations tables (TOFE) 163

government sector 145, 160, 161, 164

government services 147, 159, 162, 165, 166

greenhouse gases (GHG) 183, 201, 249, 255

Gross Domestic Product (GDP) 32, 33, 62, 69, 70, 77, 88, 90, 97, 162, 166, 184, 187, 188, 193, 196, 214, 222, 230, 232, 252, 253, 255, 261, 266

Gross National Income (GNI) 77, 253

guidelines 58, 70, 89, 94, 96, 100, 106, 107, 108, 114, 132, 160, 185, 187, 197, 204, 209, 216, 218, 220, 249, 257, 258

Guidelines and Methodologies for Indicators of Sustainable Development 249, 257

Guyana 267

H

Habitats Directive 190, 191

Hague Programme 240

Hanoi International Round Table 34, 37

hardware 89, 106, 132, 137, 140, 153, 270

harmonisation 38, 39, 51, 55, 60, 61, 62, 87, 92, 95, 114, 116, 118, 120, 134, 154, 178, 205, 266

Harmonized System (HS) 49, 77, 89, 147, 148, 172, 175, 268

hazardous waste 187, 189, 190, 194, 252

headline indicator 196, 252, 253

health insurance 33, 264

Health Management Information System (HMIS) 269

Health Metrics Network (HMN) 58

health statistics 26, 49, 54, 58, 79

high income countries 115, 116

Heavily Indebted Poor Countries (HIPC) 32, 98, 159, 164

HIV 31, 38, 70, 76, 251, 264

horizontal redistribution transfers 261

Household Budget Surveys (HBS) 49, 57, 76

household income 76, 98, 218, 223, 268

Household Income and Expenditure Survey (HIES) 268, 270

household panel 220

household survey 34, 35, 36, 37, 49, 57, 58, 60, 79, 89, 106, 110, 117, 118, 139, 179, 203, 221, 222, 266, 268

household water use 186, 187
housing census 36, 58, 79, 110, 119, 230
housing statistics 79
housing subsidies 264, 265
human capital 261
human development 26, 31, 32, 38, 39, 58, 77, 78, 79, 257
human development index (HDI) 257
human poverty index 69
human resources 53, 91, 95, 100, 103, 115, 119, 127, 128, 129, 137, 270
Human Resources Development (HRD) 121
human rights 25, 38, 79, 237, 240, 263
humanitarian aid 139
hunger 23, 31, 75, 213, 219, 255

I

identification 25, 35, 71, 88, 90, 97, 104, 119, 121, 125, 126, 128, 129, 134, 177, 207, 208, 232
IDSB 175
immigrant workers 261
impact analysis 270
impact indicator 66, 70, 71
impartiality 45, 94, 96, 240, 242
imports 87, 145, 146, 148, 149, 162, 185, 203, 218, 219
income distribution 39, 69, 268
income per capita 39, 68, 69
independence 45, 46, 47, 51, 52, 53, 65, 91, 92, 94, 96, 109, 128, 240, 242
India 155, 196, 263
Indicator Reporting on the integration of Environmental concerns into Agricultural policy (IRENA) 193
indices 72, 120, 145, 147, 148, 171, 174, 175, 176, 215, 232
indigenous peoples 38, 248
Indonesia 189
INDSTAT2 175
INDSTAT4 175
Industrial Commodity Statistics 172, 176
Industrial Demand-Supply Balance Database (IDSB) 175
industrial restructuring 172
industrial sector 171
industrial statistics 175, 180
industrial waste 189
industry 43, 72, 172, 173, 174, 175, 180, 184, 185, 187, 214, 217, 228, 248, 265
infant mortality 77, 97, 262
inflation 32, 33, 49, 62, 77, 161
informal economy 174, 177, 178, 179, 213, 261, 264
informal sector 79, 134, 173, 177, 178, 179, 180, 189, 214, 221, 261, 264, 270
information and communication technologies (ICT) 47, 106, 128, 135, 137, 139, 140, 173 204, 252
information society statistics 79
information technologies (IT) 58, 70, 120, 139, 140, 147, 150, 153, 172, 175, 192, 202, 203, 207, 210, 217, 223, 265, 269
infrastructure 25, 38, 39, 56, 58, 77, 79, 91, 92, 95, 109, 118, 137, 139, 140, 201, 202, 203, 204, 210, 214, 215, 227, 233, 264, 270
in-kind transfers 264
inland waters 187, 191
inland waterways 201, 202, 203
innovation 131, 171, 175, 231, 247, 248
input indicator 65
Institut National de la Statistique et des Études Économiques (INSEE) 53
institutional capacity 107, 109, 127, 134, 161, 269
institutional environment 44, 96, 97
institutional reform 25, 38, 68, 79
Integrated Environmental and Economic Accounts for the Forests (IEEAF) 217
Integrated Financial Management Information System (IFMIS) 267, 269
Integrated Pollution Prevention and Control (IPPC) 184, 185
integrity 47, 97, 98, 100, 140, 164
Inter-American Development Bank (IADB) 61
Intergovernmental Panel on Climate Change (IPCC) 185, 187, 194
intermodal freight transport 201
International Classification of Diseases (ICD) 55, 204, 210, 270
international classifications 57, 97, 137, 175, 216, 227, 270
International Conference of Labour Statisticians (ICLS) 178
International Conference on Financing for Development 34
International Crime Victim Survey (ICVS) 240, 243
International Development Association (IDA) 37, 68, 70, 98, 105, 106, 204
International Federation of Accountants (IFAC) 160, 167
International Geosphere-Biosphere Programme (IGBP) 193

