

# Manual on the Basic Set of Environment Statistics of the FDES 2013



## Environment Protection and Resource Management Expenditure

(Topic 6.1.1: Government environmental protection and resource management expenditure)

*Elaborated by the Environment Statistics Section  
of the United Nations Statistics Division,  
in collaboration with the  
Expert Group on Environment Statistics*

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Methodology sheet of the Basic Set of Environment Statistics of the FDES

[https://unstats.un.org/unsd/envstats/fdes/manual\\_bses.cshhtml](https://unstats.un.org/unsd/envstats/fdes/manual_bses.cshhtml)

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# 1. Statistics in Topic 6.1.1 Government environmental protection and resource management expenditure

Component 6: Environmental Protection, Management and Engagement				
Sub-component 6.1: Environmental Protection and Resource Management Expenditure				
Topic 6.1.1: Government environmental protection and resource management expenditure				
Statistics and Related Information		Category of Measurement	Potential Aggregations and Scales	Methodological Guidance
(Bold Text - Core Set/Tier 1; Regular Text - Tier 2; <i>Italicized Text</i> - Tier 3)				
a.	Government environmental protection and resource management expenditure		<ul style="list-style-type: none"> <li>▪ By environmental activity</li> <li>▪ By type of expenditure: current, investment</li> <li>▪ By ministry</li> <li>▪ National</li> <li>▪ Sub-national</li> <li>▪ By funding</li> </ul>	<ul style="list-style-type: none"> <li>▪ Eurostat-SERIEE Environmental Protection Expenditure Accounts Compilation Guide (2002)</li> <li>▪ Eurostat-Environmental Expenditure Statistics. General Government and Specialised Producers Data Collection Handbook (2007)</li> <li>▪ Classification of Environmental Activities (CEA)</li> <li>▪ SEEA Central Framework (2012) Annex 1</li> </ul>
	1. <b>Annual government environmental protection expenditure</b>	Currency		
	2. Annual government resource management expenditure	Currency		

## 2. Introduction/Relevance

Environmental Protection Expenditure (EPE) statistics measure the efforts to protect the environment. The FDES mentions that “expenditure on environmental protection and resource management can be used as one measure of the public and private engagement in protecting, restoring and managing the environment towards more sustainable use.”<sup>1</sup> Similarly, the System of Environmental-Economic Accounting-Central Framework (SEEA) explains that these expenditures are made by different economic units to finance activities whose primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation of the environment. It also states that resource management expenditure finances those activities whose primary purpose is preserving and maintaining the stock of natural resources and hence safeguarding against depletion.<sup>2</sup>

Monitoring and tracking the level of expenditure on environmental protection and resource management is important for policy makers, analysts and civil society to determine the current and desired levels of engagement and commitment from both government and the private sector. Governments are usually the largest investors in EPE, although in some countries such as in Europe, specialised producers may contribute much more, and it is crucial to intensify such investments, particularly in accordance with the 2030 Agenda for Sustainable Development, Transforming our World (2015),<sup>3</sup> which recognizes that each country has primary responsibility for its own economic, social and environmental development, including the mobilization of public finances, both domestic and international, for the provision of essential services and public goods and in catalysing other sources of finance.

Resource Management Expenditures also reflect efforts to conserve natural resources. These expenditures finance activities whose primary purpose is to preserve and maintain stocks of natural resources and protection against exhaustion.<sup>4</sup>

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<sup>1</sup> United Nations Statistics Division (2017) *Framework for the Development of Environment Statistics (FDES 2013)*, <https://unstats.un.org/unsd/environment/fdes/FDES-2015-supporting-tools/FDES.pdf> (accessed 11 January 2018)

<sup>2</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>3</sup> United Nations (2015) *Transforming our world: the 2030 Agenda for Sustainable Development*, General Assembly Resolution, A/RES/70/1, [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1&Lang=E](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E) (accessed 11 January 2018)

<sup>4</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

# 3. Definitions and description of the statistics

To measure expenditure, it is first necessary to identify which *activities* fall under environmental protection and resource management.

## Environmental protection activities

“Are those activities whose primary purpose is the prevention, reduction and elimination of pollution and other forms of degradation of the environment. These activities include the protection of ambient air and climate, wastewater management, waste management, protection and remediation of soil, groundwater and surface water, noise and vibration abatement, protection of biodiversity and landscapes, protection against radiation, research and development for environmental protection and other environmental protection activities.”<sup>5</sup>

## Resource management activities

“Resource management activities are those activities whose primary purpose is preserving and maintaining the stock of natural resources and hence safeguarding against depletion. These activities include, but are not limited to, reducing the withdrawals of natural resources (including through the recovery, reuse, recycling and substitution of natural resources); restoring natural resource stocks (increases or recharges of natural resource stocks); the general management of natural resources (including monitoring, control, surveillance and data collection); and the production of goods and services used to manage or conserve natural resources. They cover the management of mineral and energy resources; timber resources; aquatic resources; other biological resources; water resources; research and development activities for resource management; and other resource management activities.”<sup>6</sup>

## Government units

Are unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area. Viewed as institutional units, the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes, to redistribute income and wealth by means of transfers, and to engage in non-market production.<sup>7</sup>

