

## EU-27 environmental protection expenditure increased to 2.25% of GDP in 2009

Between 2002 and 2009 public sector and industry EPE as a share of GDP stayed constant while the share of specialised producers increased

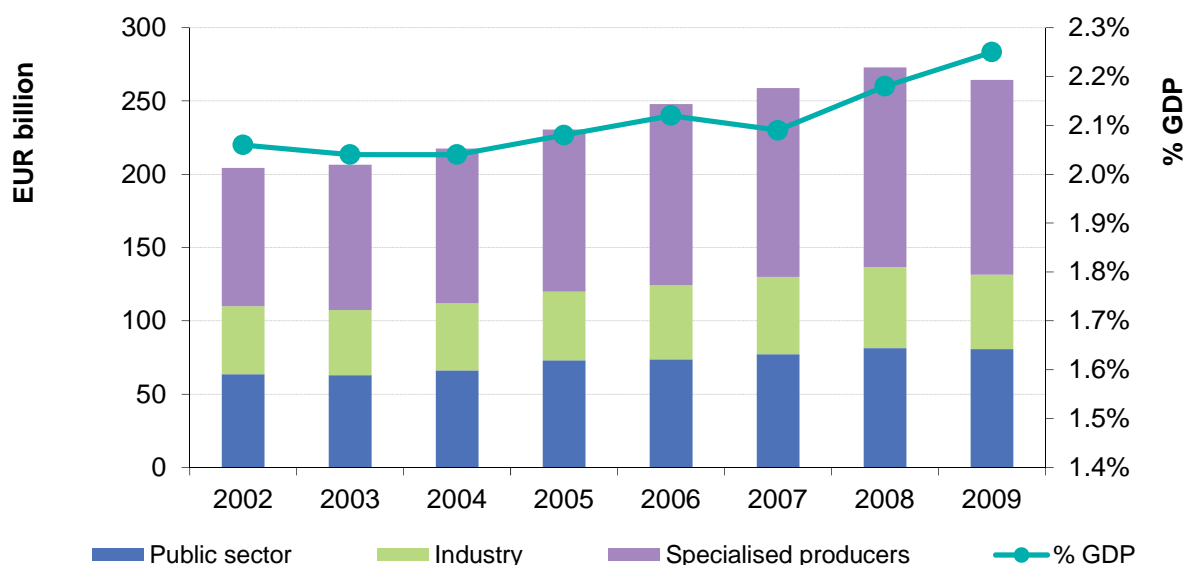
This publication provides details on the expenditure made in the European countries with the purpose of protecting the environment. Environmental protection expenditure (EPE) is the money spent on activities aimed at the prevention, reduction and elimination of pollution or any other degradation of the environment.

EPE can be analysed looking at three main actors: the public sector, industry (mining and quarrying, manufacturing and electricity, gas and water supply) and specialised producers of environmental services (public and private enterprises specialised in producing environmental services).

Between 2002 and 2009, the EU-27 expenditure of specialised producers grew in value terms by 40%. There was a 27% increase in environmental protection expenditure made by the public sector, while the expenditure by industry was largely unchanged (having dipped during the early part of the decade when industrial activity was relatively weak, before increasing by 20% between 2004 and 2008).

As a percentage of GDP the total EPE of the three main sectors increased by 0.2% points in the same period and reached 2.25% in 2009. The total spending on environmental protection amounted to more than 260 billion EUR in 2009.

Figure 1: Environmental protection expenditure by sector, EU-27, 2002-2009 (1) (EUR billion and % of GDP)



(1) Eurostat estimates.

Source: Eurostat (online data code : [env\\_ac\\_exp1](#))

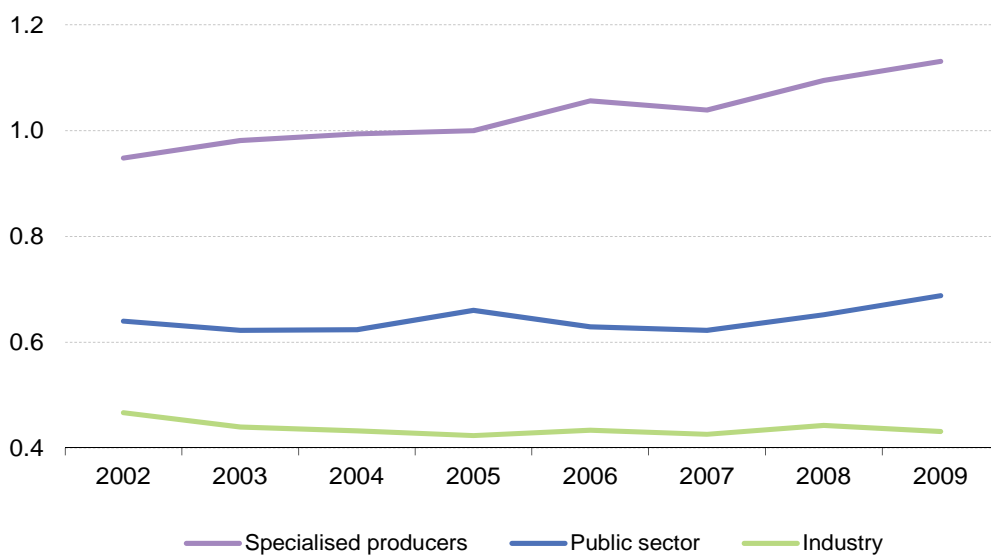
As figure 1 shows, expressed in billion EUR, there was a general development of rising EU-27 environmental protection expenditure over most of the last decade. However, the decline between 2008 and 2009 reflects, at least to some degree, the impact of the financial and economic crisis. There was a reduction of 8.3 % in value terms in the expenditure made by industry, while expenditure declined by 2.6 % for specialised producers and 0.6 % for the public sector.

