

**Documentation of statistics for
Public sector environmental protection plus environmental
related taxes and subsidies 2017**

1 Introduction

These statistics are part of the green national accounts. Using international guidelines, the statistics establishes a link between public environmental expenditure and revenue and public environmental protection activities. The statistics are used, inter alia, in relation to political decisions in the environmental field, environmental economic analyses and international comparisons of the various EU countries' environmental efforts. The statistics cover the years 1995 to 2017.

2 Statistical presentation

The statistics consist of three focus areas: *environmental protection*, *green taxes* and *environmental subsidies*. In conjunction with a number of international classifications, these focus areas form the framework for the link between the public environmental expenditure and revenues and the public environmental protection activities. The focus areas of the statistics are also linked to a description of the public sector as a sector consisting of *state*, *municipalities*, *regions* and *public corporations*.

2.1 Data description

The statistics are an annual statement of the public sector's expenditure and income in connection with environmental protection activities, green taxes and environmental subsidies. As such it contributes to the wider framework of green national accounts, by accounting for the environmental aspect of the public finances.

Environmental protection The public sector's economic engagement in environmental protection is presented in terms of expenditure and revenue in relation to activities such as pollution control, waste water management, and conservation of biodiversity. The calculation of these items is based on accounts from the state, the municipalities, the regions and public companies. The table links a number of environmental protection activities to a detailed description of the public finances, and at the same time gives the opportunity for a division of the public sector into its sub sectors (see 2.3 sector coverage).

Green taxes The public revenue from green taxes provides a coherent description of the extent of the green taxes charged directly to industries and households. The tax base of green taxes consists of physical entities (or substitutes for them) that have a documented, specifically negative impact on the environment.

Environmental subsidies The statistics for environmental subsidies describe the annual amount of environmental subsidies. An environmental subsidy is an economic instrument, the purpose of which is to support activities that protect the environment or reduce the use of natural resources. The above mentioned tables divide the subsidies into a number of different categories and purposes and link them to specific industries.

2.2 Classification system

In order to achieve a consistent and internationally comparable link between public environmental expenditure and revenue and public environmental protection and resource management activities, a variety of classifications and groupings are used. Here is a brief presentation of the most important ones.

Classification of Environmental Protection Activities (CEPA) allocates expenses and revenue to 9 different environmental protection activities:

1. Protection of ambient air and climate
2. Wastewater management
3. Waste management
4. Protection and remediation of soil, groundwater and surface water
5. Noise and vibration abatement
6. Protection of biodiversity and landscapes
7. Protection against radiation
8. Research and development
9. Other environmental protection activities (including administration)

'Other environmental protection activities' include activities that can be difficult to place in one of the other groups, for example because of the complexity of the activity. As a rule, administration of environmental protection must be placed in this category.

The CEPA classification is used in the tables for public environmental protection and environmental subsidies.

Classification of Resource Management Activities (CReMA) allocates expenses and revenue to 7 different resource management activities

1. Water resource management
2. Forest resource management
3. Management of wildlife and plants
4. Management of energy resources
5. Management of mineral resources
6. Research and development in natural resources
7. Other resource management (including administration)

'Other resource management activities' include activities that can be difficult to place in one of the other groups, for example because of the complexity of the activity. As a rule, administration of resource management must be placed in this category.

The CReMA classification is used in the table for environmental subsidies to categorise the subsidies according to environmental purposes.

Groupings In addition to the classifications described above, the statistics also make use of various groupings.

The green taxes are grouped, in accordance with Eurostat's manual 'Environmental taxes - A statistical guide' (2013), into four environmental categories: *pollution, transport, energy* and *resources*. The resource rent is presented in addition to this grouping.

Environmental subsidies are divided into five categories: pollution, energy, transport, management of nature and foreign aid. The last two categories in this grouping are peculiar to the Danish statistics in the area. Apart from this exception, the environmental subsidies statistics are based on the instructions in Eurostat's pan-European manual 'Environmental subsidies and similar transfers' (2015).