The general government sector consists mainly of central, state and local government units together with social security funds imposed and controlled by those units. In addition, it includes non-profit institutions engaged in non-market production that are controlled by government units or social security funds (System of National Accounts, paragraph 4.30).<sup>8</sup>

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<sup>5</sup> United Nations Statistics Division (2017) *Framework for the Development of Environment Statistics (FDES 2013)*, <https://unstats.un.org/unsd/environment/fdes/FDES-2015-supporting-tools/FDES.pdf> (accessed 11 January 2018)

<sup>6</sup> United Nations Statistics Division (2017) *Framework for the Development of Environment Statistics (FDES 2013)*, <https://unstats.un.org/unsd/environment/fdes/FDES-2015-supporting-tools/FDES.pdf> (accessed 11 January 2018)

<sup>7</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>8</sup> United Nations (2009) *System of National Accounts 2008*, New York: United Nations, <https://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf> (accessed 11 January 2018)

### 3A. Government environmental protection and resource management expenditure (Topic 6.1.1)

#### Government environmental protection and resource management expenditure (FDES 6.1.1.a)

##### Annual government environmental protection expenditure (FDES 6.1.1.a.1)

Value of general government's expenditure on prevention, reduction and elimination of pollution as well as any other degradation of the environment.<sup>9</sup> For further detail refer to the definition of environmental protection activities.

The environmental protection (EP) expenditures of general government cover expenditures on all goods and services used for environmental protection, including (a) expenditure on environmental protection specific services; (b) expenditure on environmental protection connected products; and (c) expenditure on adapted goods (SEEA, paragraph 4.62).<sup>10</sup>

- *Environmental protection specific services* are environmental protection services produced by economic units for sale or own use (SEEA, paragraph 4.53).<sup>11</sup>
- *Environmental protection connected products* are products whose use directly serves environmental protection purposes but which are not environmental protection specific services or inputs into characteristic activities.
  - Examples of connected products include septic tanks, maintenance services and other products for septic tanks, catalytic converters for vehicles, trash bags, bins, rubbish containers and compost containers (SEEA, paragraph 4.65).<sup>12</sup>
- *Adapted goods* are goods that have been specifically modified to be more "environmentally friendly" or "cleaner" and whose use is therefore beneficial for environmental protection.

Examples of adapted goods include desulphurized fuels, mercury-free batteries and CFC-free products. Only the extra costs paid to acquire adapted goods are considered environmental protection expenditure (to the extent that the R&D is considered capital formation in the SNA) or in cases where the expenditure leads to improvements in land which, following the SNA, are treated as gross fixed capital formation in land improvements (SEEA, paragraph 4.67).<sup>13</sup>

The expenditure may relate to intermediate consumption, final consumption or gross fixed capital formation. There is potential for gross fixed capital formation to be recorded for environmental protection specific services, for example, for environmental protection research and development (R&D) (SEEA, paragraph 4.63).<sup>14</sup>

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<sup>9</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>10</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>11</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>12</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>13</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>14</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in

*Remarks:*

- The reports and the annual accounts of the lower levels of government can be collected and analysed in a complementary manner to the accounts of the central government. These reports can provide:
  - A source for the description of the environment sector, identification of environmental legislation and the establishment of a detailed classification of environmental activities and other units involved in environmental protection.
  - More detailed and accurate distribution of the spending exercised by the government on environmental protection activities.
  - Information on the use of subsidies and other transfers paid by the central government.
  - Assignment of specific tax receipts and other income related to environmental protection.
- The above information should be treated as part of general government.

**Annual government resource management expenditure (FDES 6.1.1.a.2)**

Value of general government's expenditure on preserving and maintaining the stock of natural resources and safeguarding against depletion. This includes reducing the withdrawals of natural resources (recovery, reuse, recycling, savings, and substitution of natural resources) as well as restoring natural resource stocks (increases/ recharges of natural resource stocks).<sup>15</sup> For further detail refer to the definition of resource management activities.

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Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>15</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

# 4. International sources and recommendations

## 4A. Classifications and groupings

### 4A1. Classification of Environmental Activities (CEA)

The Classification of Environmental Activities<sup>16</sup> is composed of: A. Environmental Protection (EP) and B. Natural Resources Management (RM) activities and expenditures. It is derived from the European Union Classification of Environmental Protection Activities and Expenditure (CEPA).<sup>17</sup> Under each group are *classes* (1-digit categories) and should be used separately from one another; classes are further subdivided into 2-digits and 3-digits categories which guide classification of activities into classes. Selected 2-digits and 3-digits categories may also be used for data collection and coding as well as for reporting purposes.