As a share of GDP, the EU-27 EPE made by specialised producers increased by 0.2 percentage points between 2002 and 2009 to reach 1.1 % of GDP. The relative importance of EU-27 public sector EPE was stable at around 0.7 % of GDP between 2002 and 2008, increasing somewhat in

2009. In contrast, the relative importance of EU-27 EPE made by industry declined between 2001 and 2003 by about 0.1 percentage points and then remained relatively stable until 2009.

However, between 2008 and 2009 there was a 5.7 % reduction in EU-27 GDP in current price terms. This decline in economic activity was at a more rapid pace than the reduction in EU-27 EPE for specialised producers or the public sector. As a result, in 2009 EPE as a percentage of GDP rose for those two sectors while there was a very small reduction for industry (see figure 2).

**Figure 2: Environmental protection expenditure by sector, EU-27, 2002-2009 (1) (% of GDP)**



(1) Eurostat estimates.

Source: Eurostat (online data code : [env\\_ac\\_exp1](#) and [nama\\_gdp\\_c](#))

## Current expenditure accounted for 70-80% of EPE in all three sectors

EPE is made up of current expenditure and investment. For the public sector the total EPE includes also subsidies and other transfers given to other sectors.

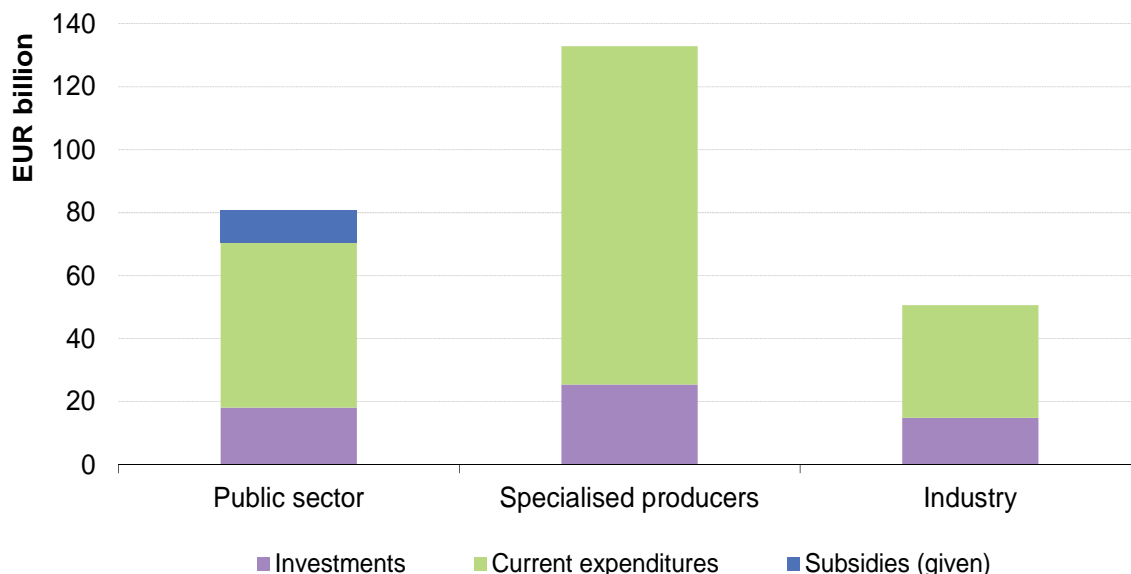
Current expenditure includes the use of energy, material, maintenance and personnel for producing environmental services in-house. Current expenditure also comprises the money spent to buy environmental services from specialised producers.

Investment includes all outlays in a given year (purchases and own-account production) for

machinery, equipment, plant, buildings and land used for environmental protection purposes.

In the EU-27 in 2009 EPE by the specialised producers accounted for 133 billion euro, of which 25 billion euro (19%) were investments. In the same year the EPE by industry was 51 billion euro, of which 15 billion euro (30%) were investments. The public sector spent in 2009 81 billion euro for protecting the environment, of which 18 billion euro (22%) were investments and 10 (13%) billion euro were subsidies and other transfers given to other sectors.