International Household Survey Network (IHSN) 34, 35, 36, 37, 57, 58, 60, 89

International Labour Organisation (ILO) 56, 58, 262, 263, 270

International Merchandise Trade Statistics (IMTS) 120, 147, 148, 153, 155

International Monetary Fund (IMF) 31, 32, 55, 56, 57, 58, 60, 72, 76, 78, 90, 94, 95, 97, 98, 99, 104, 108, 114, 147, 148, 150, 155, 160, 163, 164, 165, 167, 180, 266

International Public Sector Accounting Standards Board (IPSASB) 159, 160, 167, 266

International Public Sector Accounting Standards (IPSAS) 159, 160, 167, 266

international recommendations 88, 134, 148, 180, 205

International Road Federation (IRF) 203, 210

International Social Security Association (ISSA) 267

international sources 60, 88, 90, 97, 115, 148, 175, 176, 239

international sourcing 171, 173

International Standard Classification of Education (ISCED) 270

International Standard Classification of Occupations (ISCO) 55

International Standard Industrial Classification of All Economic Activities (ISIC) 55, 172, 173, 174, 175, 176, 177, 184, 186, 187, 189, 202

international standards 54, 57, 90, 94, 96, 109, 126, 128, 140, 151, 194, 215, 218, 220, 266, 267, 269

international standards and classifications 90, 220

International Statistical Institute (ISI) 25, 46, 55, 160, 172, 173, 174, 175, 176, 177, 184, 186, 187, 189, 202, 223

International Transport Forum (ITF) 202, 203, 210

International Tropical Timber Organization (ITTO) 217, 223

International Union for Conservation of Nature (IUCN) 190, 191

International Violence Against Women Survey (IVAWS) 240, 243

Interpol 188, 240

Interstate Statistical Committee of the Commonwealth of Independent States (CIS STAT) 61

investment climate 69

IPPC directive 184, 185

island states 68, 69, 201

ISO 9000 98, 99

Italy 192, 270

J

Johannesburg Plan of Implementation (JPOI) 247, 248, 249, 258

Joint Africa-EU Strategy 39, 40

Joint Annual Report (JAR) 72, 87, 97, 115

Joint FAO/UNECE/Eurostat/ITTO Forest Sector Questionnaire (JFSQ) 217

Joint Research Centre (JRC) 193

Joint UNECE/OECD/Eurostat Working Group on Statistics for Sustainable Development (WGSSD) 250

justice and crime statistics 25, 79, 237, 238, 240, 241, 242

justice statistics 237, 239, 240, 241, 242, 243

K

Kazakhstan 94, 185

Kenya 32, 33, 77, 118

Key Indicator Display System (KIDS) 220

key indicator 70, 72, 88, 89, 90, 103, 171, 183, 203, 220

Kyoto Protocol 191

Kyrgyzstan 94, 185

L

labour costs 252

labour force 179, 202, 207, 216, 219

labour market interventions 264

labour statistics 26, 58

lack of funding 91

land cover classification 192, 193

Land Cover Classification System (LCCS) 193

Land Cover/Land Use (LC/LU) 191, 192, 193

land use 25, 79, 183, 191, 192, 193, 213, 216, 217, 219, 220, 222, 251

land use statistics 25, 79, 191

Land Use/Cover Area statistical Survey (LUCAS) 192, 193

landlocked states 68, 69, 201, 213

Larger Urban Zone (LUZ) 228, 230

Latin America 26, 39, 46, 58, 72, 93, 106, 115, 116, 176, 233, 237, 249, 253

least developed countries 69, 139, 262

Lebanon 139

legal and regulatory framework 114, 119, 129

legal basis 47, 92, 94, 98, 190

legal framework 24, 46, 52, 103, 106, 116, 128, 130, 150

legal unit 174, 176

level of indebtedness 68

licensed datasets 89

Lisbon Strategy 248, 261

literacy rate 66, 251

livestock 214, 216, 217, 219, 220, 222

living conditions 26, 56, 77, 79, 251, 261

Living Standards Measurement Studies (LSMS) 49, 58, 220, 221, 223, 268

Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) 220, 221, 223

Local Authority Level (LAU) 230, 231, 233

local unit 176

logical framework 32, 68, 71, 107, 108, 113, 114, 117, 125, 129, 133

low-income developing countries (LIC) 32, 35, 37, 51, 87, 161, 262, 267, 268, 269