**Figure 4.1: Classification of Environmental Activities (CEA)**

<p><b>A. Environmental Protection (EP)</b></p> <p>1 PROTECTION OF AMBIENT AIR AND CLIMATE</p> <ul style="list-style-type: none"><li>1.1 Prevention of pollution through in-process modifications<ul style="list-style-type: none"><li>1.1.1 For the protection of ambient air</li><li>1.1.2 For the protection of climate and ozone layer</li></ul></li><li>1.2 Treatment of exhaust gases and ventilation air<ul style="list-style-type: none"><li>1.2.1 For the protection of ambient air</li><li>1.2.2 For the protection of climate and ozone layer</li></ul></li><li>1.3 Measurement, control, laboratories and the like</li><li>1.4 Other activities</li></ul> <p>2 WASTEWATER MANAGEMENT</p> <ul style="list-style-type: none"><li>2.1 Prevention of pollution through in-process modifications</li><li>2.2 Sewerage networks</li><li>2.3 Wastewater treatment</li><li>2.4 Treatment of cooling water</li><li>2.5 Measurement, control, laboratories and the like</li><li>2.6 Other activities</li></ul> <p>3 WASTE MANAGEMENT</p> <ul style="list-style-type: none"><li>3.1 Prevention of pollution through in-process modifications</li><li>3.2 Collection and transport</li><li>3.3 Treatment and disposal of hazardous waste</li></ul>
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<sup>16</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) System of Environmental-Economic Accounting 2012: Central Framework. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>17</sup> United Nations (2000) Classification of Environmental Protection Activities 2000 (CEPA 2000), [http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST\\_NOM\\_DTL&StrNom=CEPA\\_2000&StrLanguageCode=EN&IntPckKey=&StrLayoutCode=HIERARCHIC](http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=CEPA_2000&StrLanguageCode=EN&IntPckKey=&StrLayoutCode=HIERARCHIC) (accessed 16 January 2018)



- 3.3.1 Thermal treatment
- 3.3.2 Landfill
- 3.3.3 Other treatment and disposal
- 3.4 Treatment and disposal of non-hazardous waste
  - 3.4.1 Incineration
  - 3.4.2 Landfill
  - 3.4.3 Other treatment and disposal
- 3.5 Measurement, control, laboratories and the like
- 3.6 Other waste management activities

#### 4 PROTECTION AND REMEDIATION OF SOIL, GROUNDWATER AND SURFACE WATER

- 4.1 Prevention of pollutant infiltration
- 4.2 Cleaning up of soil and water bodies
- 4.3 Protection of soil from erosion and other physical degradation
- 4.4 Prevention and remediation of soil salinity
- 4.5 Measurement, control, laboratories and the like
- 4.6 Other activities

#### 5 NOISE AND VIBRATION ABATEMENT (excluding workplace protection)

- 5.1 Preventive in-process modifications at the source
  - 5.1.1 Road and rail traffic
  - 5.1.2 Air traffic
  - 5.1.3 Industrial and other noise
- 5.2 Construction of anti-noise/vibration facilities
  - 5.2.1 Road and rail traffic
  - 5.2.2 Air traffic
  - 5.2.3 Industrial and other noise
- 5.3 Measurement, control, laboratories and the like
- 5.4 Other activities

#### 6 PROTECTION OF BIODIVERSITY AND LANDSCAPES

- 6.1 Protection and rehabilitation of species and habitats
- 6.2 Protection of natural and semi-natural landscapes
- 6.3 Measurement, control, laboratories and the like
- 6.4 Other activities

#### 7 PROTECTION AGAINST RADIATION (excluding external safety)

- 7.1 Protection of ambient media
- 7.2 Transport and treatment of high level radioactive waste
- 7.3 Measurement, control, laboratories and the like
- 7.4 Other activities

#### 8 RESEARCH AND DEVELOPMENT

- 8.1 Protection of ambient air and climate
  - 8.1.1 Protection of ambient air
  - 8.1.2 Protection of atmosphere and climate
- 8.2 Protection of water
- 8.3 Waste
- 8.4 Protection of soil and groundwater
- 8.5 Abatement of noise and vibration
- 8.6 Protection of species and habitats
- 8.7 Protection against radiation
- 8.8 Other research on the environment

## 9 OTHER ENVIRONMENTAL PROTECTION ACTIVITIES

- 9.1 General environmental administration and management
  - 9.1.1 General administration, regulation and the like
  - 9.1.2 Environmental management
- 9.2 Education, training and information
- 9.3 Activities leading to indivisible expenditure
- 9.4 Activities not elsewhere classified

## **B. Natural Resources Management (RM)**

### 10 MANAGEMENT OF WATER RESOURCES

- 10.1 Reduction of the intake of water resources
- 10.2 Reduction of water losses and leaks, water reuse and savings
- 10.3 Replenishment of water stocks
- 10.4 Measurement, control, laboratories and the like related to water resources
- 10.5 Other activities for the management of water resources

### 11 MANAGEMENT OF NATURAL FOREST RESOURCES

- 11.1 Reduction of the intake of natural forest resources
- 11.2 Reduction of the consumption of forest (wood and non-wood)-related products
- 11.3 Reforestation and afforestation
- 11.4 Forest fires
- 11.5 Measurement, control, laboratories and the like related to natural forest resources
- 11.6 Other activities for the management of natural forest resources

### 12 MANAGEMENT OF WILD FLORA AND FAUNA

- 12.1 Reduction of the intake of wild flora and fauna
- 12.2 Replenishment of wild flora and fauna stocks
- 12.3 Measurement, control, laboratories and the like related to wild flora and fauna
- 12.4 Other activities for the management of wild flora and fauna

### 13 MANAGEMENT OF FOSSIL ENERGY

- 13.1 Reduction of the intake of fossil energy
- 13.2 Reduction of heat and energy losses, and energy savings
- 13.3 Measurement, control, laboratories and the like related to fossil energy
- 13.4 Other activities for the management of fossil energy

### 14 MANAGEMENT OF MINERALS

- 14.1 Reduction of the intake of minerals
- 14.2 Reduction of minerals use through the reduction of scraps and the production and consumption of recycled materials and products
- 14.3 Measurement, control, laboratories and the like related to minerals
- 14.4 Other activities for the management of minerals

### 15 RESEARCH AND DEVELOPMENT ACTIVITIES FOR NATURAL RESOURCE MANAGEMENT

- 15.1 Water resources
- 15.2 Natural forest resources
- 15.3 Wild flora and fauna
- 15.4 Fossil energy
- 15.5 Minerals
- 15.6 Other R&D activities for natural resource management

### 16. OTHER NATURAL RESOURCE MANAGEMENT ACTIVITIES

- 16.1 General administration of natural resources

- 16.1.1 General administration, regulation and the like
- 16.1.2 Environmental management
- 16.2 Education, training and information
- 16.3 Activities leading to indivisible expenditure
- 16.4 Activities not elsewhere classified

Figure 4.2: Kinds of environmental activities considered for CEA<sup>18</sup>

Table 2 Kinds of environmental activities considered for identifying CEA categories

<b>Kinds of EP activities</b>		<ul style="list-style-type: none"> <li>- pollution/degradation prevention activities <ul style="list-style-type: none"> <li>▪ pollution/degradation reduction activities:</li> <li>▪ reduction of emissions and discharges</li> </ul> </li> <li>- reduction of pollution levels and degradation of environmental media</li> <li>- measurement and control activities</li> <li>- research and development activities in the field of environmental protection</li> <li>- teaching and training activities</li> <li>- administrative activities</li> </ul>
<b>Kinds of RM activities</b>		<ul style="list-style-type: none"> <li>- activities aimed at reducing withdrawals: recovery, reuse, recycling, savings, substitution of natural resources</li> <li>- replenishment activities: increases/ recharges of natural resource stocks (for renewable resources, i.e. inland waters, forest and wild flora and fauna)</li> <li>- monitoring, control and surveillance (including the control on the observance of licenses, permits, quotas, ...), measurement, inventories, data collection and the like</li> <li>- R&amp;D activities in the field of natural resource management</li> <li>- teaching, training, information and communication activities</li> <li>- natural resource administration and regulation activities carried out by the general government (including e.g. the elaboration of plans, the release of any kind of licenses and permits for exploiting resources, the enforcement of quotas, ...)</li> </ul>
<b>Kinds of RU activities</b>	<b>Withdrawals and distribution</b>	<ul style="list-style-type: none"> <li>- withdrawals from existing resources</li> <li>- management and maintenance activities carried out by the public or private authorities in charge of the direct management and exploitation of the reserves of natural resources</li> <li>- distribution of natural resources (only for water resources)</li> </ul>
	<b>Exploration</b>	<ul style="list-style-type: none"> <li>- research and exploration for new reserves and resources</li> </ul>

Figure 4.3: Environmental domains and natural resources considered for CEA<sup>19</sup>

Table 3 Environmental domains and natural resources considered for identifying CEA categories

<b>Environmental domains (for EP activities), i.e. type of environmental media or type of pollution-nuisance-degradation</b>	<ul style="list-style-type: none"> <li>- Air pollution (and related climatic risks)</li> <li>- Surface water pollution</li> <li>- Waste</li> <li>- Soil and ground water pollution, erosion and other physical degradation of soil</li> <li>- Noise and vibration</li> <li>- Degradation of biodiversity and landscape</li> <li>- Radiation</li> </ul>
<b>Natural resources (for RM and RU activities)</b>	<ul style="list-style-type: none"> <li>- Water resources</li> <li>- Natural forest resources</li> <li>- Wild flora and fauna</li> <li>- Fossil energy</li> <li>- Minerals</li> </ul>

Note: RU refers to Resource Use which is not covered in the CEA.

<sup>18</sup> United Nations (2011) *Classification of Environmental Activities (CEA) – Information Paper*, Expert Group meeting on International economic and social classifications, New York, 18-20 May 2011, ESA/STAT/AC.234/29, <https://unstats.un.org/unsd/class/intercop/expertgroup/2011/AC234-29.PDF> (accessed 11 January 2018)

<sup>19</sup> United Nations (2011) *Classification of Environmental Activities (CEA) – Information Paper*, Expert Group meeting on International economic and social classifications, New York, 18-20 May 2011, ESA/STAT/AC.234/29, <https://unstats.un.org/unsd/class/intercop/expertgroup/2011/AC234-29.PDF> (accessed 11 January 2018)

#### **4A2. Classification of the Functions of Government (COFOG)**

The Classification of the Functions of Government (COFOG) is regarded as the appropriate basis to examine the structure of government expenditure. It is a 3-level classification with 10 “Divisions” at the top level, each of which is broken down to about 6 “groups” at the next level of detail, which in turn are sub-divided into “classes.”<sup>20</sup>

The COFOG was developed by the Organization for Economic Cooperation and Development (OECD) and is published by the United Nations Statistics Division (UNSD).<sup>21</sup> It can be applied to government expense and the net acquisition of non-financial assets.

Of relevance is Division 05 of COFOG; other divisions may be relevant such as Division 04 (Economic affairs) regarding Fuel and Energy, and Mining, Manufacturing and Construction, and Division 06 (Housing and community amenities) regarding Water supply. Please note though that other environmentally related and natural resource management expenditure can be allocated to other functions, such as transfers to the agriculture sector or to housing.

**Figure 4.4: Classification of the Functions of Government (COFOG): Division 5**

Groups of Division: 05 - Environmental protection: 05.1 - Waste management 05.2 - Waste water management 05.3 - Pollution abatement 05.4 - Protection of biodiversity and landscape 05.5 - R&D Environmental protection 05.6 - Environmental protection n.e.c. (not elsewhere classified)
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The breakdown of environmental protection shown in Division 05 is based upon the Classification of Environmental Protection Activities (CEPA) of the Statistical Office of the European Union (Eurostat).<sup>22</sup> Note that the CEPA is Part A of the CEA above.

#### **4A3. International Standard Industrial Classification of All Economic Activities, Rev.4 (ISIC Rev.4.)**

Many activities of ISIC Rev.4<sup>23</sup> are relevant to environmental protection and resource management, however the most important environmental protection services provided by institutional units fall under Section E: Water supply; sewerage, waste management and remediation activities.

<sup>20</sup> Eurostat (2011) *Manual on sources and methods for the compilation of COFOG statistics*, <http://ec.europa.eu/eurostat/documents/3859598/5917333/KS-RA-11-013-EN.PDF/2eb9714a-ee4b-49fe-baab-e9af5ca457b1> (accessed 11 January 2018)

<sup>21</sup> United Nations Statistics Division, *Global Inventory of Statistical Standards: Classification of the Functions of Government* webpage, <https://unstats.un.org/unsd/iiss/Classification-of-the-Functions-of-Government-COFOG.ashx> (accessed 11 January 2018)

<sup>22</sup> Eurostat (2017) *Environmental Protection Expenditure Accounts Handbook – 2017*, Luxembourg: European Union, <http://ec.europa.eu/eurostat/documents/3859598/7903714/KS-GQ-17-004-EN-N.pdf/7ea9c74b-eda4-4c23-b7bd-897358bfc990> (accessed 11 January 2018)

<sup>23</sup> United Nations (2008) *International Standard Industrial Classification of All Economic Activities (ISIC), Rev.4*, <https://unstats.un.org/unsd/cr/registry/isic-4.asp> (accessed 17 January 2018)

## 4B. Reference to international statistical recommendations, frameworks and standards

### United Nations Statistics Division:

- System of Environmental-Economic Accounting 2012 – Central Framework:<sup>24</sup> contains standards for economic activities related to the environment and measurement of transactions in monetary terms, and for calculation of Environmental-Economic Accounts, [http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](http://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf)
- System of National Accounts 2008:<sup>25</sup> contains standards for measurement of national accounts, <http://unstats.un.org/unsd/nationalaccount/sna2008.asp>.

### Eurostat:

- Environmental Protection Expenditure Accounts Handbook – 2017, <http://ec.europa.eu/eurostat/documents/3859598/7903714/KS-GQ-17-004-EN-N.pdf/7ea9c74b-eda4-4c23-b7bd-897358bfc990>:<sup>26</sup> compilers guide for environmental protection expenditure accounts. *Earlier guidance is below and should be considered of historic interest only:*
- Environmental Protection Expenditure Accounts (SERIEE) 1994,<sup>27</sup> <http://ec.europa.eu/eurostat/documents/3859598/5859597/KS-BE-02-001-EN.PDF/20b5bc1c-bd94-457e-8ca7-9a1fe869a37f?version=1.0> and
- Environmental Expenditure Statistics: General Government and Specialized Producers, Data Collection Handbook 2007,<sup>28</sup> <http://ec.europa.eu/eurostat/documents/3888793/5840631/KS-RA-07-012-EN.PDF/b3a162ac-8cdc-4897-85f7-b10312752ecf?version=1.0>

## 4C. Sources of global and regional environment statistics and indicators series

- OECD, Government expenditure by function (COFOG): [https://stats.oecd.org/Index.aspx?DataSetCode=SNA\\_TABLE11](https://stats.oecd.org/Index.aspx?DataSetCode=SNA_TABLE11)
- Eurostat, Government expenditure on environmental protection: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Government\\_expenditure\\_on\\_environmental\\_protection](http://ec.europa.eu/eurostat/statistics-explained/index.php/Government_expenditure_on_environmental_protection)
- Eurostat, Environmental protection expenditure accounts: [http://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental\\_protection\\_expenditure\\_accounts](http://ec.europa.eu/eurostat/statistics-explained/index.php/Environmental_protection_expenditure_accounts)
- Eurostat, Environmental protection expenditure in Europe - detailed data: [http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env\\_ac\\_exp1r2&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_ac_exp1r2&lang=en)

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<sup>24</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>25</sup> United Nations (2009) *System of National Accounts 2008*, New York: United Nations, <https://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf> (accessed 11 January 2018)

<sup>26</sup> Eurostat (2017) *Environmental Protection Expenditure Accounts Handbook – 2017*, Luxembourg: European Union, <http://ec.europa.eu/eurostat/documents/3859598/7903714/KS-GQ-17-004-EN-N.pdf/7ea9c74b-eda4-4c23-b7bd-897358bfc990> (accessed 11 January 2018)

<sup>27</sup> Eurostat (2002) *SERIEE Environmental Protection Expenditure accounts - Compilation Guide*, <http://ec.europa.eu/eurostat/documents/3859598/5859597/KS-BE-02-001-EN.PDF/20b5bc1c-bd94-457e-8ca7-9a1fe869a37f?version=1.0> (accessed 11 January 2018)

<sup>28</sup> Eurostat (2007) *Environmental Expenditure Statistics: General Government and Specialized Producers*, Data Collection Handbook, <http://ec.europa.eu/eurostat/en/web/products-statistical-working-papers/-/KS-RA-07-012> (accessed 11 January 2018)

# 5. Data collection and sources of data

## Scope of the statistics

The statistics cover current and capital expenditures aimed at environmental protection and natural resource management activities, whose main purpose is the prevention, reduction and mitigation of pollution and other forms of environmental degradation, and the promotion, care, conservation and replenishment of the stocks of natural resources. These are the expenditures made by all institutions of public administration performing environmental activities as primary, secondary or auxiliary.

## Statistical unit

Units dealing with environmental protection are often part of general government. It may be difficult to separate these operations from the broader general government unit by which they are managed. Nonetheless, given the importance of these activities, it is recommended that all possible efforts be made to identify these activities separately within the broader suite of general government activities (SEEA, paragraph 3.253).<sup>29</sup>

The institutional units classified in general government are non-market producers. However, they may have some secondary market output of environmental protection services.<sup>30</sup>

Data for all units belonging to the institutional sector of general government should be recorded under '*general government*', and under '*corporations as secondary and specialist producers*', only those units that belong to the corporations. In countries where the national accounts data is prepared by industries and the supply and use tables are not based on institutional units, but on the more detailed local kind-of-activity units (KAUs), it is possible that some units (local KAUs) belonging to the general government institutional sector engaged in environmental protection activities are classified in NACE Rev. 2, Divisions 37: Sewerage, 38: Waste collection, treatment and disposal activities; materials recovery or 39: Remediation activities and other waste management services, which corresponds to ISIC Rev.4 Division 37: Sewerage, Division 38: Waste collection, treatment and disposal activities; materials recovery or Division 39: Remediation activities and other waste management services.<sup>31</sup>

## Measurement unit

The unit of the measurement is the national currency.

## Sources and institutions

Sources of data on general government expenses, include a country's budget, accounting records, etc., e.g.:

- Public finance and administrative records

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<sup>29</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

<sup>30</sup> OECD/Eurostat (2005) *Environmental Protection Expenditure and Revenue Joint Questionnaire/ SERIEE Environmental Protection Expenditure Account: Conversion Guidelines*, <http://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-EC-05-001-EN.pdf> (accessed 11 January 2018)

<sup>31</sup> OECD/Eurostat (2005) *Environmental Protection Expenditure and Revenue Joint Questionnaire/ SERIEE Environmental Protection Expenditure Account: Conversion Guidelines*, <http://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-EC-05-001-EN.pdf> (accessed 11 January 2018)

- Censuses and surveys
- Other

### Public finance and administrative records

Individual and integrated data on financial activities (budgetary outturn, balances, financial accounts) of different government entities should be available. Financial activity data is a major source since the expense report identifies the amounts incurred in environmental activities.

Information collected and classified by administrative unit can sometimes be used directly, however, in many cases the compiler should make additional efforts to estimate environmental expenditures.

### Censuses and surveys

Economic censuses that include specific modules on the environment or specific surveys on the expenditure of general government units may also provide specific and comprehensive information. Survey results can also be used to further disaggregate (e.g., CEA) data derived from administrative records.

### **Aggregations**

Environmental protection and resource management expenditures can be presented with a variety of approaches: functional, economic, administrative, etc. For example, aggregation by level of government, by environmental activities or according to the economic classification of expenditure, among others.

#### 1.0 Aggregation by level of government:

- General Government
  - Central
  - State
  - Local

Under each level of government by *environmental actions*:

- Protection of ambient air and climate, waste management, wastewater management, biodiversity and landscape protection, noise reduction, management of environmental protection, among others.
- Management of minerals and energy resources, timber resources, aquatic resources, other biological resources, water resources, research and development, among other resource management activities.

#### 2.0 Aggregation by economic classification of expenditure:

- Current expenditure
  - Salaries
  - Goods and services
- Capital expenditure
  - Machinery and equipment, and intangibles
  - Construction

#### 3.0 Other possible breakdowns of environmental expenditures:

- By the institutional sector (government, financial institutions and non-financial, non-profit institutions and households);
- By economic classification of expenditure;
- By type of producer (unskilled, skilled and self-employed);
- By type of activity (activities of environmental protection and resource management activities).

### **Validation**

Examples of good practices considered in the review process are:<sup>32</sup>

- Revise estimates made in previous periods where information was lacking, and update the measurement of expenditure with available data to ensure the continuity of the time series.
- Review the functional assignment of environmental activities according to the relevant classification.
- Review the unit of measure, ensuring that all results are presented in the same units.
- Analyse time series to identify significant atypical fluctuations, e.g., increases or decreases in environmental expenditures from one period to another.