**Figure 3: Environmental protection expenditure by sector and by type, EU-27, 2009 (1) (EUR billion)**



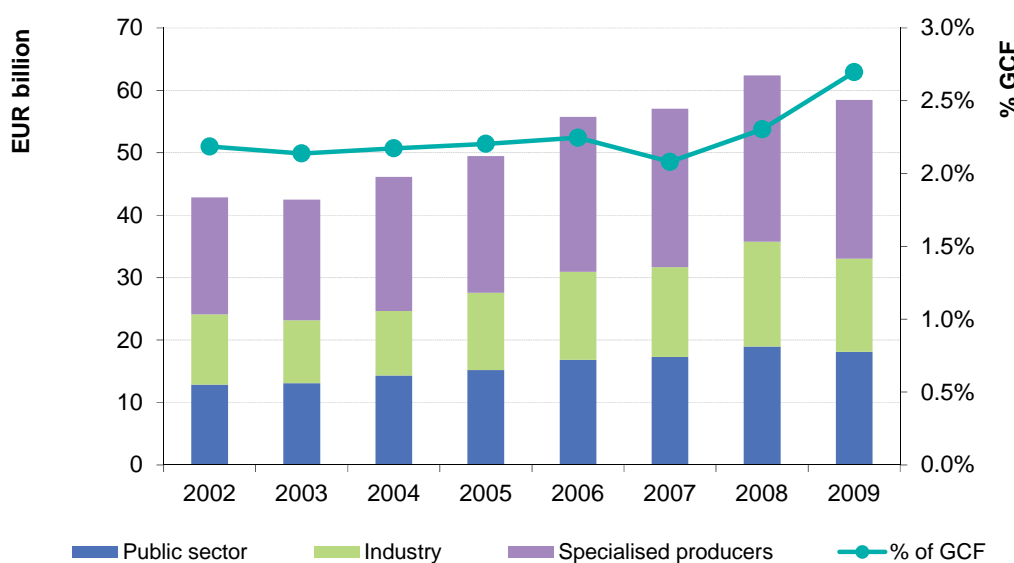
(1) Eurostat estimates.  
Source: Eurostat (online data code : [env\\_ac\\_exp1](#))

### Environmental protection investments accounted for 2.7% of EU-27 gross capital formation in 2009

Through most of the period the total value of investment for environmental protection increased. In the economic crisis EP investment decreased less fast than other investment in the economy, so its share in total investment (gross capital formation) increased to reach 2.7% in 2009.

No significant changes in the share of investments by sectors occurred: specialised producers accounted for around 43% of investments throughout the period, with industry and public sector having a share of around 25 and 31% of total EP investments respectively.

**Figure 4: Environmental protection investments by sector, EU-27, 2002-2009 (1) (EUR billion and % of total gross capital formation)**



(1) Eurostat estimates.  
Source: Eurostat (online data code : [env\\_ac\\_exp1](#))

## Waste and wastewater management services accounted for most of the EPE in the EU-27 in 2009

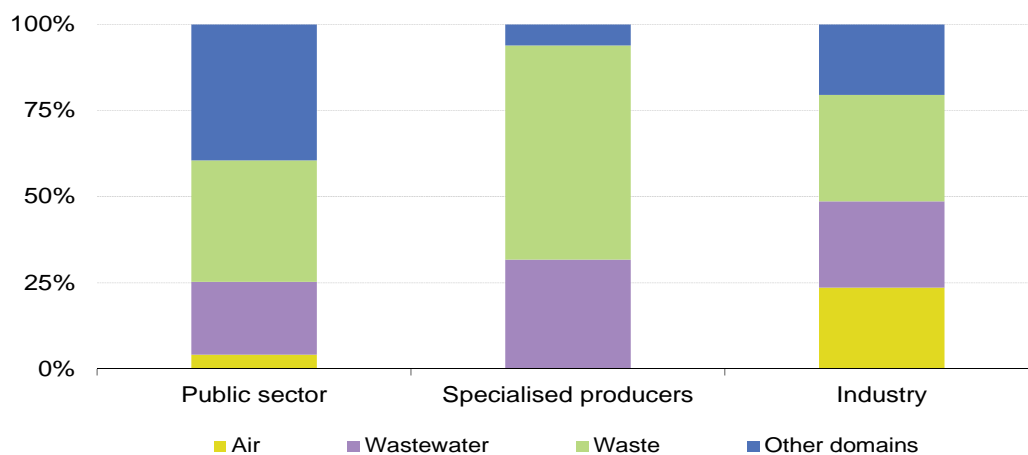
Specialised producers are mainly active in providing waste and wastewater management services. In 2009 in the EU-27 waste management accounted for 62% of specialised producers' EPE, wastewater management for 32% and other environmental protection services for 6%.

As far as the public sector is concerned waste management had a share of 35% and wastewater management 21% of total EPE. For air protection about 4% of total public sector EPE was spent. The

rest (39%) was devoted to protection of soil and groundwater, biodiversity protection, noise reduction, protection against radiation and environmental R&D.

Industry's EPE is more evenly distributed among environmental domains. In 2009 in the EU-27 industry spent 31% of its EPE for waste management, 25% for wastewater treatment, 24% for reducing and treating air emissions and 20% for other environmental domains.

**Figure 5: Environmental protection expenditure by sector and by environmental domain, EU-27, 2009 (1) (% of total EPE)**



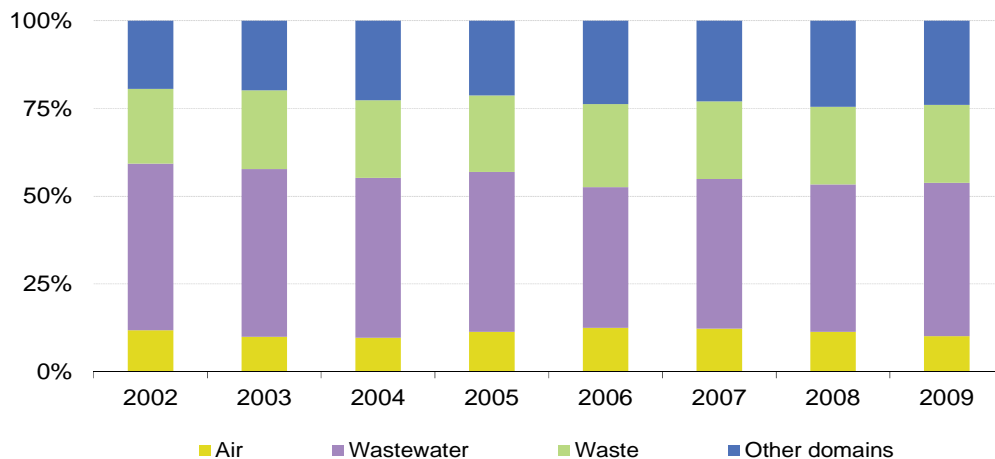
(1) Eurostat estimates.

Source: Eurostat (online data code: [env\\_ac\\_exp1](#))

In terms of investments, wastewater treatment attracted most of the spending all through the period 2002 to 2009, however its share in total EP investments slightly declined from 48% to 44%. The amount invested in reducing air emissions and

managing waste remained almost unchanged in the period 2002 to 2009. The share of investments devoted to other domains increased, reflecting in particular an increase in investments for soil remediation.

**Figure 6: Environmental protection investments by environmental domain, EU-27, 2002-2009 (1) (% of total EP investments)**



(1) Eurostat estimates.

Source: Eurostat (online data code : [env\\_ac\\_exp1](#))

## Public sector spending for environmental protection accounted for 1.35% of total public expenditure in the EU-27 in 2009

The public sector comprises mainly those units that carry out non-market activities for the community as a whole. Apart from legislative and regulatory tasks, government units provide environmental services.

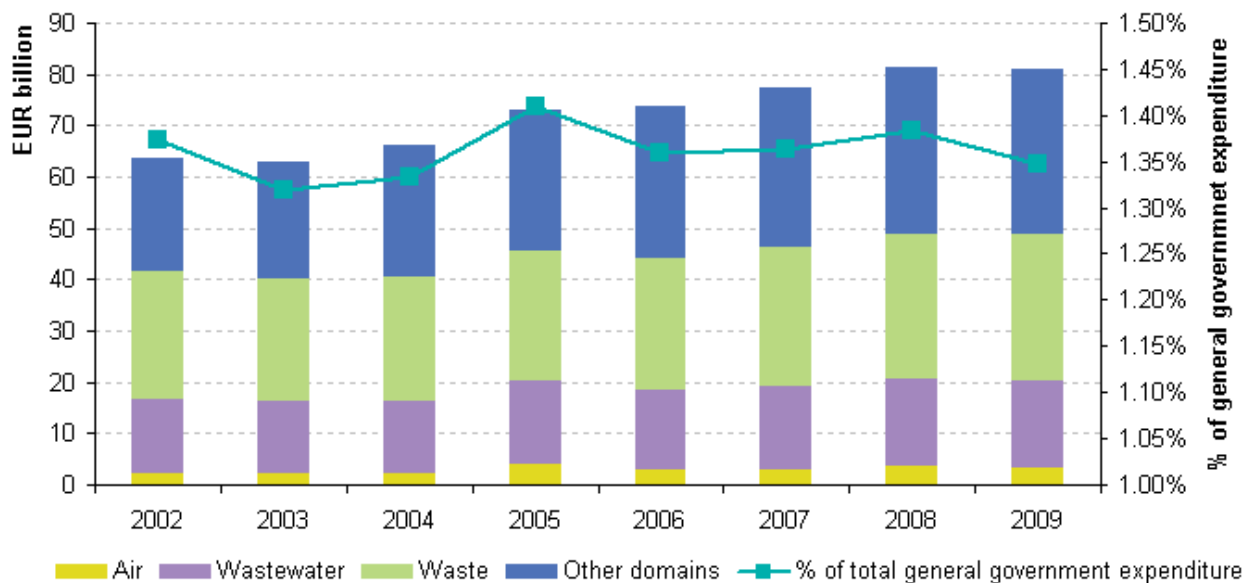
The public sector also finances environmental protection by other sectors (including households) through subsidies and other transfers such as investment grants.

In 2009 public sector EPE accounted for 1.35% of general government expenditure in the EU-27. The

share of EPE in the overall public spending remained fairly constant between 2002 and 2009 while in value terms a growth of more than 25% was recorded for the same period.

In terms of environmental domains, the share of EPE devoted to waste management decreased from 39% to 35% between 2002 and 2009. This decrease was offset by a growth in the share of other domains, while the share of spending for wastewater management and air protection remained constant in the same period.

**Figure 7: Public sector environmental protection expenditure, EU-27, 2002-2009 (1) (EUR billion and % of general government expenditure)**



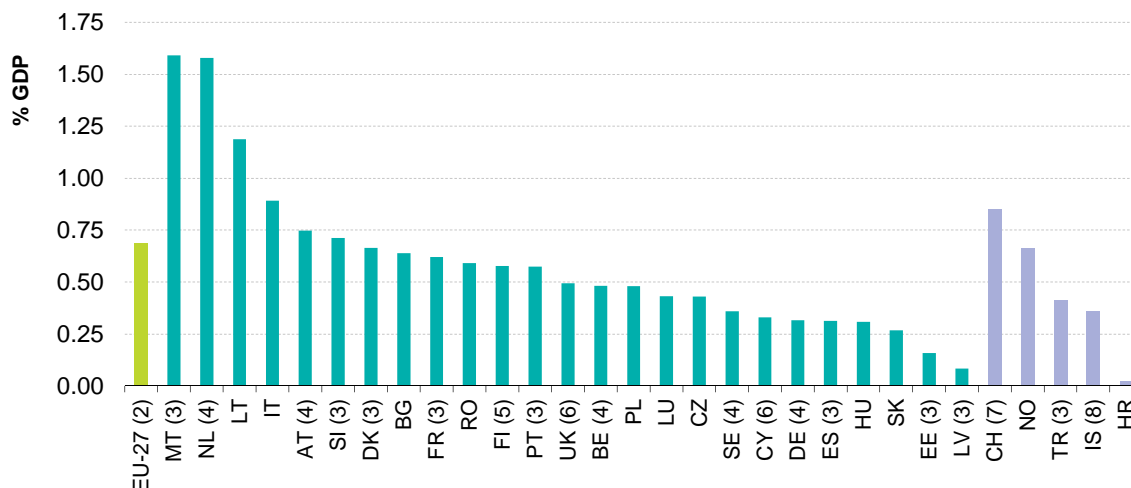
(1) Eurostat estimates.

Source: Eurostat (online data codes : [env\\_ac\\_exp1](#) and [gov\\_a\\_main](#))

In terms of GDP, in most European countries, public sector EPE accounted for between 0.25 % and 0.9 % in 2009. Croatia (0.02 %), Latvia (0.08 %) and Estonia (0.16 %) were below this

range, while relatively high levels of public sector expenditure were recorded in Malta (1.59 %, 2008), the Netherlands (1.58 %, 2007) and Lithuania (1.19 %).

**Figure 8: Public sector environmental protection expenditure by country, 2009 (1) (% of GDP)**

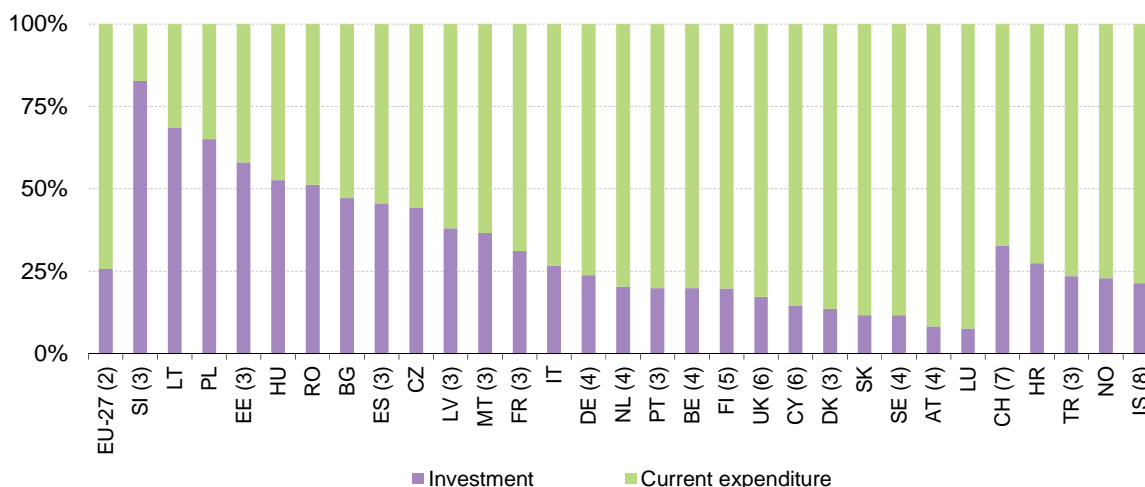


(1) Ireland and Greece, not available. (2) Eurostat estimates. (3) 2008. (4) 2007. (5) 2006. (6) 2004. (7) 2003. (8) 2002  
 Source: Eurostat (online data codes : [env\\_ac\\_exp1](#), [env\\_ac\\_exp1r2](#), [nama\\_gdp\\_c](#))

Figure 9 provides a breakdown of the environmental protection investments and current expenditure incurred by the public sector. It shows that investment in the EU-27 accounted for one quarter of total EPE. Investment

generally accounted for a much higher share of total expenditure in most of the Member States that joined the EU in 2004 or 2007. This may reflect expenditure on fixed assets required to meet EU environmental legislation.

**Figure 9: Public sector environmental protection investment and current expenditure by country, 2009 (1) (% of total)**

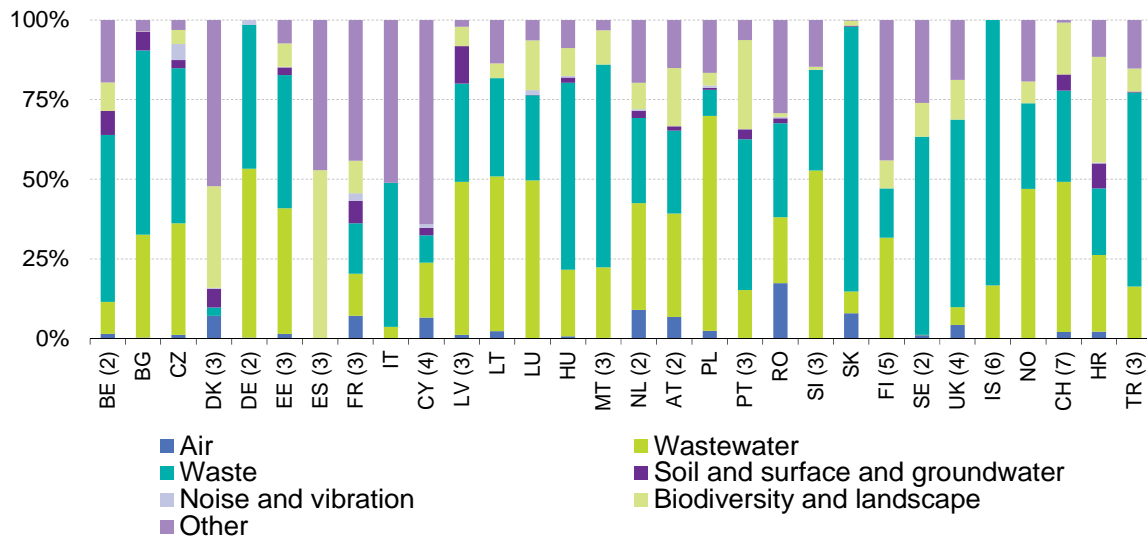


(1) Ireland and Greece, not available. (2) Eurostat estimates. (3) 2008. (4) 2007. (5) 2006. (6) 2004. (7) 2003. (8) 2002  
 Source: Eurostat (online data codes : [env\\_ac\\_exp1](#), [env\\_ac\\_exp1r2](#))

As noted above, waste management and wastewater treatment are generally the two main domains for public sector expenditure and this pattern holds true for most of the EU Member States. Figure 10 shows that only in a few countries the public sector spent more in other domains. For example, in Spain, the public sector principally directed its expenditure towards biodiversity and landscape protection,

whereas in Cyprus, Italy, Denmark, France and Finland more than two fifths of expenditure was in the miscellaneous category of ‘other’, which includes general environmental administration and management, education, training and information relating to the environment as well as activities leading to indivisible expenditure and activities not elsewhere classified.

**Figure 10: Public sector environmental protection expenditure by environmental domain and by country, 2009 (1) (% of total EPE)**



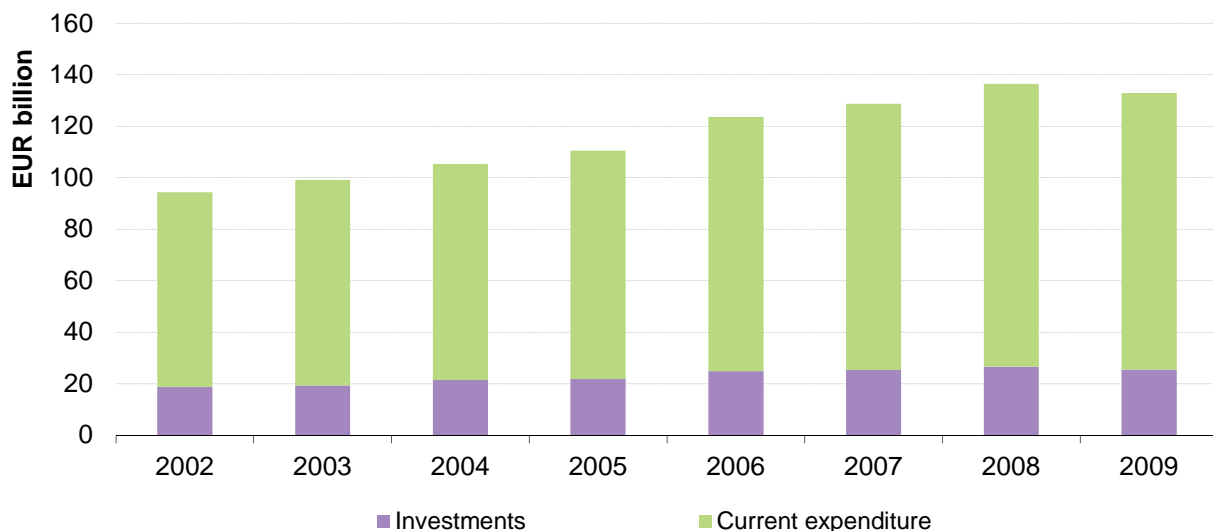
(1) Ireland and Greece, not available. (2) 2007. (3) 2008. (4) 2004. (5) 2006. (6) 2002. (7) 2003.  
 Source: Eurostat (online data codes : [env\\_ac\\_exp1](#), [env\\_ac\\_exp1r2](#))

### Environmental protection investments of specialised producers remained almost unchanged in 2002-2009

Specialised producers are the main providers of environmental services which are sold on the market. This sector also includes those market producers that carry out environmental protection activities as a secondary activity.

Between 2002 and 2009 both current expenditure and investments of specialised producers grew at the same pace in the EU-27 resulting in an almost unchanged share of investments at a level of 20% in total EPE during the period.

**Figure 11: Environmental protection investments and current expenditure of specialised producers, EU-27, 2002-2009, EU-27 (1) (EUR billion)**



(1) Eurostat estimates.  
 Source: Eurostat (online data code : [env\\_ac\\_exp1](#))

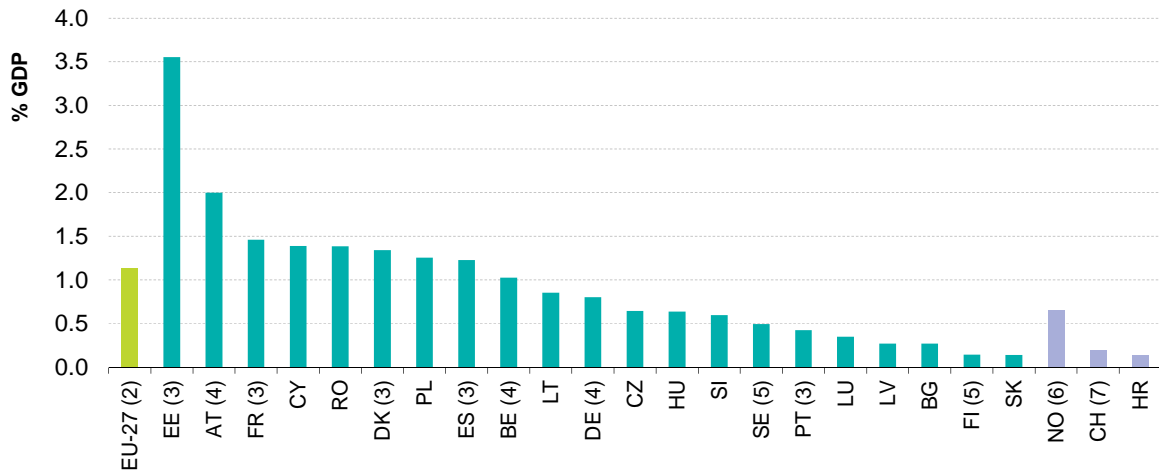
In terms of GDP, the expenditure of specialised producers generally ranged between 0.4 % and 1.5 %, with an EU-27 average of 1.1 % in 2009

(see figure 12). Only Slovakia, Finland (2006), Bulgaria, Latvia and Luxembourg had a share lower than 0.4 %. The highest ratios were

recorded in Estonia (2008) and Austria (2007). The differences between countries may, at least to some degree, reflect whether the public sector provides services itself or whether these activities have been contracted out to specialised producers. The differences may also be related to the specialisation and concentration of particular

industrial activities within each country. For example, wastewater treatment or waste management may be internalised within industrial plants in order to treat or recycle some of the materials that are discarded as part of the production process.

**Figure 12: Environmental protection expenditure by specialised producers by country, 2009 (1) (% of GDP)**



(1) Ireland, Greece, Italy, Malta, the Netherlands, the United Kingdom, Iceland and Turkey, not available. (2) Eurostat estimates. (3) 2008. (4) 2007. (5) 2006. (6) 2005. (7) 2003.

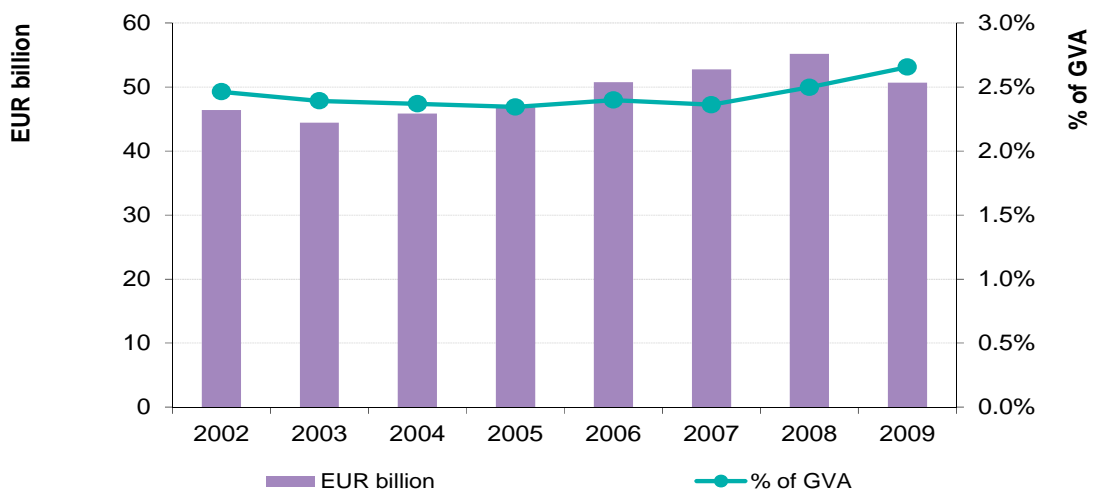
Source: Eurostat (online data codes : [env\\_ac\\_exp1](#), [env\\_ac\\_exp1r2](#), [nama\\_gdp\\_c](#))

### EPE accounted for 2.7% of gross value added in the industrial sector

In the period 2002 to 2009 the environmental expenditure of the industrial sector (mining and quarrying, manufacturing and electricity, gas and water supply) expressed as a share of gross value added (GVA) remained almost constant at around 2.5%.

However, in 2009, an almost 10% decrease of industrial EPE in value terms, accompanied by a drop of 14% in GVA, resulted in a slight (0.2 percentage points) growth in the EPE as % of gross value added.

**Figure 13: Industrial environmental protection expenditure, EU-27, 2001-2009 (1) (EUR billion and % of GVA)**



(1) Eurostat estimates.

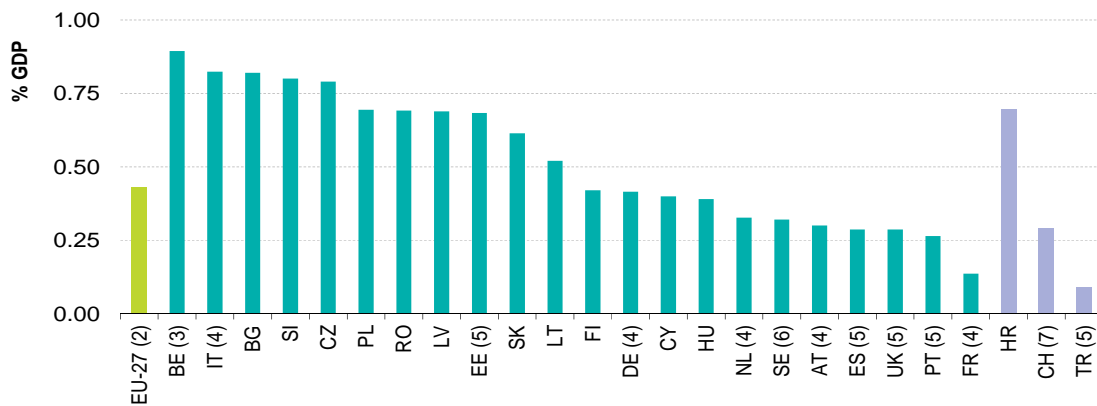
Source: Eurostat (online data codes : [env\\_ac\\_exp1](#) and [nama\\_nace31\\_c](#))



In terms of GDP an average of 0.43 % was spent on environmental protection by industry across the EU-27 in 2009. This ratio was generally within the range of 0.2 % to 0.8 % of GDP. Belgium (2002), Italy

(2007) and Bulgaria reported higher shares and France (2007) a lower share; Turkey also had a relatively low share (2008).

**Figure 14: Industrial environmental protection expenditure by country, 2009 (1) (% of GDP)**



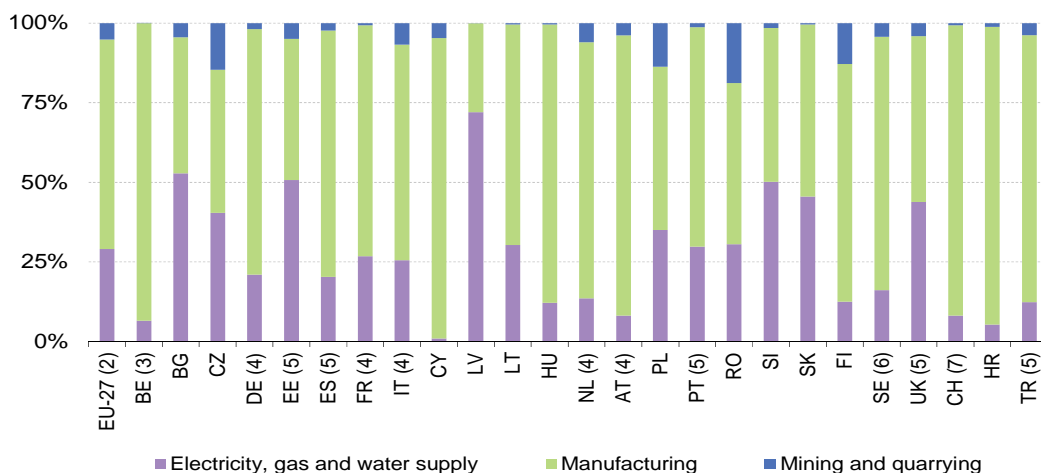
(1) Denmark, Ireland, Greece, Luxembourg, Malta, Iceland and Norway not available. (2) Eurostat estimates. (3) 2002. (4) 2007. (5) 2008. (6) 2006. (7) 2003.

Source: Eurostat (online data codes : [env\\_ac\\_exp1](#), [env\\_ac\\_exp1r2](#), [nama\\_gdp\\_c](#))

Looking at a more detailed industrial breakdown (see figure 15), the majority of the EPE made within industry can be attributed to manufacturing (65.7 % of the total in the EU-27 in 2009). Manufacturing had the highest level of expenditure among the three industrial activities in each of the countries for which data are available, except in Latvia, Bulgaria, Estonia (2008) and Slovenia where the electricity, gas, and water supply sector accounted for a higher share. The high manufacturing share is not surprising as this sector is far larger according to most economic measures than the mining and quarrying or the electricity, gas and water supply sectors. Natural resource

endowments, as well as industrial specialisation may, at least in part, explain some of the differences between countries. For example, a higher reliance on the burning of fossil fuels to generate electricity in many of the Member States that joined the EU in 2004 or 2007 may explain the relatively high degree of environmental protection expenditure within the electricity, gas and water supply sector in these countries, while significant coal mining may explain the higher than average levels of expenditure in the mining and quarrying industry in Romania, the Czech Republic and Poland.

**Figure 15: Industrial environmental protection expenditure by subsector and by country, 2009 (1) (% of total EPE)**



(1) Denmark, Ireland, