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Compact guides

Environmental statistics and accounts

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Policy framework

Eurostat, in close partnership with the European Environment Agency (EEA), provides statistics, accounts and indicators supporting the development, implementation and monitoring of the EU's environmental policies, strategies and initiatives.

The 7th EU Environment Action Programme, signed into law in November 2013, will guide the EU's environmental policy up to 2020. It aims at protecting the Union's natural capital, turning the EU into a resource-efficient, green, and competitive low-carbon economy and safeguarding the EU's citizens from environment-related risks to health and wellbeing.

The Europe 2020 strategy for smart, sustainable and inclusive growth includes environment-related objectives such as reducing greenhouse gas emissions by 20 % compared to 1990, increasing the share of renewable energy sources in final energy consumption to 20 %, and improving energy efficiency by 20 %. Under the strategy, there are seven flagship initiatives, one of which focuses on a roadmap to a resource-efficient Europe.

The following pages illustrate how Eurostat contributes to the implementation and monitoring of the EU's environmental policies and strategies, through a set of statistics and accounts in various most relevant environmental domains. All information presented in this leaflet is also available to the public and can be used in the public debate over environmental issues.

Greenhouse gas emissions

Preventing dangerous climate change is a strategic priority for the European Union. For 2020, the EU has committed to cutting its greenhouse gas emissions to 20 % below 1990 levels. To monitor the progress, the European Environment Agency and Eurostat collect statistical data on man-made emissions of the most relevant greenhouse gases. The statistics are usually converted to CO_2-equivalents, for reasons of comparison.

Greenhouse gas emissions in the EU show a decreasing trend over the past decade. Emissions resulting from economic activities, including international aviation but excluding international marine bunkers, were estimated at 4 715 million tonnes of CO_2-equivalents within the EU-28 in 2011, marking an overall reduction of 9.5 % when compared with 2000, and a reduction of 16.9 % compared with 1990. About 80 % of the emissions were energy-related.

Figure 1: Greenhouse gas emissions per capita, EU-28, 2011 (tonnes of CO_2-equivalents per person)
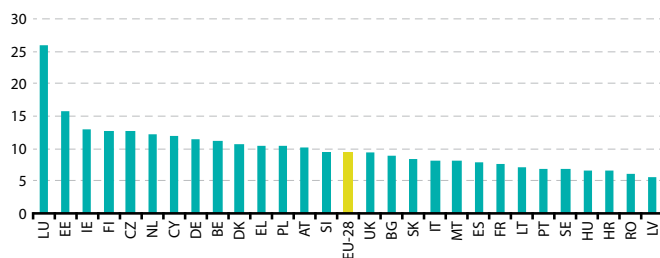
Source: European Environment Agency, Eurostat (online data codes: env_air_gge and tps00001)

Per capita emissions vary strongly across EU Member States (Figure 1). When attributed to economic sectors and aligned with national accounts, the electricity and the manufacturing industries are the largest contributors. Between 2000 and 2010, the overall level of greenhouse gas emissions fell for four of the six activities covered in Figure 2. The largest emissions decline was recorded in the mining and quarrying and the manufacturing industries (37.2 % and 20.4 % respectively). On the other hand, emissions of the transport and storage industry rose by 8.8 % between 2000 and 2010.

Figure 2: Greenhouse gas emissions, analysis by economic activity and households, EU-28, 2011 (% of total, based on CO_2-equivalents of CO_2, CH_4 and N_2O)
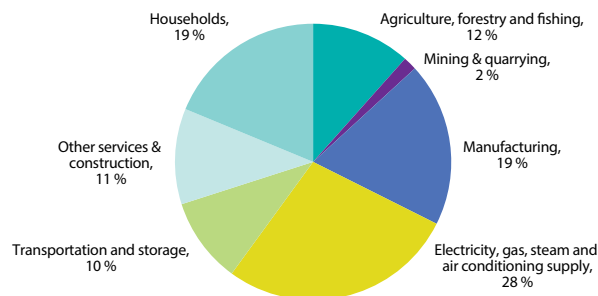
*Source:* Eurostat (online data code: env_ac_ainah_r1)

Material flows and resource productivity

Material flow accounts record the inputs of materials (fossil energy materials, biomass, metal ores) to economies. Domestic material consumption (DMC) is an important indicator, which is related to the gross domestic product (GDP) in order to monitor resource productivity in the context of the Europe 2020 strategy. There was a decreasing trend in DMC between 2007 and 2010, significantly influenced by the economic crisis. DMC was 7 346 million tonnes in 2011, reduced by 2.6 % compared with 2000. In 2011, non-metallic minerals and products accounted for 48.6 % of total DMC, followed by biomass (23.7 %) and fossil energy materials (23.6 %).