Total public expenditure and revenue in relation to environmental protection is also categorised by sector and economic type (see 2.4 "Concepts and definitions"). The same expenditure and revenue concepts used for the public sector in the national accounts are initially used for this categorisation. The statement of expenditure and revenue is based on Eurostat's manuals in the field: 'Environmental expenditure statistics - General Government and Specialized Producers data collection handbook' (2007) and 'SERIEE - Environmental Protection Expenditure Accounts; compilation guide' (2002).

Transition table In connection to the preparation of the statistics for the public sector's environmental protection activities, a so-called 'transition table' has been developed, which explains the similarities and differences between the CEPA statement of the public sector's environmental protection activities and the corresponding statement in the so-called COFOG classification (Classification of the Functions of Government). The public environmental protection activities appear as a separate module called COFOG 05 in the overall COFOG system. COFOG 05 is based on the CEPA classification, but the applications of the two modules are not always identical, which can give rise to discrepancies. The transition table is a tool to illustrate how the accounts for the public sector's environmental protection activities are built using COFOG 05 as a basis. Read more about the transition table [here](#).

2.3 Sector coverage

The statistics cover the public sector which includes *state, municipalities, regions and public corporations*. Along these lines, it is important to emphasize the distinction between *the public sector* and *general government*. General government consists of the three sub-sectors state, municipalities and regions, while the overall public sector comes about by adding the public corporations to general government. This difference is important in the table for environmental protection, since waste and wastewater management are largely managed by public corporations. As these activities take up quite a bit in the overall accounts, the outcome is fairly different, depending on whether general government is examined in isolation or the focus is on the public sector as a whole.

A detailed description of the public sector can be found in this [figure](#).

2.4 Statistical concepts and definitions

Environmental purpose: The concept of environmental purpose is used as an umbrella term gathering a number of categories that are used to distribute expenses and revenue according to their environmental purpose. In the table for public environmental protection, the environmental purposes consist of the 9 environmental protection activities defined in the CEPA system. In the table for environmental subsidies, the environmental purposes consist of the 9 CEPA activities along with the 7 resource management activities in the CReMA system (see 2.2 Groupings and Classifications).

Environmental category: Environmental category is an umbrella term for a number of different specifications that draw upon Eurostat's environmental statistics manuals (see 2.2 "Groupings and Classifications"). The tables for green taxes use "environmental category" to specify the type of tax involved. Taxes are divided into 4 main categories, which are further divided into different subcategories. In the tables for environmental subsidies, "environmental category" is used as the heading for five main categories of environmental support with associated subcategories (see 2.2 "Groupings and Classifications").

Environmental subsidies: Environmental subsidies in ESA2010 are defined as ongoing one-sided transfers to public or private companies as well as households and NPISH. Subsidies are divided into product subsidies and other production subsidies. Product subsidies are paid per unit of the goods and services produced. This applies, for example, to most of the EU's agricultural subsidies. Other production subsidies are granted when production begins. An environmental subsidy is thus a subsidy that aims to support environmentally friendly or resource-saving products or production.

Real-economic type: The concept of real economy is linked to the national accounting classification of expenditure and revenue in public finances. Real-economic type thus specifies expenses and income in various types such as 'remuneration of employees', 'sale of goods and services' and 'capital income'.

Expenditure and revenue in Government Finance: Statistics on Government illustrates the expenditure and revenue for the general government sector, making it possible to calculate the surplus or deficit. Current and capital accounts are specified by transactions, such as compensation of employees, consumption in production, investment, capital transfers, taxes, subsidies and income transfers.

ESA2010: The Danish national accounts and the statistics on public finances are calculated according to the guidelines in the European Statistics System, the European System of National and Regional Accounts (ESA 2010). The common international guidelines are aimed at ensuring comparability between countries, which is particularly important in Europe, where the national accounts of the EU are used for political and administrative purposes.

Hydrocarbon tax: Hydrocarbon tax must be paid on income from the first sale of hydrocarbons recovered.