Luxembourg Recommendations 60

M

macroeconomic indicator 72, 146, 172

macroeconomic policy 32, 145

Madagascar 118

Maharashtra Employment Guarantee Scheme 263

malaria 31, 251

Maldives 270

Mali 39, 52, 62, 118

malnutrition 69

management for results 34, 128, 133

Management Information System (MIS) 33, 49, 136, 257, 263, 267, 269

management skills 36

Managing for Development Results (MfDR) 23, 31, 32, 34, 35, 37, 65, 68, 87, 103, 126

mandate 45, 53, 90, 94, 96, 193, 240

manufacturing 79, 97, 172, 175, 184, 187, 189

manufacturing statistics 79

Marrakech Action Plan for Statistics (MAPS) 23, 31, 34, 35, 37, 58, 89, 107, 109

Marrakech International Round Table 34

maternal health 31, 262

maternal health care 262

Mauritania 115

MDG Indicators Expert Group 34, 36

means-tested social protection benefits 268

Mediterranean 72, 95, 99, 115, 116, 117, 190

Medium Term Expenditure Framework (MTEF) 35, 78

medium-term objectives 103

MEDSTAT 72, 95, 97, 99, 176

memorandum of understanding 46, 117, 150, 203, 207, 221

metadata 24, 36, 43, 46, 49, 56, 60, 75, 88, 90, 96, 108, 114, 130, 147, 148, 155, 163, 167, 180, 210, 217, 219, 223, 232, 239, 250, 261, 262

methodological documentation 88

methodological soundness 97, 98

Mexico 192

microdata 89, 93, 209, 216

micro-states 139

mid-term evaluation 70, 105, 131, 132

migration 25, 26, 39, 53, 79, 95, 116, 139, 151, 228

migration statistics 79, 116

Millennium Declaration 31, 38, 75, 76

Millennium Development Goals (MDG) 23, 24, 31, 34, 35, 37, 38, 55, 56, 68, 69, 70, 72, 75, 76, 79, 90, 116, 120, 197, 201, 248, 254, 261, 265, 268, 270

mining 23, 31, 68, 79, 88, 94, 97, 153, 172, 175, 180, 189, 228

Ministerial Conference on the Protection of Forests in Europe (MCPFE) 217

mirror checks 148, 205, 206, 220

missions 94, 95, 109, 153, 183, 184, 185, 186, 193, 194, 195, 249, 251, 253

mixed mode 47, 48, 178

mobility 201, 202, 203

Moldova 185

monetary policy 145, 174

monetary sector 72

money-laundering 239, 241

monitoring and evaluation (M&E) 23, 35, 37, 65, 78, 88, 89, 113, 118, 119, 128, 185, 213, 214, 230, 262, 265, 267, 269

monitoring frameworks 103

monitoring indicator 71, 98, 254

monitoring progress 75, 183, 215, 257

monitor progress 58, 70, 78, 103, 104, 216, 249, 256, 257

Montenegro 166

Montreal Protocol on Substances that Deplete the Ozone Layer 184

Montreal Protocol 184, 185

mortality 31, 69, 70, 77, 97, 251, 255, 262

motorways 201, 202

Mozambique 53, 115, 119

multinational companies 145

Multiple Indicator Cluster Survey (MICS) 49, 58, 268

Multipurpose Africover Database for the Environmental Resources (MADE) 193

municipal waste 187, 188, 189, 195

mutual accountability 38, 87

Mutual Information System on Social Protection (MISSOC) 263

N

NACE 173, 187, 202

Namibia 196

national accounts 26, 49, 52, 54, 57, 58, 60, 62, 72, 77, 79, 88, 93, 95, 98, 116, 120, 121, 140, 145, 146, 160, 162, 165, 166, 167, 171, 174, 180, 196, 213, 214, 215, 263, 266, 267, 269

National Bank (NB) 146, 166

National Development Strategies 31, 32, 38, 65

national development strategy (NDS) 32, 38, 87, 97, 104, 172, 175, 214

National Education Statistical Information System (NESIS) 58

National Emission Ceilings (NEC) 24, 58, 61, 71, 78, 79, 94, 109, 145, 184, 185, 187, 197, 202, 203, 210, 217, 219, 220, 223, 240, 243, 249, 250

National Indicative Programme (NIP) 31, 88, 97, 113, 115, 128, 195

National Industrial Statistics Programme (NISP) 175

national legislation 89, 190, 194

National Revenue Authority (NRA) 180

national sources 60, 87, 88, 90, 97, 115, 148, 175, 176, 239

national statistical council 93, 130

national statistical institute (NSI) 25, 37, 44, 46, 47, 51, 52, 53, 54, 60, 62, 79, 88, 89, 90, 91, 92, 93, 94, 95, 97, 98, 100, 106, 108, 115, 116, 118, 120, 121, 128, 129, 130, 133, 136, 137, 138, 139, 140, 147, 150, 154, 165, 166, 173, 174, 175, 176, 177, 178, 179, 189, 194, 203, 207, 209, 221, 223, 230, 231, 266, 270

national statistical system (NSS) 24, 25, 35, 37, 43, 46, 51, 52, 54, 60, 65, 87, 89, 90, 92, 93, 94, 97, 100, 104, 106, 107, 109, 115, 118, 119, 127, 128, 129, 130, 132, 133, 136, 137, 139, 140, 172, 175, 180, 215, 216, 221, 223, 228, 266

National Strategies for the Development of Statistics (NSDS) 35, 36, 37, 55, 58, 87, 93, 95, 97, 99, 100, 103, 104, 105, 106, 108, 109, 110, 113, 114, 115, 117, 118, 119, 126, 127, 128, 129, 130, 132, 133, 136, 137, 165, 172, 180, 222

national strategy 32, 37, 55, 77, 78, 93, 99, 100, 104, 106, 109, 118, 127, 130, 172, 180

Natura 2000 network 190, 191

natural capital 250

natural resources 25, 26, 38, 56, 79, 116, 183, 196, 213, 217, 218, 220, 221, 222, 248, 249, 250, 253, 254