Resource productivity measures how much economic value added is created per unit of consumed material. The EU's resource productivity increased during the period 2000-2011, with the exception of 2004 and 2011 when productivity dropped by 2.3 % and 2.7 %, respectively (Figure 3).

Figure 3: Resource productivity in comparison to GDP and DMC, EU-27, 2000-2011 (Index: 2000 = 100)

Source: Eurostat (online data codes: nama_gdp_k and env_ac_mfa)
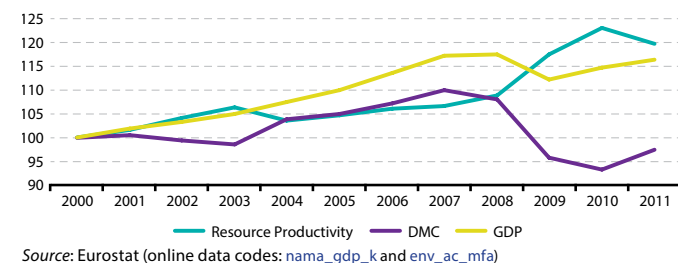
Waste generation and treatment

The EU policy on waste management is based on three principles: waste prevention, recycling and reuse, and improving final disposal and monitoring. European statistics on waste provide the basis for monitoring the implementation of EU waste policy.

Figure 4: Municipal waste treatment, EU-27, 1995-2012 (kg per capita)
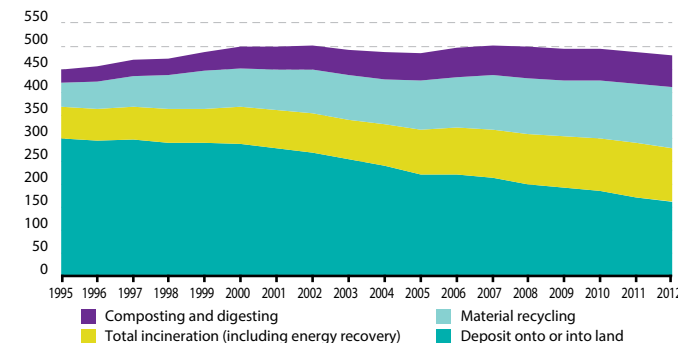
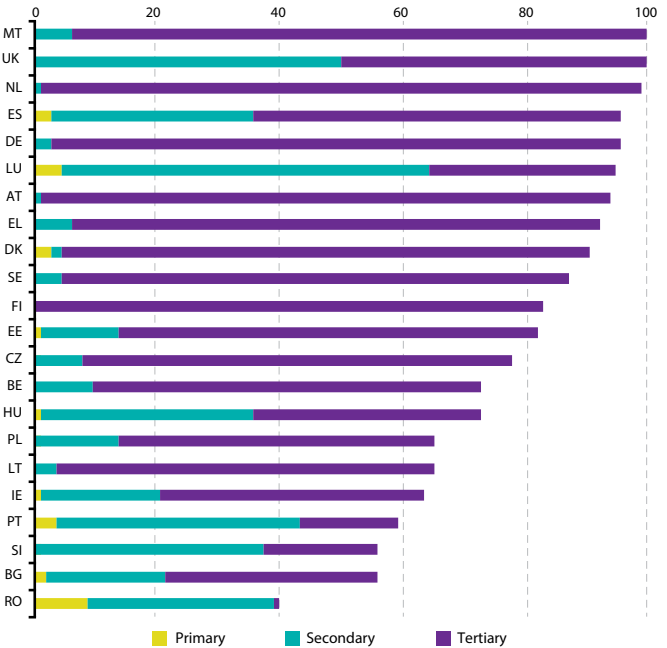*Source*: Eurostat (online data code: env_wasmun)

In 2010, about 2 500 million tonnes of waste were produced in the EU-27, 4 % of which were hazardous waste. Waste production from economic activities has increased slightly (0.35 %) since 2008, while household waste generation decreased by about the same (0.31 %). Mineral waste represented 30 % of total waste generation, construction and demolition waste 13 %, soils 16 %, while recyclables (i.e. paper, metal, glass, plastics, wood and textiles) accounted for 10 % and other wastes for 30 %.