Oil pipeline duty: Anyone recovering liquid hydrocarbons in the Danish territory in the North Sea, should connect the production facility to the pipeline established for the transport of the recovered oil. The users of the pipeline must pay a fee for the cost of maintenance. Oil pipeline tax was abolished from 2013.

Production and import taxes: Production and import taxes in ESA2010 are taxes imposed on production and imports of goods and services or the use of production factors. This type of tax is independent of the company's operating profit. Examples of production and import taxes are VAT, taxes on specific goods such as electricity, gasoline etc.

2.5 Statistical unit

The statistics for public environmental protection are compiled jointly by state, municipality, region and public companies. The statistics for environmental subsidies are compiled jointly for general government on individual items. The statistics for green taxes are compiled in tax types and industries.

2.6 Statistical population

The population for this statistics is the total public sector, consisting of general government and public corporations. This population is covered by the public sector accounts. With these accounts, full coverage of the entire population is achieved since the reporting of public sector accounts is mandatory. A more detailed description of the public sector can be found in '2.3 Sector coverage'.

2.7 Reference area

The statistics cover Denmark. Greenland and The Faroe Islands are not included.

2.8 Time coverage

The statistics cover the years 1995-2017.

2.9 Base period

Not relevant for this statistics.

2.10 Unit of measure

The statistics for the public sector's environmental protection activities are stated in DKK 1,000.

The statistics on environmental subsidies and green taxes are stated in DKK millions.

2.11 Reference period

31-12-2017 - 31-12-2018

2.12 Frequency of dissemination

Annual statistics

2.13 Legal acts and other agreements

§ 6 in Law on Statistics Denmark

Statistics on environmentally related taxes by economic activity is regulated under the European Parliament and council regulation no. 691/2011 on European environmental economic accounts.

Statistics on environmental protection expenditure and -revenues is regulated under the European Parliament and council regulation no. 538/2014 on European environmental economic accounts.

2.14 Cost and burden

The response-burden is nil, since the statistics are compiled on the basis of register information.

2.15 Comment

No further information is available.

3 Statistical processing

The data sources for this statistics consist of accounts from state, municipalities, regions and public corporations that are coded for national accounts based on the manual of the European National Accounting System (ESA2010) and stored in the database DIOR (Database for Integrated Public Accounts). Based on thorough analyses, a list of criteria is drafted, which determines which account items are to be drawn from DIOR in order to compile the statistics. The selected account items are sorted and aggregated according to environmental purposes and categories, real-economic type and sector.

3.1 Source data

The source material for the statistics is the public finances, as they are stored, after national accounts coding, in the database DIOR (Database for Integrated Public Accounts). Using selected expenses and revenue from DIOR, tables are compiled to cover the three main subject areas of these statistics (see 2.1). For a more detailed description of DIOR, see the statistical documentation for accounts for general government.

3.2 Frequency of data collection

Data is collected annually.

3.3 Data collection

Data for these statistics is collected from Statistics Denmark's database DIOR. DIOR systematizes and stores electronic extracts from the accounts of the state, municipalities and regions as well as annual accounts from public corporations. Based on analyses of the Finance Act, the central government accounts, the municipal and regional accounts and the branches of public corporations, a list is compiled, which determines the account items to be drawn from DIOR and assembled to the final tables of the statistics.

3.4 Data validation

The tables in these statistics use register-based data - accounts that have been validated and audited prior to submission. In addition, data for these statistics have been validated for use in public finance statistics (see, for example, 'data validation' in the documentation for 'the general government accounts'). Data for the green taxes are validated and quality checked by comparing them against the collected taxes and tariffs from the Danish tax authorities, which is also stored in DIOR.

3.5 Data compilation

The processing of data for this statistics largely consists of sorting and aggregation of expenditure and revenue by environmental purpose and category, real-economic type, branches and sub-sectors. On the basis of this categorisation and aggregation, the figures are presented in different environmental areas of action, according to the real economic type as well as in subsectors of the public sector. The statement is consolidated within state, municipalities, regions and public corporations. This means that the double-counting of transfers between sub-sectors is avoided, such that the expenditure is shown by the sector in charge of the task.

3.6 Adjustment

No corrections are made to data in these statistics.

4 Relevance

The figures in these statistics are relevant, among other things, in connection with political decisions in the environmental field, environmental economic analyses and international comparisons of the individual EU countries' environmental efforts. The most obvious users of the statistics are various ministries, agencies and organizations, as well as media and research institutions. Statistics Denmark receives information about the users' needs and satisfaction via the Contact Committee for Environmental Economic Accounts and Statistics.

4.1 User Needs

These statistics establish a link between public sector expenditure and revenue and the same sector's environmental and resource activities. The link is made by dividing expenditure and revenue by both environmental and national accounting categories. In this capacity, the statistics are largely aimed at professionals and analysts. Professionals who use the statistics will often be employed in ministries such as the Ministry of the Environment and Food, the Ministry of Finance or in organizations such as Eurostat and the OECD. The analysts will often sit in councils and boards - such as the Environmental Economic Council or the Climate Council. The relatively high level of detail in national accounting categories may constitute a barrier to more generally interested users of the statistics.

4.2 User Satisfaction

A liaison group on environmental economic accounts and statistics holds at least one meeting per year. All or part of the committee's meetings is as seminar form where there may be several participants from the institutions represented on the committee. The following institutions and organizations have a representative on the committee: Statistics Denmark, Minister of Economic and Business Affairs, Finance, Climate, Energy and Building Department, Ministry of Environment, Ministry of Food, Agriculture and Fisheries, Ministry of Transport, Ministry of Economy and Ministry of Interior, Energy Agency, the Environmental Protection Agency.

4.3 Data completeness rate

All published data meets the current requirements under EU legislation and guidelines in this area.

5 Accuracy and reliability

The primary sources of uncertainty associated with this statistics include: potential mis-entries in the public accounts, the risk of overlooked accounting items, the risk of incorrectly included accounting items, the possibility of misclassification within CEPA and CReMA as well as uncertainty related to percentage estimates of the environmental share of different entries in the public accounts. Furthermore, the industry distribution of green taxes and environmental subsidies depends on a number of assumptions, which are also subject to uncertainty.

5.1 Overall accuracy

This statistics highlight public spending and revenue related to environmental protection and resource management (including energy efficiency and renewable energy as well as green taxes). The tables of this statistics provide merely an estimate of the extent of this target. This is due to the fact that it is difficult to clearly define this broad field. Often it is not a clear-cut matter to determine whether this or the other entry in the public accounts ought to be included in the statistics or not. In some cases, it has been necessary to estimate an 'environmental share' of a given accounting item so that the item does not amount to its entire value, but only by a percentage (corresponding to the environmental share of the total item). In such cases, the estimates will typically be relatively rough. Basically, it is not possible to capture all environmentally related transactions for the sole reason that the public accounts are not detailed enough. Often, the environment is such an integral part of complex functions that it is not possible to specify it in accounting items or account shares. When trying to estimate the environmental share in a given accounts item, there will sometimes be a tendency to make this estimate larger than the target, to be sure of full inclusion. On the other hand, it is also largely unavoidable that certain items are not included. Therefore, it is not easy to determine, whether the statistics overestimate or underestimate the size of the target. The development trend, on the other hand, is expected to be reasonably reliable in the sense that once the established estimate is accepted as a functional starting point, the statistics will accurately reflect developments in the accounts over time.

5.2 Sampling error

Since the present statistics are register-based, the sample uncertainty is not relevant in this case.

