

14 February 2020

Environmental Goods and Services Sector Accounts and Environmental Protection Expenditure Accounts (2017)

The GVA of the environmental goods and services sector decreased by 0.9% in 2017, but exports and employment grew more than in the total economy

In 2017, the environmental goods and services sector accounted for 2.8% of national gross value added (GVA), 3.7% of exports and 2.4% of employment. Comparing with the previous year, exports increased by 20.0% and employment by 3.7%, showing greater dynamism than total economy (11.6% and 3.4%, respectively). GVA and output, on the contrary, registered growth rates below those of the national economy, with a slight reduction in GVA (-0.9%, compared to an increase of 4.7% for the economy as a whole). About a quarter of output (23.6%) was exported.

In 2016, Portugal was the fifth country in the EU28 with the largest weight of GVA of Environmental Goods and Services in the national GVA (3.0%, higher than the EU28 average of 2.4%) and of exports in national total (3.5%).

In 2017, National Expenditure on Environmental Protection (NEEP) totaled 2,721 M€ (1.4% of GDP), increasing by 18.9% compared to the previous year (after a decrease of 6.3% in 2016). This result reflects increases in final consumption expenditure, intermediate consumption and investment and the decrease in transfers received from the Rest of the World.

This press release summarizes the main results of the Environmental goods and services sector accounts (EGSS), by environmental domain, and Environmental Protection Expenditure Accounts (EPEA) for 2017. At the end of this press release, methodological notes are presented concerning both projects.

Additional tables are available in Statistics Portugal website, in the area of National Accounts ([Satellite Accounts section](#)).

1. Environmental Goods and Services Sector Accounts (EGSS)

The environmental goods and services sector comprises goods and services produced for the purpose of environmental protection and resource management. **Environmental protection** includes all activities and actions whose main purpose is prevention, reduction and elimination of pollution, as well as any other degradation of the environment. **Resource management** includes the preservation, maintenance and enhancement of existing natural resources and, therefore, seeks to prevent their decline and depletion (see methodological notes).

1.1. Main results

In 2017 the environmental goods and services sector:

- Produced 13,147 M€ (corresponding to 3.8% of national output);
- Generated 4,803 M€ of GVA (2.8% of the national economy);
- Exported 3,107 M€ (3.7% of national exports);
- Employed 109,361 full-time equivalent (FTE) (2.4% of national employment);
- Recorded a growth rate lower than that of the national economy in output (5.4% compared to 7.1%);
- Presented a slight reduction in GVA (-0.9%), determined by the evolution of GVA associated with the production of energy from renewable sources, as opposed to an increase in GVA in the national economy (+ 4.7%);
- Registered higher growth rates than the national economy in employment (3.7% compared to 3.4%) and exports (20.0% compared with 11.6%).

Table 1: Main results of Environmental Goods and Services Sector Accounts (2015 – 2017)

		2015	2016	2017	Rate of variation 2015/2016 (%)	Rate of variation 2016/2017 (%)
Environmental Goods and Services Sector output		11,514	12,470	13,147	8.3	5.4
<i>Economy output</i>	10 ⁶ euros	317,833	324,823	347,793	2.2	7.1
Weight in the national economy		3.6%	3.8%	3.8%		
Environmental Goods and Services Sector GVA		4,389	4,845	4,803	10.4	-0.9
<i>Economy GVA</i>	10 ⁶ euros	156,517	161,993	169,642	3.5	4.7
Weight in the national economy		2.8%	3.0%	2.8%		
Environmental Goods and Services Sector exports		2,425	2,589	3,107	6.7	20.0
<i>Economy exports</i>	10 ⁶ euros	72,991	74,989	83,717	2.7	11.6
Weight in the national economy		3.3%	3.5%	3.7%		
Environmental Goods and Services Sector employment		99,564	105,463	109,361	5.9	3.7
<i>Economy employment</i>	FTE	4,327,565	4,426,856	4,579,158	2.3	3.4
Weight in the national economy		2.3%	2.4%	2.4%		

Source: Statistics Portugal ([Environmental Goods and Services Sector Accounts](#); [National Accounts](#))

1.2. Results by environmental domain

Environmental goods and services are grouped into two classifications:

- Environmental protection (CEPA) - technologies, goods and services that reduce or prevent the amounts of harmful materials for the environment;
- Resource management (CRema) - technologies, goods and services that manage and conserve natural resources.

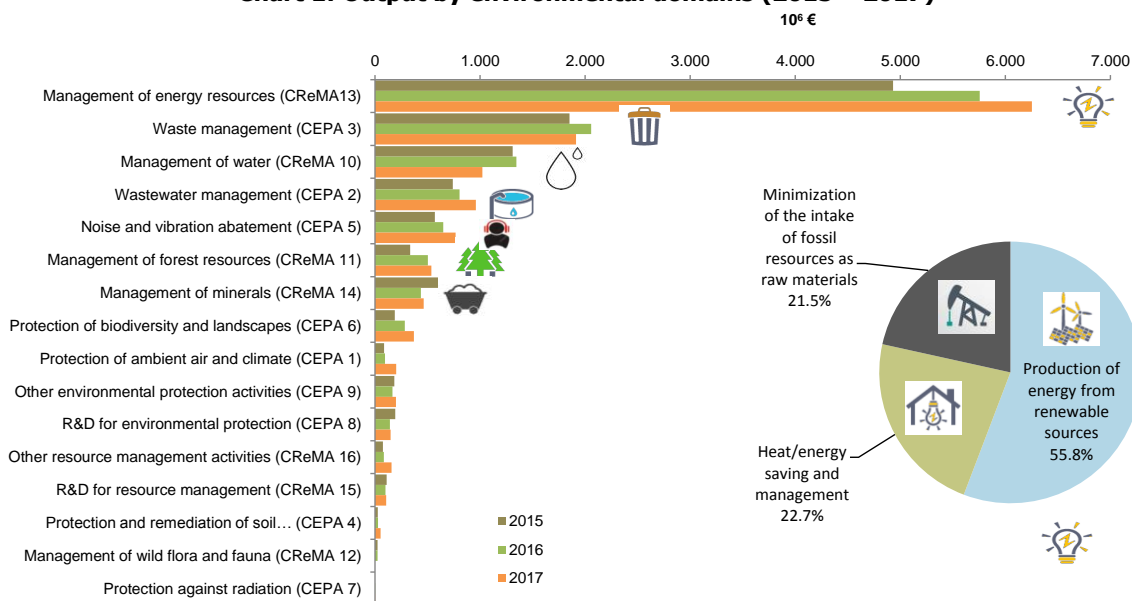
In 2017, the output of environmental protection goods and services amounted 4,612 M€ (35.1%) and the resource management totalized 8,535 M€ (64.9%).

The output of **environmental protection** increased by 9.2%, mainly as a result of the growth in *wastewater management* (19.1%) and *noise and vibration abatement* (18.1%). The increase in **resource management** was less pronounced than in the previous year (3.5% compared to 7.8% in 2016), mainly due to a slowdown in the *management of energy resources*, which moved from an increase of 16.8% in 2016 to 8.6% in 2017. This result was influenced by the unfavorable hydrological year (the *production of energy from renewable sources*, which represents 55.8% of the management of energy resources, decreased 10.8%), partially offset by the increase in the output of equipment associated with renewable energies and energy efficiency.

The analysis by domains reveals that the *management of energy resources* remained the most relevant, representing almost half of the total output of environmental goods and services (47.6%).

Waste management was the second most important domain (14.5%) of the output of environmental goods and services, followed by *water management* and *wastewater management*, practically equivalent (7.8% and 7.3%, respectively).

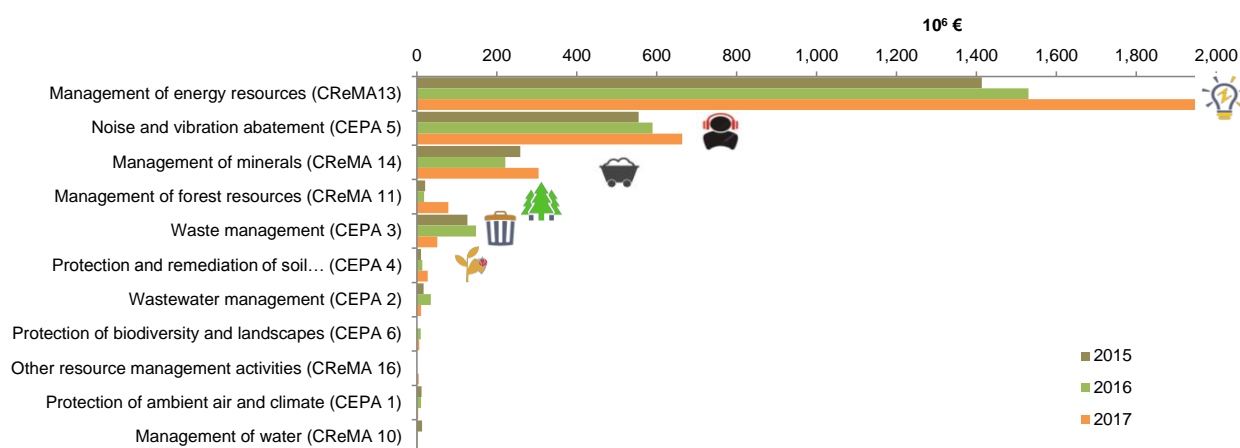
Chart 1: Output by environmental domains (2015 – 2017)



Source: Statistics Portugal ([Environmental Goods and Services Sector Accounts](#))

In 2017, 23.6% of the output of environmental goods and services was directed to exports (comparatively to 21.1% in 2015 and 20.8% in 2016). The *management of energy resources* accounted for 63.0% of these exports, up to 27.8% over the previous year. Also outstanding are *noise and vibration abatement*, with a relative weight of 21.4% and an increase of 12.6%, notably by strengthening exports of silencers for motor vehicles.