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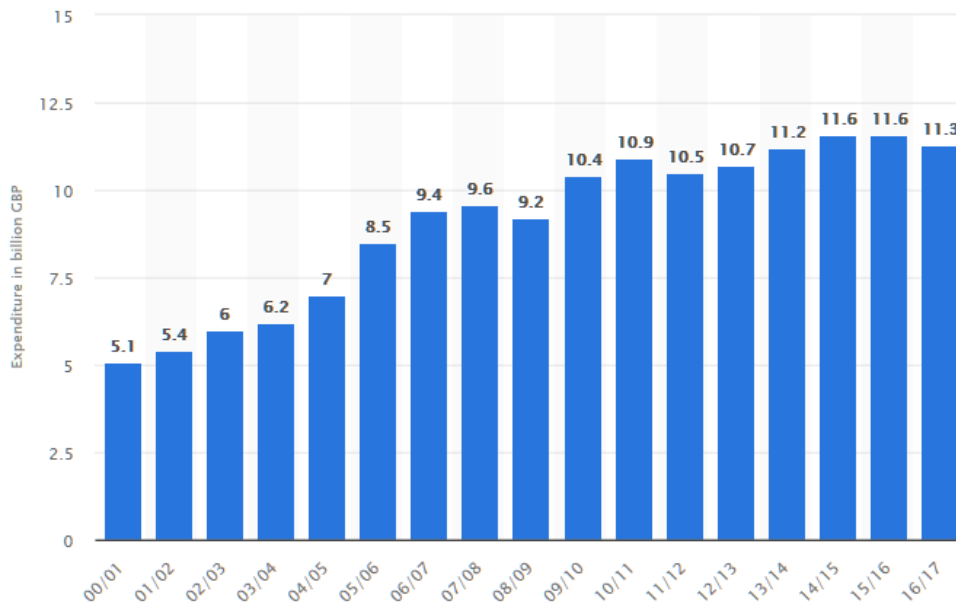
<sup>32</sup> Eurostat (2017) *Environmental Protection Expenditure Accounts Handbook – 2017*, Luxembourg: European Union, <http://ec.europa.eu/eurostat/documents/3859598/7903714/KS-GQ-17-004-EN-N.pdf/7ea9c74b-eda4-4c23-b7bd-897358bfc990> (accessed 11 January 2018)



# 6. Uses and dissemination

## 6A. Potential presentation/dissemination formats

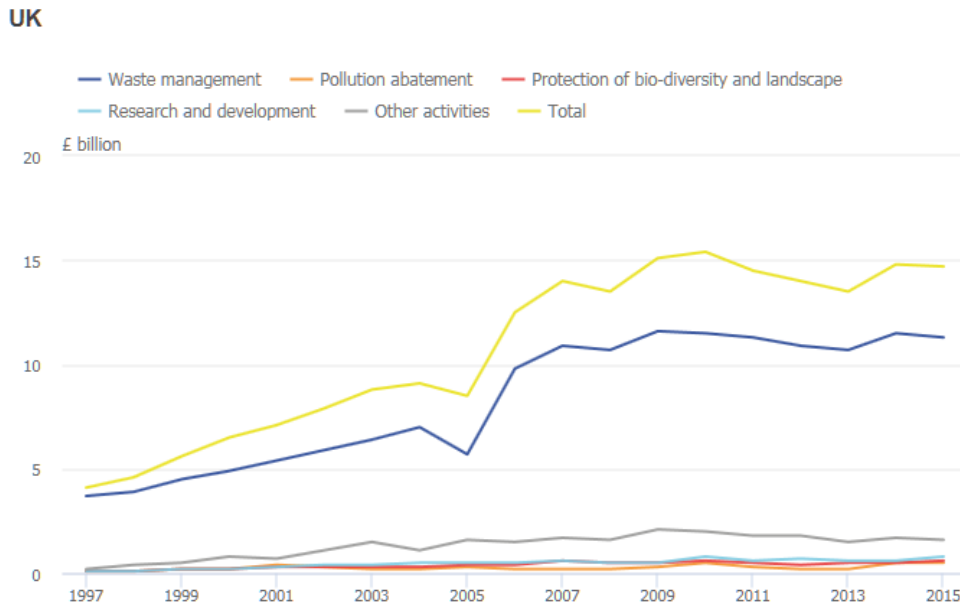
Figure 6.1: Public sector expenditure on environment protection, United Kingdom, 2000/2001 to 2016/2017



Source: Office for National Statistics, *Public expenditure* website, <https://www.statista.com/statistics/298506/public-expenditure-environment-protection-united-kingdom-uk/> (accessed 11 January 2018)

Shows the trend in public sector expenditure on environment protection in the United Kingdom.

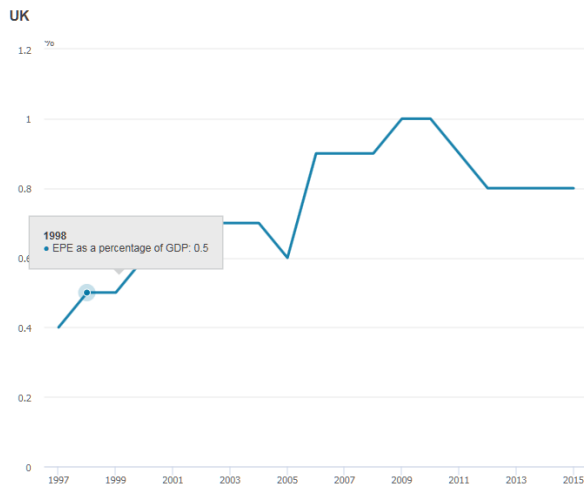
**Figure 6.2: Public sector environmental protection expenditure by activity, United Kingdom, 1997-2015**



Source: Office for National Statistics, *United Kingdom Environmental Accounts 2017* webpage, <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/ukenvironmentalaccounts/2017> (accessed 11 January 2018)

Shows the trend in environmental protection expenditure for various activities.