5.3 Non-sampling error

Other sources of uncertainty in the current statistics can often be attributed to different errors of measurement. In this context, the following errors deserve to be highlighted: misplacements of expenditure and revenue within the public accounts, misclassification within the two international classification systems CEPA and CReMA, as well as incorrectly included or omitted accounting items. Misplacements within the public accounts occur outside of Statistics Denmark and are therefore difficult to get the full overview of. However, the close cooperation between Statistics Denmark and accounting officers within the public sector contributes to the ongoing correction of such errors. Misclassifications, incorrect inclusions or omissions often depend on misinterpretations of the international classifications, as well as the risk of ignoring environmentally relevant account entries. Such errors are impossible to avoid completely. Efforts to reduce such errors, however, are ongoing.

5.4 Quality management

Statistics Denmark follows the recommendations on organisation and management of quality given in the Code of Practice for European Statistics (CoP) and the implementation guidelines given in the Quality Assurance Framework of the European Statistical System (QAF). A Working Group on Quality and a central quality assurance function have been established to continuously carry through control of products and processes.

5.5 Quality assurance

Statistics Denmark follows the principles in the Code of Practice for European Statistics (CoP) and uses the Quality Assurance Framework of the European Statistical System (QAF) for the implementation of the principles. This involves continuous decentralized and central control of products and processes based on documentation following international standards. The central quality assurance function reports to the Working Group on Quality. Reports include suggestions for improvement that are assessed, decided and subsequently implemented.

5.6 Quality assessment

The statistics cover the total accounts for all municipalities and regions, all ministries in the state, and all public corporations. The final accounting figures are not revised. The central government, the municipal and regional accounts and public companies are considered to be final when published. Corrections may occur later if errors in the data or in the data processing is discovered. The individual statistics have a scale and level of detail which is in line with other countries such as Sweden, Norway and the Netherlands. The accounts are established in accordance with international guidelines from Eurostat and the United Nations.

5.7 Data revision - policy

Statistics Denmark revises published figures in accordance with the [Revision Policy for Statistics Denmark](#). The common procedures and principles of the Revision Policy are for some statistics supplemented by a specific revision practice.

5.8 Data revision practice

The differences between provisional and final years are typically small. National accounting revisions may bring data changes as long back in timelines as 3 years. This will however only seldom if ever affect the data on environmental expenditure and revenue.

In 2018, the methodological basis for the present statistics has been scrutinized. This applies in particular to the table Mreg22, which has been the subject of comparative studies for the purpose of increasing the quality of the table (see section on the transition table in "Groupings and Classifications"). These studies are intended to result in more fundamental revisions of the statistics over time.

6 Timeliness and punctuality

The statistics is published with high timeliness and punctuality. The statistics is usually published without delay in relation to the scheduled date.

6.1 Timeliness and time lag - final results

The statistics are published annually, the year after a given accounting period. The figures follow the auditing rhythm of the National Accounts and will not be final until three years after the end of the accounting period.

6.2 Punctuality

Normally, the statistics are published without delay in relation to the scheduled date.

7 Comparability

The figures in these statistics are comparable to other statistics in several different ways. Through transmissions to Eurostat, the figures are made comparable with the other EU countries according to Regulation No 691/2011 of the European Parliament and of the Council on European environmental economic accounts. The figures are comparable over time, and finally the figures are comparable to other figures within the national accounting framework.

7.1 Comparability - geographical

The figures in these statistics are submitted to Eurostat via three different transmissions and are thus made available for comparison with corresponding statistics for the other EU countries. The three transmissions are parallel to the three main areas of the statistics.

Environmental protection The environmental protection figures are transmitted via EPEA (Environmental Protection Expenditure Accounts), which follows the Eurostat manual [Environmental Expenditure Statistics](#).

Green taxes The green tax are transmitted via ETEA (Environmental Taxes by Economic Activity) and follows the Eurostat manual [Environmental taxes - A statistical guide](#).

Environmental subsidies The environmental subsidies are transmitted voluntarily via ESST (Environmental Subsidies and Similar Transfers), which follows the Eurostat manual [Environmental subsidies and similar transfers – Guidelines](#).

7.2 Comparability over time

The statistics on public environmental protection date back to 1995 and have been prepared in accordance with the European System of National Accounts, ESA 2010. The overall methodological approach has been maintained for all years. In 2018, however, several adjustments have been made to percentage estimates, relocations of items between different environmental activities, as well as a minor revisions of accounting policies have been performed. Despite these changes, however, the statistics are still considered to be comparable over time.

In 2016, time series for environmental support were prepared for the years 1995-2009, so that a time series for environmental support from 1995 onwards now exists. The years 1995-2009 do not contain the same level of detail as the figures for 2010 and beyond. The green taxes have since 2013 been compiled in accordance with the new EU legislation in this area. In 2013, the time series back to 1995 was recalculated with new methods according to ESA 2010. The green taxes are thus comparable in an international perspective. It is pointed out that the statistics do not take price development into account, which has an impact on the comparability of the statistics over time.

7.3 Coherence - cross domain

The statistics make use of the European statistical system for economic statistics in the environmental field. The statistics will therefore be comparable to other European statistics on public environmental protection. Here, comparisons with module 05 within the COFOG classification are particularly relevant (see the section on the transition table in "Groupings and Classifications").

Furthermore, data on green taxes are comparable to data for reported taxes in Public Finance. At an aggregate level, the Danish accounts are comparable to the European accounts drawn up for other EU countries.

The green taxes are comparable to other (public) tax and tax statistics.

For comparisons, one must be aware that the statistics on public environmental protection cover the entire public sector (including public companies, ie 'market activities', mainly in the waste water and waste areas). Therefore, if you want to compare the statistics with other statistics on 'general government' (which by definition consists of the entire public area market activities excluded), one must disregard the business category of the environmental statistics (read more about this in the section on the transition table in 'Groupings and Classifications').

7.4 Coherence - internal

The final accounts for the central government is collected directly from the Ministry of Finance. There is internal consistency between main paragraphs and sub-accounts. The final accounts data are collected directly from the systems in the municipalities and regions and received only from one source. There is internal consistency between the main accounting numbers and underlying functions.

8 Accessibility and clarity

These statistics are published in a Danish [press release](#). The figures can be found in the StatBank under [Green Economy](#). In addition, these statistics feature in the [Environmental-Economic Accounts](#).

8.1 Release calendar

The publication date appears in the release calendar. The date is confirmed in the weeks before.

8.2 Release calendar access

The Release Calendar can be accessed on our English website: [Release Calendar](#).

8.3 User access

Statistics are always published at 8:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published.

8.4 News release

These statistics are published in a Danish press release.

8.5 Publications

These statistics are part of the [Environmental-Economic Accounts](#).

8.6 On-line database

These statistics are published in the StatBank under [Green economy](#) in the following tables:

Public Sector Environmental Protection

- [MREG22](#): Environmental protection by environmental purpose, expenditure/revenue and sector

Environmental Taxes

- [MREG21](#): Environmentally related taxes by environmental category
- [MRS1](#): Environmental taxes by industry and environmental category

Environmental Transfers

- [MMS1](#): Environmental transfers by environmental category
- [MMS2](#): Environmental transfers by environmental purpose
- [MMS3](#): Environmental transfers by industry and environmental category

8.7 Micro-data access

Not available.

8.8 Other

Data is delivered to Eurostat - Unit E2, Environmental Statistics and to OECD - Environmental Directorate.

8.9 Confidentiality - policy

[Statistics Denmark's confidentiality policy](#).

8.10 Confidentiality - data treatment

Not relevant for these statistics.

8.11 Documentation on methodology

These statistics are compiled in compliance with the following Eurostat publications:

- [Environmental Protection Expenditure in Europe](#)
- [Environmental Taxes - A statistical guide](#)
- [Environmental Subsidies and Similar Transfers](#)

8.12 Quality documentation

Results from the quality evaluation of products and selected processes are available in detail for each statistics and in summary reports for the Working Group on Quality.

9 Contact

The administrative placement of this statistics is in the division Government Finances. The person responsible is Emil Urhammer, tel.: +45 39 17 34 34, e-mail: euh@dst.dk

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