Chart 2: Exports by environmental domains (2015 – 2017)



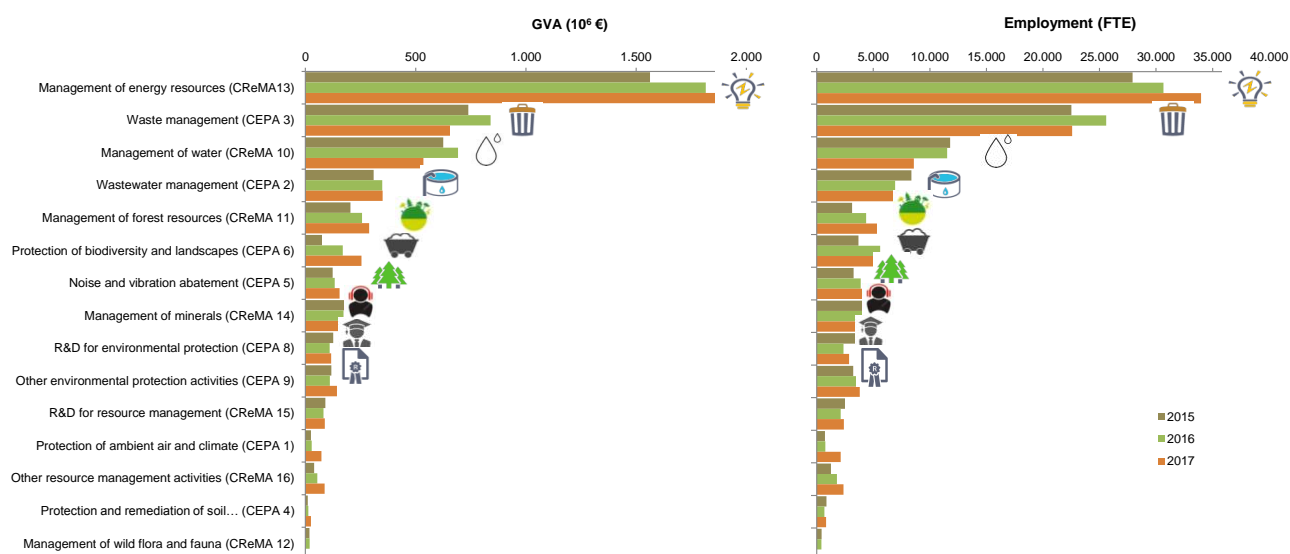
Source: Statistics Portugal ([Environmental Goods and Services Sector Accounts](#))

In 2017, the GVA concerning *environmental protection* totaled 1,774.1 M€ (36.9%) and that of *resource management* 3,029.2 M€ (63.1%).

The GVA related to *environmental protection* grew 1.1%, while the GVA for *resource management* decreased 2.1%, mainly due to the 13.4% reduction in GVA associated with the *production of energy from renewable sources*. Detailing the analysis of this domain by industry, it is possible to conclude that GVA associated with the *production of energy from renewable sources* from the *Production and distribution of electricity, gas, steam and cold air* (D) decreased by 35.7%, which illustrates the impact of the adverse hydrological year.

The environmental domains that contributed most to the GVA were the *management of energy resources* (39.0%), *waste management* (13.6%) and *water management* (11.1%). The hierarchy of activities in terms of employment was similar: *management of energy resources* was the most relevant (31.1%), followed by *waste management* (20.7%), followed by *water management* and *wastewater management* (both with 7.9%).

Chart 3: GVA and Employment by environmental domains (2015 – 2017)



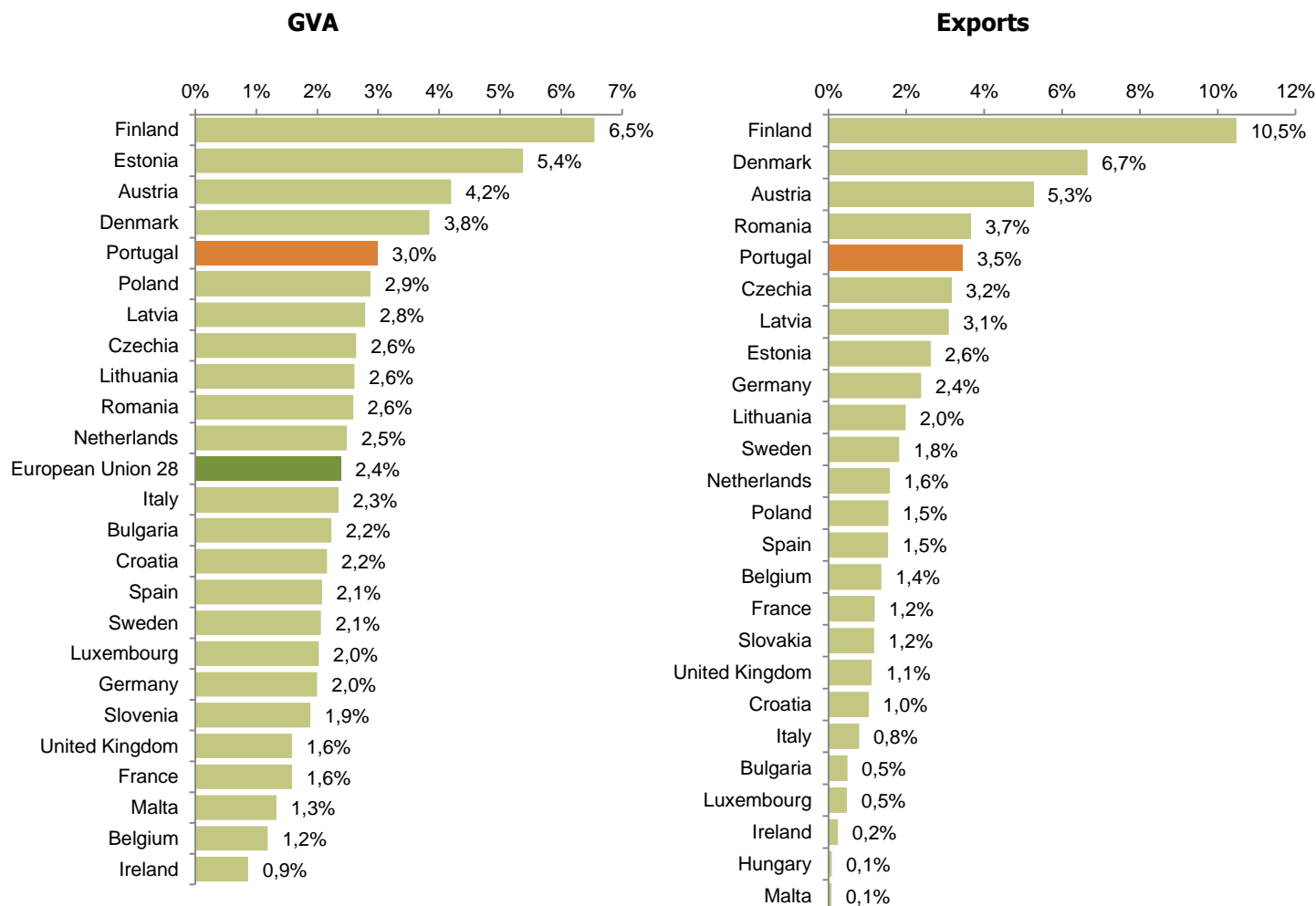
Source: Statistics Portugal ([Environmental Goods and Services Sector Accounts](#))

1.3. International comparisons

In 2016, the last year with information available for all EU28 countries, Portugal registered the fifth highest relative position, both in terms of the weight of GVA of Environmental Goods and Services in the national GVA (3.0%, higher than the EU28 average of 2.4%), as well as in terms of exports of Environmental Goods and Services in national exports (3.5%). Finland was the country with the highest relative importance of GVA for Environmental Goods and Services (6.5%) as well as exports (10.5%).

Comparisons with the results of other countries should be made with some caution. In fact, not all data presented originates from Satellite Accounts and, in some cases, may result from the simple appropriation of surveys. In addition, there is still no complete harmonization in the type of environmental goods and services and units considered within the EGSS perimeter.

Chart 4: Weight (%) of the GVA and Exports of the environmental goods and services sector in EU countries (2016)



Source: [Eurostat](https://ec.europa.eu/eurostat), data extracted on the 6th February 2020.

2. Environmental Protection Expenditure Accounts (EPEA)

EPEA predominantly focuses on specific **environmental protection services**, most of which are represented by *waste management* and *wastewater management*.

Compared with EGSS, EPEA limit the areas of observation to *environmental protection*, not covering *resource management* (CReMA) (see methodological notes).

National expenditure on environmental protection (NEEP) is the main variable of these accounts, corresponding to economic resources related to environmental protection. It is calculated in the following way:

$$\begin{aligned} \text{NEEP} = & \\ & \text{final consumption expenditure} \\ & + \text{intermediate consumption (IC)}^1 \\ & + \text{investment (GFCF + NP)}^2 \\ & - \text{current and capital transfers received from the Rest of the World} \\ & + \text{current and capital transfers paid to Rest of the World} \end{aligned}$$

2.1. Main results

In 2017, the following results were observed for environmental protection services:

- Final consumption expenditure of 1,058 M€ (0.7% of final consumption expenditure of the economy);
- Intermediate consumption of environmental protection services of 1,372 M€ (0.8% of national intermediate consumption);
- Investment (for the production of environmental protection services) of 578 M€ (1.8% of the total investment of the economy);
- Transfers for environmental protection services from the Rest of the World (RoW) of 293 M€ (3.0% of total RoW transfers);
- NEEP of 2,721 M€ (1.4% of national GDP).

After a 6.3% decrease between 2015 and 2016, there was an 18.9% increase in NEEP in 2017, essentially determined by the significant reduction in transfers received from the RoW, which further reinforced the increases in expenditure on final consumption, intermediate consumption and investment. Indeed, it was observed:

- An increase in final consumption expenditure by 10.4%, higher than the 3.5% registered in the national economy;

¹ Intermediate consumption (IC), excluding the IC of environmental protection services by specialized producers in environmental protection (producers whose main activity is the production of environmental protection services).

² Sum of gross fixed capital formation (GFCF) and acquisitions net disposals of non-produced assets (NP).

- Intermediate consumption growth of 3.0%, while that of the national economy grew by 9.4%;
- A 13.1% increase in investment for the production of environmental protection services, together with the 13.8% increase in the country. For this evolution, there was an increase of around 20% in General Government (GG) (responsible for almost 50% of total investment) and 5.4% in Corporations;
- After the 61.5% increase in environmental protection transfers received from the RoW in 2016, there was a reduction of 42.9%. These fluctuations are due, in part, to variations in the amounts received under the Common Agricultural Policy (CAP), essentially in its agro-environmental component.

Table 2: Main results of the Environmental Protection Expenditure Accounts (2015 – 2017)

		2015	2016	2017	Variação 2015/2016 (%)	Variação 2016/2017 (%)
National expenditure on EP (NEEP)	10 ⁶ euros	2,442	2,289	2,721	-6.3	18.9
Final consumption expenditure of EP services	10 ⁶ euros	861	958	1,058	11.4	10.4
<i>Final consumption expenditure in national economy</i>		149,890	154,824	160,214	3.3	3.5
Weight of final consumption expenditure of EP services in the national economy		0.6%	0.6%	0.7%		
Intermediate consumption (IC) of EP services¹	10 ⁶ euros	1,212	1,332	1,372	9.9	3.0
<i>Intermediate consumption in national economy</i>		161,316	162,830	178,151	0.9	9.4
Weight of intermediate consumption of EP services in the national economy		0.8%	0.8%	0.8%		
Investment (GFCF+NP) for the production of EP services	10 ⁶ euros	684	511	578	-25.3	13.1
<i>Investment, in the national economy</i>		27,886	28,893	32,888	3.6	13.8
Weight of investment for the production of EP services in the national economy		2.5%	1.8%	1.8%		
Current² and capital EP transfers received from the Rest of the world	10 ⁶ euros	318	514	293	61.5	-42.9
<i>Total current and capital transfers received from the Rest of the world</i>		10,162	9,694	9,635	-4.6	-0.6
Weight of EP transfers received, in total transfers received from the Rest of the world		3.1%	5.3%	3.0%		
Current and capital EP transfers paid to the Rest of the world	10 ⁶ euros	4	2	6	-55.2	243.8
<i>Total current and capital transfers paid to the Rest of the world</i>		3,608	3,630	3,232	0.6	-11.0
Weight of EP transfers paid, in total transfers paid from the Rest of the world		0.1%	0.0%	0.2%		

1 - excluding the IC of EP services by specialized producers in environmental protection

2 - including subsidies
by memory:

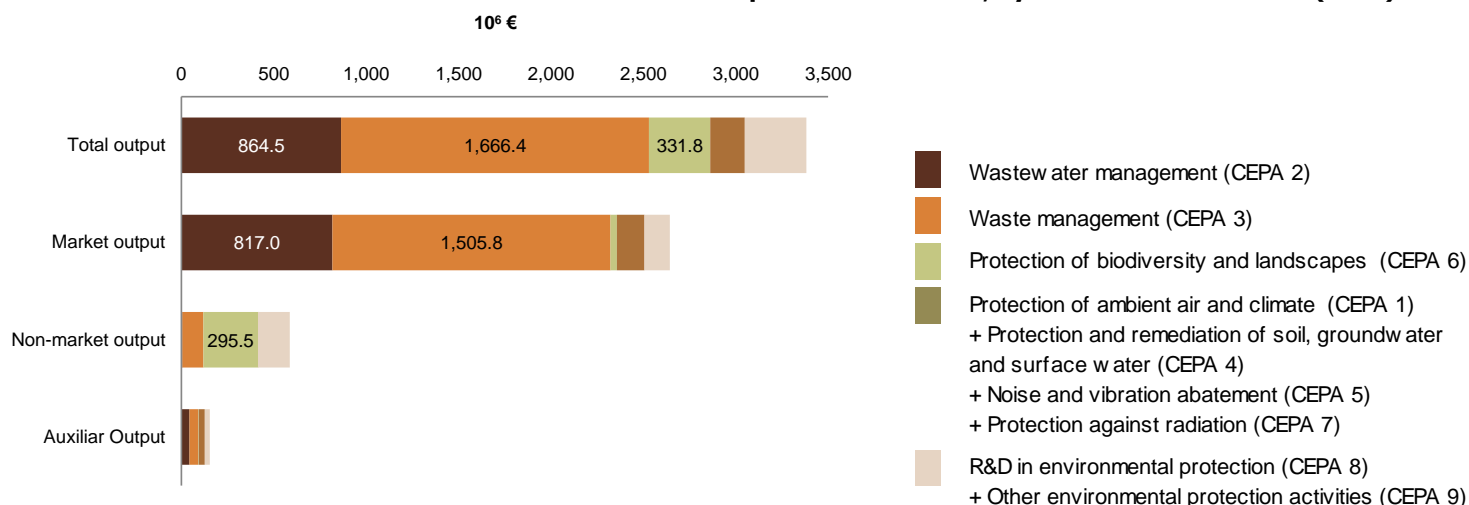
GDP	10 ⁶ euros	179,713	186,490	195,947	3.8	5.1
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Source: Statistics Portugal ([Environmental Protection Expenditure Accounts; National Accounts](#))

For output of environmental protection services by environmental domain, similarly to previous years, it outstands:

- *Waste management* was the most relevant domain (49.3%), followed by *wastewater management* (25.6%);
- *Waste management* was dominant in all types of output except for non-market output, where the *protection of biodiversity and landscape*, with 295.5 M €, was the main domain (50.4% of the total).

Chart 5: Main variables of Environmental Protection Expenditure Accounts, by environmental domain (2017)

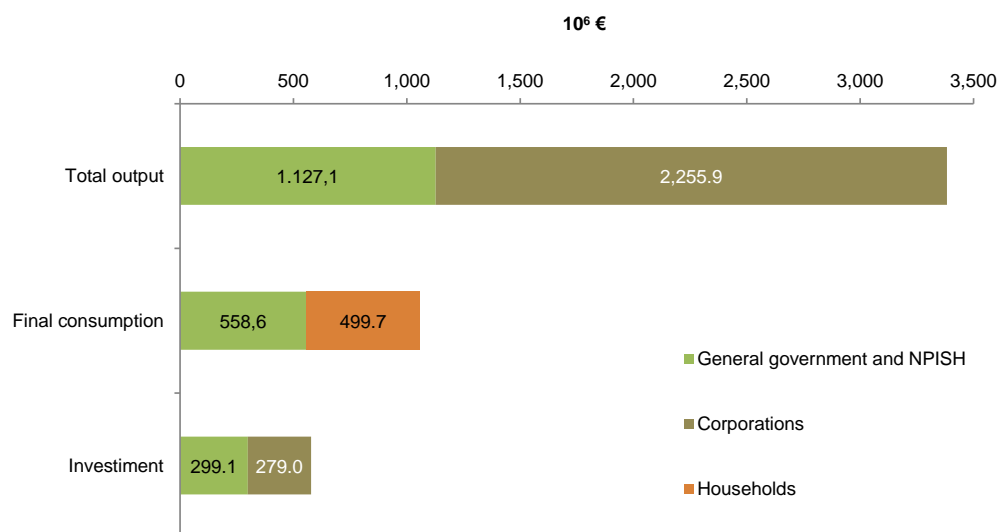


Source: Statistics Portugal ([Environmental Protection Expenditure Accounts](#))

As far as institutional sectors are concerned, in 2017:

- Corporations accounted for 66.7% of the total output and the GG and nonprofit institutions (NPISH) for the remaining (33.3%);
- Final consumption expenditure in environment protection services of the GG and NPISH represented 52.8% of the total, remaining 47.2% for Households;
- GG and NPISH were responsible for 51.7% of the investment for the output of environmental protection services and Corporations for the other 48.3%, reversing the relative position recorded in the previous year, in which corporations were responsible for 51.8% of the total.

Chart 6: Main variables of the Environmental Protection Expenditure Accounts, by institutional sector (2017)



Source: Statistics Portugal ([Environmental Protection Expenditure Accounts](#))

Methodological Notes:

The Environmental Goods and Services Sector Accounts (EGSS) and the Environmental Protection Expenditure Accounts (EPEA) are part of the System of European Economic Environmental Accounts (SEEA) and are two mandatory transmission modules, from 2017 onwards, to comply with Regulation (EU) No. 538/2014. Accordingly, Member States are required to report these accounts to Eurostat from December 2017. For each transmission of data to the Commission, Member States provide annual data for years n-2, n-1 and n, where n is the reference year.

The environmental accounts were developed in interconnection with the System of National Accounts (SNA). They are a satellite account system that presents environmental information in a format compatible with the National Accounts information, enabling an integrated analysis.

The national macroeconomic aggregates for national economy are based on the Portuguese National Accounts base 2016.

A.1 Environmental Goods and Services Sector Accounts (EGSS)

In addition to the Regulation, EGSS's main methodological reference documents are the Eurostat handbooks: *Environmental goods and services sector accounts Handbook and Environmental goods and services sector accounts Practical guide*. In addition, since EGSS is a project consistent with the SNA, the use of its concepts, nomenclatures and methodological references is essential, namely the United Nations System of National Accounts (SNA2008) and the European System of Accounts (ESA2010).

Statistics on environmental goods and services record and present data on production activities of national economies that generate environmental products in a manner consistent with the data transmitted under ESA2010. Environmental products (environmental goods and services) have as their main objective environmental protection or resource management. The selection and classification of the products and economic activities covered by this project comply with the requirements of the *Environmental goods and services sector accounts Practical guide*.

EGSS results are not directly comparable with the results of the Environmental Goods and Services Sector Survey, because: EGSS are a derived statistic, i.e. cross several sources of information (namely this survey); EGSS is a satellite account of the National Accounts. Therefore, it uses identical sources, methodologies and principles, namely exhaustiveness.

Main data sources

- Statistics Portugal:
 - Business Survey on Management and Protection of the Environment (IEGPA);
 - Environmental Goods and Services Sector Survey (ISBSA);
 - Farm Structure Survey (FSS);
 - General File of Statistical Units (FUE);
 - Municipal Environmental Protection Survey (IMPA);
 - Portuguese National Accounts (Base 2016);
 - Portuguese National Accounts (Base 2011);
 - Survey of Fire Brigade Entities (IEDCB);
 - Survey on Non-Governmental Environmental Organizations (IONGA);
 - Survey on Urban Waste Management Entities (IEGRU).
- Other sources:
 - Detailed analytical balance sheets of General Government entities (including the General State Account);
 - Electronic pages of units of economic activity;
 - National Scientific and Technological Potential Survey (IPCTN).
 - Reports and Accounts;
 - Simplified Business Information (SBI).

EGSS data is broken down according to the following nomenclature of environmental activities and products:

Table A.1: Classification of the domains of the environmental goods and services sector

Classification of environmental goods and services sector domains		
Environmental protection activities		Examples
CEPA 1	Protection of ambient air and climate	Equipment for the reduction of atmospheric emissions.
CEPA 2	Wastewater management	Collection and treatment of wastewater including monitoring and regulation activities.
CEPA 3	Waste management	Collection and treatment of waste, including monitoring and regulation activities. Recycling and composting, street cleaning and the collection of public litter.
CEPA 4	Protection and remediation of soil, groundwater and surface water	Monitoring and control of soil and groundwater pollution.
CEPA 5	Noise and vibration abatement	Reduction of noise in places frequented by the public (swimming pools, discos, etc.), production of car automotive silencers, etc.
CEPA 6	Protection of biodiversity and landscapes	Maintaining or establishing certain landscape types, biotopes, eco-zones, etc. having a clear link to biodiversity preservation.
CEPA 7	Protection against radiation	Handling, transportation and treatment of high level radioactive waste that requires shielding during normal handling and transportation.
CEPA 8	Research and development in environmental protection (R&D)	R&D activities oriented towards environmental protection (identification and analysis of sources of pollution, their effects on human beings, the species and the biosphere); R&D for the prevention and elimination of pollution.
CEPA 9	Other environmental protection activities	Training or teaching activities specifically oriented towards environmental protection and consulting activities in non-discriminated environmental protection areas.
Resource management activities		Examples
CRReMA 10	Management of waters	Minimisation of inland waters intake through the reduction of water losses and leaks or water reuse and savings. (1)
CRReMA 11	Management of forest resources	
CRReMA 11A	Management of forest areas	Measuring, controlling and monitoring forest areas and timber stocks; education, training and general administration activities linked to the management of forests.
CRReMA 11B	Minimisation of the intake of forest resources	Reducing the input of forest-related products (wood and non-wood); recovery, reuse or savings of forest products and byproducts. Non wood forest products include cork.
CRReMA 12	Management of wild flora and fauna	Restoration activities (replenishment of wild flora and fauna stocks); education, training and general administration activities linked to the management of wild flora and fauna.
CRReMA 13	Management of energy resources	
CRReMA 13A	Production of energy from renewable sources	Production of energy from renewable sources (wind, solar, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases).
CRReMA 13B	Heat/Energy saving and management	Energy savings, thermal insulation activities and energy recovery (e.g. cogeneration, reduction of energy transport and distribution losses, energy efficiency improvements).
CRReMA 13C	Minimisation of the intake of fossil resources as raw material	Minimization of fossil resources through changes in the manufacturing process, recovery of materials based on non-energy fossil resources and production of petroleum product substitutes.
CRReMA 14	Management of minerals	Saving of mineral resources through recovery of mineral-based materials (waste and scrap processing of metallic and non-metallic mineral materials and other articles).
CRReMA 15	Research and development (R&D) for resource management	R&D activities for new applications in the field of natural resource management and savings: R&D for renewable energy, for energy and minerals savings, for timber and other biological resources savings, etc.
CRReMA 16	Other resource management activities	Education and training activities that relate to natural resources, as well as other kinds of consulting activities leading to indivisible output.

(1) The abstraction, treatment and distribution of water should, in principle, be excluded. However, the Environmental goods and services sector accounts, Practical Guide refers that if the available data sources do not allow their separation, they can be included in CRReMA 10 (this is the national case).

Source: based on the Environmental goods and services sector accounts, Practical Guide

A.2 Environmental Protection Expenditure Accounts (EPEA)

EPEA provide data on expenditure in the areas of environmental protection, i.e. the economic resources allocated by resident units to environmental protection. These accounts allow the compilation of National expenditure on environmental protection (NEEP). The algorithm provided by the reporting system to Eurostat is calculated directly through the set of remaining variables reported:

$$\text{EPEA} = \text{final consumption expenditure} + \text{intermediate consumption} + \text{investment (GFCF + NP)} - \text{current and capital transfers received from the Rest of the World} + \text{current and capital transfers paid to the Rest of the World}$$

Like EGSS, in addition to the Regulation and methodological references of the National Accounts, EPEA have other specific methodological reference documents, namely Eurostat's *Environmental protection expenditure accounts Handbook 2017 edition*. The list of products and economic activities covered by this project also complies with the requirements of the manual *Environmental goods and services sector accounts Practical guide*.

The results of EPEA are not directly comparable with the results of the environmental surveys because: 1) EPEA focus only on environmental protection services and do not cover other environmental protection products or resource management; 2) EPEA is a derived statistic, that is, they cross several sources of information; 3) EPEA is a satellite account of the National Accounts and therefore use identical sources, methodologies and principles, including completeness.

The main **sources of information** used in the EPEA are the same as those of the EGSS.

These accounts relate to EGSS, but:

- Restrict the domains of observation to environmental protection (CEPA classification), i.e. they do not cover Resource Management (CReMA classification);
- Focus predominantly on the share of specific environmental products that correspond to specific environmental protection services, abbreviated to PA services. Environmental protection products, which encompass goods and services, can be categorized by purpose (primary or secondary) to protect the environment. Products whose primary purpose is environmental protection are designated in the methodological manual by Specific Products EP. The portion of the specific EP products corresponding to services are the environmental protection services;
- Do not detail activities by NACE;
- Extend the number of estimated variables; and
- Detail most of the variables by institutional sector.

The total environmental protection services output comprises:

- Market output – output that is disposed, or intended to be disposed on the market;
- Output produced for own final use – consists of services retained for own final consumption; the EPEA questionnaire foresees the addition of this output to the market output and the inclusion in that operation;
- Non-market output – output provided to other units for free, or at prices that are not economically significant;
- Ancillary output - it comes from ancillary activities, such as waste treatment activities that do not constitute the productive activity of the entities, and can be estimated by the sum of the costs.

Note on the international trade of environmental protection services:

International trade in environmental protection services, within the scope of wastewater management (CEPA 2) or waste management (CEPA 3), includes operations for commissioning (without transfer of ownership) between two countries. In these cases, the export of these services corresponds to the value of the service rendered by Portugal abroad, and the importation appears in the opposite case, when Portugal resorts to another country to treat its waste.

Final considerations and revisions:

Although EGSS and EPEA are already under Regulation, these projects are still subject of conceptual discussion at Eurostat, namely on the boundaries of the environmental domains and the classification of products included.

EPEA consists of a set of information of an economic nature, with mandatory and optional calculation variables. Variables of these two types contribute to NEEP. Statistics Portugal calculates a significant number of variables in addition to those required by regulation, namely all variables underlying NEEP.

The results now presented implied minor revisions for 2014-2016 compared to the previous publication released in February 2019, due to information updates and improved calculation of some NEEP variables. These reviews have no material impact on the main results of EPEA.