On average, 490 kg per capita of municipal waste were produced in the EU-27 in 2012, ranging from 279 to 668 kg per capita in the various countries. Since 2002, the generation of municipal waste has decreased slightly and the proportion of waste deposited onto or into land dropped substantially from 51 % in 2002 to 33 % in 2012. Over the 1995-2012 period, material recycling increased from 11 % to 27 % of total waste and composting from 6 % to 14 % (Figure 4).

Water use and treatment

Eurostat produces statistics on water resources, water abstraction and use, wastewater treatment as well as generation and discharge of pollution.

Figure 5: Urban population connected to wastewater treatment, 2009-2011 (% of total)
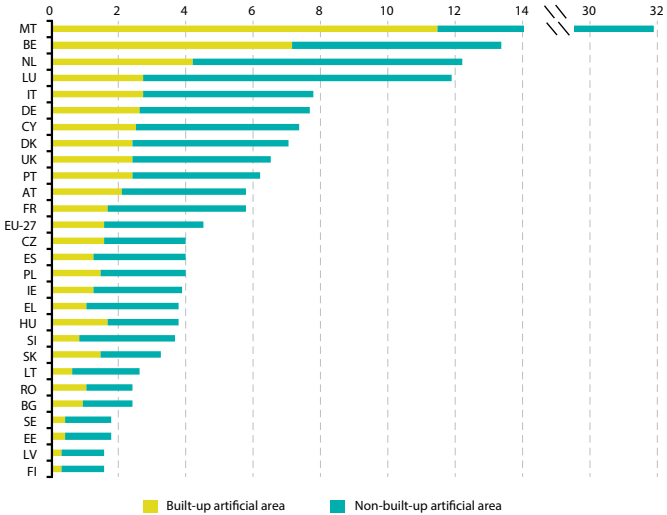
Source: Eurostat (online data code: env_ww_con)

The main water users are agriculture, industry and the domestic sector (served mainly by public water supply systems). There are significant differences among countries on water use levels and uses, depending on climate conditions, economic development pattern and demographic structure. In general, agriculture accounts for most of the water abstracted in southern Europe, while industry-related water use is dominant in central European countries. In most EU Member States, per capita abstraction of fresh surface water was significantly higher than abstraction of fresh ground water.

The proportion of the population served by wastewater treatment plants has been gradually increasing and now exceeds 90 % in several countries (Figure 5). More than 50 % of the population is served by wastewater treatment facilities in all of the EU countries, with the exception of Romania. Tertiary wastewater treatment is most common in the EU Member States.

Land use - LUCAS

The 'Land use/cover area frame statistical survey' (LUCAS) provides information on the bio-physical coverage and the socio-economic use of land. According to the latest field survey (2012), woodland corresponds to 41.2 % of surface area cover in the EU-27, cropland 24.7 %, grassland 19.5 %, artificial 4.6 %, shrubland 4.0 %, water 3.2 %, bare land 1.5 % and wetland 1.4 %.

Figure 6: Share of artificial land in total land cover, 2012 (% of total)

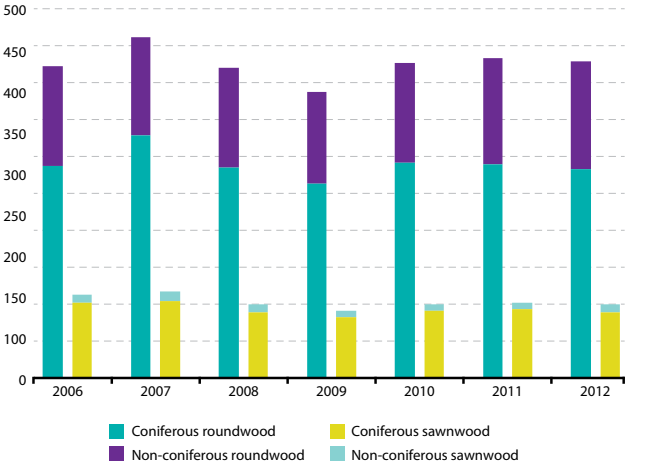Source: Eurostat (online data code: lan_lcv_art)

The share of artificial land in total land cover varies among countries and ranges between 1.6 % and 32.9 %. Non build-up areas account for more than 66 % (average) of artificial land cover. The countries with the highest percentage of build-up areas are Malta (19 %), Belgium (7.1 %) and the Netherlands (4.2 %) (Figure 6).

Forests

The EU has approximately 179.5 million hectares of forest and other wooded land, corresponding to 41 % of its land area.

The production of coniferous wood dropped by 20 % between 2007 and 2009, largely due to the economic crisis, while the production of non-coniferous wood dropped by 7 %. The production of coniferous wood increased by 10 % in 2010 compared with 2009, and stayed on a similar level for the following two years, while the production of non-coniferous wood showed annual increases of 8 %, 6.4 % and 2 % in 2010, 2011 and 2012 respectively. The EU's two largest producers are Germany (22 %) and Sweden (16 %).

Figure 7: Production of roundwood and sawnwood, EU-28 (million m³)

Source: Eurostat (online data code: t_for)

Environmental accounts

Environmental accounts present environmental information (air emissions, raw materials, water, energy, etc.) in a way that is fully compatible with national accounts. Often, environmental data are presented against a detailed breakdown by economic activities. These are typically used to analyse the effect of economic activity and policy measures, as well as social activity, on the environment.

The environmental accounts are organised in three groups:

1. The monetary environmental accounts: They include transactions related to the environment which are not shown separately in national accounts (e.g. investments in cleaner production technologies, environmental taxes) and goods and services produced specifically to protect the environment (e.g. waste management activities) or to prevent the depletion of the stock of natural resources (e.g. solar panels).

2. The physical environmental accounts: They refer to the material that flows through the economy. These accounts include both the economy's needs and the resulting residuals, such as emissions and waste.

3. The environmental assets accounts: They include data on the volume of forests, water and subsoil assets (e.g. oil and gas). These accounts are used to monitor the rate of depletion of a particular environmental asset.

European environmental accounts are codified in law under Regulation (EU) No 691/2011 on European environmental economic accounts, which so far includes three modules, namely air emissions accounts, environmental taxes and material flow accounts. Three additional modules (energy accounts, environmental protection expenditure and environmental goods and services sector) are expected to be added shortly.

Environmental taxes

Environmental taxes have been increasingly used to influence the behaviour of economic operators, whether producers or consumers. European statistics distinguish four different types of environmental taxes relating to energy, transport, pollution and resources.

Total environmental taxes in the EU-28 amounted to EUR 310 billion in 2012 (Figure 8), almost 75 % of which were energy taxes, 21 % transport taxes and 4 % pollution/resource taxes. Compared to 2002, environmental tax revenue has increased by more than EUR 51 billion, which is an increase of 20 %, but as a percentage of total taxes and social contributions (TSC) it fell from 6.6 % (2002) to 6.0 % (2012).

Figure 8: Environmental tax revenue by type, EU-28, 2002-2012

Energy taxes ■ Transport taxes ■ Pollution/resource taxes ■— Total env. taxes in % of TSC

Source: Eurostat (online data code: env_ac_tax)

Environmental protection expenditure

Environmental protection expenditure (EPE) refers to spending on activities that are directly aimed at the prevention or reduction of pollution and any other degradation of the environment. It was around EUR 287 billion in 2011 in the EU-27, corresponding to 2.3 % of GDP, ranging between 1 % and 3 % among most EU Member States.

The largest domain of EPE in 2011 concerned waste management (Figure 9), followed by wastewater treatment, with almost two thirds of the expenditure within these two domains accounted for by specialised producers. By contrast, there was a relatively low level of EPE related to air pollution, with 84 % of the total being accounted for by industry; air pollution accounted for a quarter of the total EPE within industry.

Figure 9: Total environmental protection expenditure by domain, EU-27, 2011([1]) (% of GDP)

■ Air ■ Wastewater ■ Waste ■ Other domains

([1]) Estimates

Source: Eurostat (online data codes: env_ac_exp1r2 and env_ac_exp2)

Policy-related indicators

Eurostat provides important EU policy indicators used for the development of environmental policy and monitoring of its implementation.
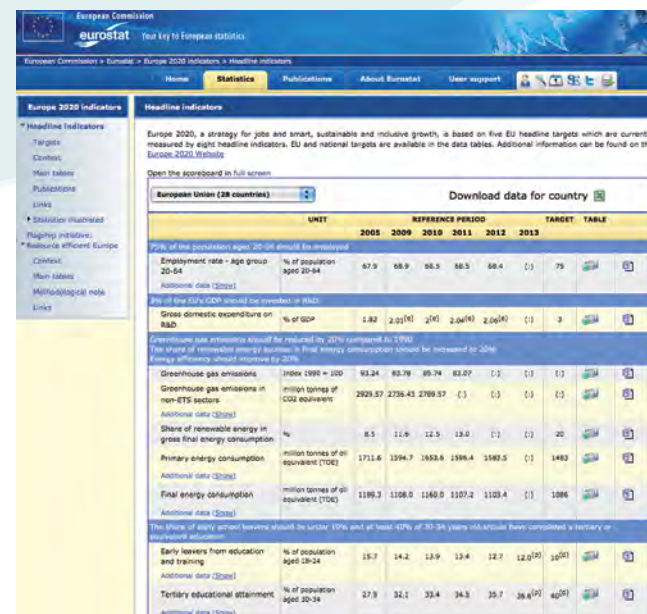
Europe 2020 headline indicators

The Europe 2020 strategy aims at making the EU a 'smart, sustainable and inclusive' economy with high levels of employment, productivity and social cohesion. Data for the Europe 2020 headline indicators can be found on http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/headline_indicators

Sustainable development indicators

The sustainable development indicators (SDIs) are used to monitor the EU Sustainable Development Strategy (EU SDS), a framework for a long-term vision of economic growth, social cohesion and environmental protection. A report is published by Eurostat every two years. (http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators)

Scoreboard on resource efficiency

A resource-efficient Europe is one of seven flagship initiatives of the Europe 2020 strategy. The initiative describes how Europe can achieve a more sustainable use of natural resources and the shift towards a resource-efficient, circular economy.

Eurostat's resource-efficiency scoreboard measures progress towards the milestones to be reached by 2020. (http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/ree_scoreboard)

Data sources

Free access to Eurostat data is available through the Eurostat website, which can be found on http://ec.europa.eu/eurostat.

A **dedicated section** within the Eurostat website provides all available information on environmental statistics and accounts (http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/introduction). It presents background information and gives easy access to data and metadata.

All public Eurostat data is organised in a statistical **database** (http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/data/database) which is structured by topic. On top of the detailed data, users can also find information on data (metadata) for a better understanding of the meaning and scope of the data. **Main tables** offer a selection of the most important data, extracted from the Eurostat statistical database, presented in a user-friendly way as tables, graphs or maps (http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/data/main_tables).

In addition, Eurostat together with the European Environment Agency and the European Commission's Joint Research Centre (JRC), are currently setting up environmental data centres in order to centralise and present data on ten environmental topics more efficiently (http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Environmental_Data_Centre).

Statistics Explained and publications

Statistics Explained (http://epp.eurostat.ec.europa.eu/statistics_explained) is a wiki-type system presenting and explaining all statistical topics in a format easily understood by all. It includes a statistical glossary and numerous hyperlinks to data, further explanations and related websites.

Statistics Explained contains detailed articles on all environmental topics mentioned in this leaflet. The page http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Environment offers structured access via the main environmental topics.

Recent Eurostat **publications** with environmental information include:
- The pocketbook *Energy, transport and environment indicators — 2013 edition*
- The pocketbook *Agriculture, forestry and fishery statistics — 2013 edition*
- The statistical book *Sustainable development in the European Union — 2013 monitoring report of the EU sustainable development strategy*

Publications Office