NEC directive 184

net and gross operating balance 162

net lending/borrowing 162

New Partnership for Africa's Development (NEPAD) 227

Nigeria 97, 109, 119, 189

Nomenclature of Territorial Units for Statistics (NUTS) 202, 227, 228, 229, 230, 231, 232, 233

nomenclatures 55, 60, 96, 134, 152, 232, 262

non sedentary population 222

non-financial assets 161, 162, 163

non-governmental organisations (NGO) 51, 77, 87, 129, 139, 171, 176, 191, 221

non-market products 162

non-market services 160

non-observed agricultural production 215

non-observed economy 139, 180, 213, 215

non-response 47, 178, 209, 268

North America 173, 243

North American Industry Classification System (NAICS) 173

nowcasting 90, 220

O

objectivity 45, 47, 94, 96, 240

observation unit 173

OECD Development Assistance Committee (DAC) 31, 34, 65, 68, 106, 133, 258

offender 237, 239, 240, 242

official statistics 23, 24, 43, 44, 45, 46, 47, 49, 51, 53, 54, 56, 87, 93, 94, 96, 97, 98, 113, 114, 118, 127, 129, 134, 135, 176, 231, 266

operational objectives 107, 108, 114, 125, 252

Organisation for Economic Co-operation and Development (OECD) 25, 31, 34, 38, 55, 56, 65, 68, 70, 71, 89, 98, 99, 106, 133, 146, 162, 165, 167, 175, 176, 179, 180, 187, 190, 191, 196, 197, 203, 213, 215, 219, 220, 223, 227, 231, 233, 250, 258, 263, 266, 270

organisational framework 106

organised crime 240, 241

Our common future 247, 258

outcome indicator 66, 70, 77, 89, 165, 268

output indicator 66, 165

outsourcing 171, 172, 173

overall fiscal balance 162

Overseas Development Institute (ODI) 270

ownership 37, 38, 51, 75, 87, 89, 94, 104, 109, 113, 129, 130, 132, 146, 172, 209, 217, 248, 265

ozone depleting substances (ODS) 183, 184, 185, 251

P

Pacific 58, 61, 72, 106, 115, 116, 176, 270

Pan-European Common Bird Monitoring Scheme (PECBMS) 191

Paris Declaration on aid effectiveness 23, 31, 32, 34, 35, 37, 38, 39, 65, 68, 71, 87, 103, 109, 110, 115

PARIS21 34, 35, 36, 37, 54, 55, 58, 89, 90, 92, 95, 99, 100, 103, 104, 105, 106, 107, 108, 109, 119, 139

Partner Report on Support to Statistics (PRESS) 35, 37, 115, 117

passengers 201, 202, 203, 205, 206

pay-as-you-earn tax (PAYE) 180

peer review 95, 96, 97, 103, 104, 105

peer review methodology 95

pension 159, 162, 261, 262, 263, 264, 265, 267, 270

pension scheme 162, 261

Performance Assessment Framework (PAF) 32, 38, 77, 78

performance criteria 39, 65, 68, 69

performance indicator 39, 69, 88, 103, 238, 249, 269

performance measurement 23, 31, 269, 270

Performance Measurement Framework (PMF) 269, 270

Permanent Interstate Committee for Drought Control in the Sahel (CILSS) 134

persons employed 172, 174, 238

Philippines 196

pipelines 186, 202, 203

Plan for Change 104

police recorded crime 239, 240, 241

policy aims 23

policy areas 23, 24, 25, 43, 61, 78, 145, 171, 201, 213, 232, 237, 257

policy formulation 58, 90, 171

policy indicator 145

policy intervention areas 78, 79

policy makers 39, 51, 60, 65, 87, 103, 171, 172, 173, 174, 231, 249, 255, 257, 262

policy making 23, 31, 34, 35, 54, 58, 87, 90, 100, 116, 159, 172, 173, 218, 219, 231

pollution 184, 185, 195, 196, 218, 230, 255

population census 25, 48, 49, 58, 106, 114, 117, 119, 128, 129, 131, 216, 230, 269

population density 191

population size 68, 248

Portuguese-speaking African countries (PALOP) 120

post-conflict countries 68

poverty line 75, 76, 251, 268, 270

poverty measurement 78

Poverty Monitoring Master Plan (PMMP) 35

Poverty Reduction and Growth Facility (PRGF) 269

Poverty Reduction Budget Support (PRBS) 78, 118

Poverty Reduction Strategies (PRS) 23, 24, 31, 32, 35, 39, 58, 75, 76, 77, 78, 87, 93, 97, 98, 99, 103, 117, 137, 180, 264, 269

Poverty Reduction Strategy Papers (PRSP) 31, 32, 35, 58, 70, 77, 78, 97, 98, 99, 137, 269

poverty reduction 23, 24, 31, 32, 33, 34, 36, 39, 57, 66, 70, 75, 76, 77, 78, 87, 93, 98, 99, 103, 109, 113, 117, 118, 129, 133, 137, 161, 180, 204, 213, 214, 248, 264, 269

Poverty-Environment Initiative (PEI) 248, 258

poverty-environment linkages 248

predictability 34, 164

pre-feasibility 25, 125, 126, 133

price indices 49, 57, 72, 77, 87, 98, 120, 135, 145, 215

price level 145, 215

price statistics 26, 58, 79, 116, 213, 215, 216

primary balance 162

primary education 31, 33, 69, 70, 75, 77, 251, 265

primary schools 33

Principal European Economic Indicators (PEEIs) 172

Principles Governing International Statistical Activities 37, 46

private sector development 70

probability density function 194

procurement 38, 106, 118

Prodcom 172

producer price index (PPI) 98

producer prices 215

product classification 172

product statistics 175, 213

production factors 172

productivity 140, 159, 165, 171, 183, 218, 252, 253

professional independence 45, 51, 52, 53, 65, 92, 94, 96, 240, 242

profitability 171

programme cycle 24, 68

Programme for Infrastructure Development in Africa (PIDA) 204

programme identification 71

programme indicator 71, 75, 97
programme preparation 125
programming 34, 46, 62, 69, 71, 93, 113, 116, 118, 125, 126, 137, 195
project formulation 71
project purpose 114, 125
protected areas 183, 190, 191
public debt 62, 77, 159
public deficit 159
Public Expenditure and Financial Accountability (PEFA) 164, 167, 269, 270
public finance management (PFM) 97, 164, 165, 167, 269, 270
public finance statistics 77, 160, 161, 164
public policy 31, 43, 49, 160, 162
public sector 25, 35, 79, 92, 157, 159, 160, 163, 164, 165, 166, 167, 266
public sector management 35
public sector reform 92
public sector statistics 25, 79, 157, 159, 167
public services 100, 159, 162, 195, 233
public use datasets 89
public works programmes 264
punctuality 46, 96, 176, 266
Purchasing Power Parity (PPP) 70, 75
pyramid of indicator levels 257

Q

quality assessment 58, 95, 97, 98, 99, 150, 153
quality commitment 45, 94, 96, 240
quality concepts 96
quality control 47, 48, 151, 194, 270
quality dimensions 99, 255
quality frameworks 96, 98, 99
quality guidelines 94
quality management 96, 215
quality methodology 97
quality profiles 255, 256
quality report 96, 97, 150
quality standards 88, 96, 99, 150

R

racially motivated offences 238
rail transport 202, 203
railway lines 202
reconciliation 148, 149
reconstruction 139
recycling 175, 186, 187, 188, 189, 190, 195
recycling of freshwater 186
Reducing Emissions from Deforestation and Forest Degradation (REDD) 217
Reference Regional Strategic Framework for Statistical Capacity Building in Africa (RRSF) 34, 37
regional and small area statistics 225, 227, 228, 230, 231, 232
regional cooperation 39, 87, 89, 127, 201, 227
regional development 61, 116, 164, 227, 230
Regional Economic Community (REC) 39, 150
regional economic development 227
Regional Indicative Programme (RIP) 31, 115, 128
regional infrastructure 227
regional institution 119, 121, 128, 134, 135
regional integration 25, 26, 38, 39, 55, 61, 62, 70, 79, 113, 120, 121, 134, 140, 145, 150, 204, 227
regional organisations 54, 55, 60, 61, 62, 87, 110, 115, 120, 121, 136, 140, 147
regional projects 25, 110, 150
regional statistical capacity 120, 140
Regional Statistical Training Strategy (RSTS) 120, 121
regional statistics 43, 60, 61, 72, 99, 107, 108, 114, 117, 120, 121, 134, 140, 172, 227, 231, 232, 233
Regional Strategy Paper (RSP) 31, 32, 35, 58, 65, 70, 77, 78, 94, 97, 98, 115, 128, 137, 269
Regional Technical Assistance Centers (RTACs) 58
Regional Training Centers (RTCs) 58
regional units 232
Regulation on European environmental economic accounting 196
relevance 37, 46, 49, 71, 94, 96, 98, 126, 127, 131, 132, 133, 164, 176, 183, 213, 214, 215, 249, 252, 255, 256, 257, 266, 270
reliability 46, 52, 65, 87, 97, 98, 100, 163, 165, 174, 176, 180, 194, 196, 232, 266, 268
remote sensing 192, 220
reporting burden 45, 146
reporting mechanism 36, 37, 126
research and development 252

resource allocation 68, 69
resource management 138, 186, 218
response burden 45, 47, 177
results indicator 66
results-based policy making 23, 31
revenue 33, 79, 147, 150, 160, 161, 162, 163, 164, 165, 166, 176, 180, 196, 263, 264, 266, 267, 269
Rio Declaration on Environment and Development 247, 248, 258
road transport 184, 202, 209
roads 193, 201, 202, 204
Romania 229
rural development 25, 26, 38, 79, 115, 191, 213, 214, 216, 217, 219, 220, 221, 223
Russia 72, 217
Rwanda 109, 115

S

sample size 91, 96
sample survey 43, 48, 49, 121, 180, 209, 216, 266, 267, 268, 270
sampling 47, 48, 49, 91, 96, 109, 126, 140, 173, 179, 192, 194, 209, 216, 222, 232, 267, 268
sampling frame 47, 48, 49, 109, 140, 173, 179, 216, 232
satellite image 192, 193, 222
scaling up 36, 115
science and technology 43, 58, 72, 79
seasonally adjusted series 175
secondary education 70, 77, 265
secondary sources 90
Secretariat for Central American Economic Integration (SIECA) 61
Secretariat of the Pacific Community (SPC) 61
Sector Development Programme (SDP) 115, 227
sector indicator 65, 69, 71
sector level intervention 119
sector policies 23, 24, 103, 119
Sector-Wide Action programmes (SWAp) 115
sector-wide programme 115, 119, 126
sector-wide statistics strategy 106
security 25, 26, 33, 38, 39, 54, 79, 87, 100, 121, 139, 140, 159, 160, 161, 162, 163, 178, 180, 201, 216, 217, 218, 220, 237, 239, 240, 241, 242, 249, 263, 264, 266, 267, 270
Selected Nomenclature for sources of Air Pollution (SNAP) 184, 194
self-assessment 97, 99
Senegal 118, 148, 155, 189
Serbia 166
service-level agreement 150, 207, 221
services sector 171, 189
shari'ah law 237
Short-Term business Statistics (STS) 116, 120, 171, 172, 174, 175, 180
short-term indicator 137, 171, 172
Sierra Leone 180
size class 171, 174
small and medium-sized enterprises (SME) 172, 174, 180
small area 191, 222, 225, 227, 228, 230, 231, 232, 233
Small Area Estimation (SAE) 222, 227, 231, 233
small area statistics 191, 225, 227, 228, 230, 231, 232, 233
social assistance 162, 261, 264
social benefits 162, 163, 263
social cohesion 25, 26, 38, 79, 116, 201, 227, 247, 261, 268
social conditions 43, 57, 72
social contributions 160, 163
social data 33, 36, 88, 99
social development 36, 39, 49, 69, 70, 249, 261
social exclusion 261, 262, 265
Social expenditure database (SOCX) 263, 270
social expenditures 263, 267
social indicator 68, 72, 79, 227, 269
social insurance 162, 261, 262, 263, 264, 267
social policies 32, 58, 261, 263
social protection 25, 79, 162, 163, 230, 247, 259, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270
social protection accounts 267
Social Protection Expenditure and Performance Reviews (SPERs) 262
social protection functions 267
social protection schemes 262, 264, 269
social protection statistics 230, 247, 262, 263, 266, 267, 269
Social Risk Management (SRM) 264, 270
social risks 261, 262, 263, 264, 265, 267
social security 54, 79, 159, 160, 161, 162, 163, 178, 180, 263, 264, 266, 267, 270
Social Security Enquiry 263
socio-economic characteristics 49, 267

software 58, 62, 89, 92, 106, 132, 134, 135, 137, 140, 150, 151, 152, 153, 154, 155, 161, 173, 175, 177, 231, 270

soil degradation 213, 218, 255

source data 60, 207, 222, 238

Sourcebook 34, 35, 68, 78, 214, 217, 223, 243

sourcing 171, 172, 173

South Africa 196, 227, 258

Southern African Development Community (SADC) 23, 61, 120, 121, 135, 136, 155, 270

Southern Common Market (MERCOSUR) 39, 61, 120, 134

Spain 192, 229

spatial areas 229

Spatial Development Initiative (SDI) 197, 227, 233, 247, 249, 252, 253, 254, 255, 256, 257, 258

spatial planning 191, 227, 231, 233

Special Data Dissemination Standard (SDDS) 57, 58, 60, 93, 98, 148, 150, 155, 165

special trade system 148

stability 31, 39, 69, 129, 145, 180, 227, 248

stakeholders 37, 47, 78, 94, 104, 114, 116, 118, 127, 128, 130, 132, 133, 134, 135, 165, 203, 222, 256, 257, 270

Standard Goods Classification for Transport Statistics (NST) 202

Standard International Trade Classification (SITC) 147, 172, 175

State of Europe's Forests (SoEF) 217

Statement of Government Operations (SOGO) 163

statistical activity 24, 25, 46, 52, 128, 129, 130

Statistical Annexes 90

statistical assistance 95, 116, 128, 133

statistical capacity 23, 34, 35, 36, 37, 55, 58, 60, 75, 92, 95, 97, 106, 107, 108, 109, 118, 120, 125, 127, 128, 129, 130, 132, 133, 136, 137, 139, 140, 237, 241, 267

Statistical Capacity Building indicator 92, 95, 107, 108

Statistical Capacity Program (STATCAP) 37, 58, 109, 140

statistical concepts 23, 51, 55, 57, 96, 120, 178

Statistical Conference of the Americas (SCA-ECLAC) 46

statistical confidentiality 45, 94, 96, 240, 242

statistical cooperation 26, 39, 72, 92, 93, 94, 99, 115, 116, 117, 133, 134, 152, 153

statistical cooperation activities 92, 93, 116

statistical development 34, 36, 37, 58, 62, 93, 95, 115, 116, 120, 136, 222

statistical development activities 37

statistical indicator 23, 31, 62, 76, 175, 202, 241, 266

statistical inference 43, 91

statistical information 46, 49, 52, 54, 56, 58, 62, 88, 107, 114, 119, 120, 126, 132, 139, 146, 173, 216, 219, 228, 231

statistical infrastructure 109, 118, 137, 140

statistical methodology 55, 137, 159, 160, 165, 166, 213, 249

statistical methods 23, 48, 62, 121, 207, 231

statistical operations 47, 109, 130

statistical outputs 89, 96, 240, 268

Statistical part of the UEMOA Community programme (PARSTAT) 134

statistical procedures 45, 47, 96, 109, 240

statistical process 44, 47, 48, 50, 62, 96, 97, 98, 106, 128, 133, 137, 140, 240, 270

statistical programme 47, 52, 62, 93, 116, 196, 258, 267, 269

Statistical Programme Committee (SPC) 61, 258

statistical quality 49, 57, 77, 90, 132, 194, 255, 256, 257, 266

statistical training 94, 116, 120, 121, 135, 136, 270

statistical units 171, 173, 176, 269

statistics action 24, 25, 35, 54, 55, 57, 85, 87, 97, 99, 103, 109, 113, 114, 116, 117, 119, 120, 125, 140, 150, 166, 247, 261, 268, 269

statistics capacity building 24, 90, 107, 114, 125

Statistics Council 128

statistics field 78, 145, 201

Statistics for Results Facility (SRF) 36, 109

statistics interventions 24, 55, 103, 108, 113, 117, 119, 120, 125, 126, 150

statistical law 46, 47, 48, 51, 93, 180

statistics production 53, 54, 117, 118, 125, 126, 127

Statistics Projects and Programmes (SPP) 39

statistics strategies 24, 90, 92, 97, 103, 106, 113, 114, 117, 118, 119, 121

Stockholm Programme 240

strategic imperatives 248

strategy and programme documents 113

Strategy for Improving Information on Status and Trends of Capture Fisheries 218

Streamlining European 2010 Biodiversity Indicators (SEBI 2010) 190, 191

Strengths, Weaknesses, Opportunities and Threats analysis (SWOT) 65, 71, 113, 165, 228, 249

strong sustainability 250

Structural Business Statistics (SBS) 171, 172, 173, 174, 175, 180, 202

structural policies 32, 218

sub-city district (SCD) 228, 230

sub-national level 36, 57, 159, 219, 231

Sub-Saharan Africa Transport Policy Program (SSATP) 204, 210

Sub-Saharan African countries 220

subsistence farming 213, 214, 217, 220

sufficiency index 190

Support Programme for Regional Integration in Central Africa (PAIRAC) 120

support to statistics 23, 24, 32, 35, 36, 37, 40, 77, 83, 87, 90, 97, 99, 100, 103, 106, 110, 111, 113, 114, 115, 118, 120, 121, 130, 131, 137

Supporting developing countries in coping with the crisis 261

survey design 121, 232

survey methods 89, 129, 193, 231

Survey on Income and Living Conditions (SILC) 256

survey planning 91

survey programs 36, 58, 89

survey quality 96

sustainability 31, 33, 37, 38, 39, 90, 92, 94, 100, 106, 116, 126, 129, 130, 131, 132, 133, 167, 178, 187, 193, 201, 218, 249, 250, 253, 254, 262, 267

sustainable development 25, 39, 68, 79, 116, 183, 190, 191, 197, 218, 227, 245, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258

sustainable development indicator (SDI) 25, 79, 116, 191, 197, 218, 227, 233, 245, 247, 249, 250, 252, 253, 254, 255, 256, 257, 258

sustainable management of natural resources 25, 26, 38, 79, 183, 213, 218

sustainable water management 186

Swaziland 119

System of National Accounts (SNA) 57, 60, 129, 139, 160, 162, 165, 184, 194, 196, 215, 266, 267

T

TACIS 94, 120

Tajikistan 94

Tanzania 60

tax authorities 163, 174, 180

taxes 145, 160, 161, 162, 163, 177, 214, 262, 268

technical assistance 58, 66, 89, 94, 97, 115, 116, 118, 127, 129, 133, 150, 175, 222, 248

Terms of Reference (ToR) 24, 93, 94, 97, 104, 107, 108, 125, 126, 127, 128, 129, 130, 132, 133, 148, 149, 151, 152, 195, 208

territorial planning 25, 26, 38, 79

territorial units 202, 205, 227, 228, 229, 233

terrorism 240, 241

TerUti 192

theoretical statistics 43

tidal flats 191

time series analysis 207

time use statistics 79

timeliness 45, 46, 96, 98, 130, 164, 165, 176, 180, 196, 220, 221, 255, 257, 266, 267

total factor productivity (TFP) 165

total output in constant value 165

tourism 72, 79, 95, 227, 228, 251, 252

tourism statistics 79, 95

trade in services 145, 146, 147, 148, 155

trade statistics 58, 120, 121, 134, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 172, 175, 213

traffic 201, 202, 203, 207, 208, 237, 239, 240, 241, 242, 255

traffic flows 201, 202

trafficking 239, 240, 241

training 33, 35, 36, 47, 52, 58, 62, 89, 91, 92, 94, 95, 97, 106, 107, 108, 114, 116, 119, 120, 121, 130, 135, 136, 137, 138, 139, 140, 150, 151, 152, 153, 154, 161, 163, 166, 219, 222, 232, 264, 265, 269, 270

training strategies 91, 120, 121, 135

transboundary air pollution 184, 185

transnational crime 240, 241

transparency 34, 37, 46, 55, 65, 70, 87, 119, 163, 164, 167

transport enterprises 202

transport infrastructure 201, 202, 203

transport measurement 202, 203

transport networks 120, 201

transport performance 202

transport statistics 25, 79, 145, 199, 201, 202, 203, 205, 206, 207, 210, 219, 247

Treaty of Amsterdam 248

Trinidad and Tobago 189

Trust Fund for Statistical Capacity Building (TFSCB) 36, 55, 58, 105, 109

Turkmenistan 94

turnover 132, 138, 171, 174, 176, 177

typology of indicators 65, 67, 68

U

UEMOA Community programme to support regional integration (PARI) 34, 35, 36, 37, 54, 55, 58, 89, 90, 92, 95, 99, 100, 103, 104, 105, 106, 107, 108, 109, 119, 134, 139

Uganda 52, 115

Ukraine 185

UN Conference on Environment and Development 248

UN Expert Group on Informal Sector Statistics 178, 180

UN Fundamental Principles of Statistics 45, 108, 113, 266

UN Handbook of Statistical Organisation 47

UN List of Protected Areas 191

unemployment 55, 66, 261, 262, 264, 265, 267

unemployment rate 66

UNEP Ozone Secretariat 185

UNEP World Conservation Monitoring Centre 191

UNESCO Institute for Statistics (UIS) 56, 58

United Kingdom (UK) 53, 109, 176, 192, 229, 267

United Nations Children's Fund (UNICEF) 49, 58, 137, 140, 187, 268

United Nations Commission on Sustainable Development (UNCSD) 197, 247, 258

United Nations Conference on Trade and Development (UNCTAD) 58, 140, 151, 161

United Nations Convention on Biological Diversity (UNCBD) 190, 191

United Nations Development Programme (UNDP) 58, 68, 69, 99, 248, 258

United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) 58

United Nations Economic and Social Commission for Western Asia (UN-ESCWA) 58

United Nations Economic Commission for Africa (ECA) 36, 37, 58, 61, 249

United Nations Economic Commission for Europe (UNECE) 24, 58, 71, 78, 79, 94, 109, 145, 184, 185, 187, 197, 202, 203, 210, 217, 219, 220, 223, 240, 243, 249, 250

United Nations Economic Commission for Latin America and the Caribbean (ECLAC) 46, 58, 61, 155, 249, 253

United Nations Educational, Scientific and Cultural Organisation (UNESCO) 56, 58

United Nations Environment Programme (UNEP) 185, 187, 189, 190, 191, 193, 197, 220, 248, 258

United Nations Framework Convention for Climate Change (UNFCCC) 185

United Nations Industrial Development Organization (UNIDO) 175, 180

United Nations Office on Drugs and Crime (UNODC) 240, 243

United Nations Population Fund (UNFPA) 36, 58, 119

United Nations Statistics Division (UNSD) 36, 37, 53, 54, 55, 56, 57, 60, 75, 90, 92, 98, 99, 100, 110, 167, 175, 176, 180, 187, 189, 190, 191, 197

Universal Declaration of Human Rights 240, 263

urban development 228

urban typologies 228

urban zone 228, 230

US Geological Survey (USGS) 193

USA 51, 53, 72

user needs 37, 47, 49, 87, 96, 106, 121, 128, 221, 252

Utilised Agricultural Area (UAA) 191, 216, 219

Uzbekistan 94

V

validation 45, 152, 161, 174, 207, 217, 220, 221, 232

value added tax (VAT) 146, 163, 174, 177, 178

vertical redistribution transfers 261

victim 237, 239, 240, 241, 242, 243

victim survey 237, 239, 240, 241, 243

victimisation 239, 240, 241, 243

victimisation survey 241, 243

Vienna Convention for the Protection of the Ozone Layer 184

Vietnam 254, 255, 258

violence against women 240, 242, 243

vocational training 135

vulnerability 68, 69, 247, 251, 261, 264, 268

W

waste disposal 187, 189

waste framework directive 189

waste generation 187, 188, 189, 190, 195, 252

waste intensity 187

waste reused 189

waste statistics 183, 189

wastewaters 186

water abstraction 186, 187, 194

Water Exploitation Index (WEI) 58, 186, 187

Water Framework Directive 186

water losses 186, 187, 194

water quality 26, 43, 79, 183, 186, 191, 195, 251

water resource scarcity 186

water resources 183, 186, 187, 195, 251

water statistics 78

West Africa 61, 62, 163, 232

West African Economic and Monetary Union (UEMOA) 61, 62, 120, 134, 135, 155, 163

Wiesbaden Group on Business Registers 173

wood product statistics 213

wood production areas 191

workshops 58, 118, 163, 203, 207, 221

World Bank (WB) 23, 31, 32, 34, 35, 36, 37, 49, 55, 56, 58, 68, 70, 72, 76, 88, 89, 90, 94, 98, 99, 105, 109, 118, 140, 164, 165, 167, 180, 204, 214, 220, 223, 263, 264, 268, 270

World Commission on Environment and Development (WCED) 247, 258

World Commission on Protected Areas 190, 191

World Congress on National Parks and Protected Areas 190

World Database on Protected Areas (WDPA) 190, 191

World Development Indicators (WDI) 56

World Education Indicators (WEI) 58, 186, 187

World Health Organisation (WHO) 56, 58, 187, 197

World Meteorological Organization (WMO) 187

World Population and Housing Census Programme 110

World Programme for the Census of Agriculture 2010 216, 223

World Summit on Sustainable Development 248, 258

World Wildlife Fund (WWF) 196

Z

Zambia 78

Zimbabwe 196

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