**Figure 6.3: Environmental protection expenditure by general government as an equivalent of Gross Domestic Product (GDP), United Kingdom, 1997-2015**



Source: Office for National Statistics, *United Kingdom Environmental Accounts 2017* webpage, <https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/ukenvironmentalaccounts/2017> (accessed 11 January 2018)

Shows environmental protection expenditure as a share of GDP.

**Figure 6.4: Total environmental expenditure by Classification of Environmental Protection Activities (CEPA)/Classification of Resource Management Activities (CRema) and Classifications of Functions of Government (COFOG), Norway 2013**

	01 - General public services	04 - Economic affairs	05 - Environmental protection	06 - Housing and community amenities	Total EE
CEPA 1 - Protection of ambient air and climate .....	2 131	93	1 041	0	3 265
CEPA 2 - Wastewater management .....	68	0	9 407	0	9 476
CEPA 3 - Waste management .....	20	0	4 359	0	4 379
CEPA 4 - Protection and remediation of soil, groundwater and surface water .....	0	6	67	0	73
CEPA 5 - Noise and vibration abatement .....	-	-	-	-	-
CEPA 6 - Protection of biodiversity and landscapes .....	93	4	1 185	0	1 282
CEPA 7 - Protection against radiation .....	0	0	13	0	13
CEPA 8 - Environmental research and development .....	0	696	2 192	0	2 889
CEPA 9 - Other environmental protection activities .....	0	115	1 287	0	1 402
CREMA 10 - Management of water .....	18	0	31	1 893	1 942
CREMA 11A - Management of forest areas ...	34	0	0	0	34
CREMA 11B - Minimization of the intake of forest resources .....	214	0	307	0	521
CREMA 12 - Management of wild flora and fauna .....	0	0	465	0	466
CREMA 13A - Production of energy from renewable resources .....	5	29	1 574	0	1 608
CREMA 13B - Heat/energy saving and management .....	129	23	551	22	725
CREMA 13C - Minimisation of the use of fossil energy as raw materials .....	-	-	-	-	-
CREMA 14 - Management of minerals .....	-	-	-	-	-
CREMA 15 - Research and development activities for resource management .....	0	972	0	0	972
CREMA 16 - Other resource management activities .....	0	116	503	0	619
Total EE .....	2 713	2 054	22 982	1 915	29 664
EE share of TE .....	1 %	2 %	94 %	9 %	2 %

Total expenditure is the sum of current expenditure and net acquisitions of non-financial assets.

Source: Statistics Norway (2014) *Government expenditures on environmental protection and resource management*, <https://www.ssb.no/natur-og-miljo/artikler-og-publikasjoner/attachment/209618?ts=14a103f46b0> (accessed 11 January 2018)

Shows the spend on environmental protection expenditure classified by CEPA and CRema, in mill of NOK currency.

## 6B. SEEA accounts/tables that use these statistics

The statistics of government environmental protection and resource management expenditure are used to compile *Environmental protection expenditure accounts* (Chapter 4.3.2) and *Accounts for resource management expenditures* (Chapter 4.3.4) of the SEEA.<sup>33</sup>

## 6C. Commonly used indicators that incorporate these statistics

Key indicators compare the total expenditure on environmental protection and management as a proportion of Gross Domestic Product (GDP) of the country of reference. At the international level, this is the main indicator on environmental protection expenditures. A similar indicator can be calculated for management resource expenditures to GDP.

Other indicators include:

- The level of environmental expenditure in comparison with total national public spending.

<sup>33</sup> United Nations, European Commission, Food and Agriculture Organization of the United Nations, International Monetary Fund, Organisation for Economic Co-operation and Development and World Bank (2014) *System of Environmental-Economic Accounting 2012: Central Framework*. Studies in Methods, Series F, No. 109. Sales No. E.12.XVII.12. [https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA\\_CF\\_Final\\_en.pdf](https://unstats.un.org/unsd/envaccounting/seeaRev/SEEA_CF_Final_en.pdf) (accessed 5 February 2018)

- Environmental expenditure compared to the cost of depletion or resources and degradation of the environment.

## 6D. SDG indicators that incorporate these statistics

**SDG 11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship))**

The indicator is Tier III and no methodology is available.

**SDG 15.a.1 Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems**

The indicator will be measured by sub-indicators:

- i. Official development assistance on conservation and sustainable use of biodiversity and ecosystem.
- ii. Public expenditure on conservation and sustainable use of biodiversity and ecosystem.
- iii. Official development assistance on forest conservation and sustainable forest management.
- iv. Public expenditure on forest conservation and sustainable forest management.

Sub-indicators ii. and iv. are measured using Environmental Protection Expenditure Accounts (EPEA), included in the SEEA. The statistics covered in the methodology sheet, 6.1.1.a.1 Annual government environmental protection expenditure and 6.1.1.a.2 Annual government resource management expenditure, are relevant.





**F D E S**

**Manual on the Basic Set of Environment Statistics**

**2018**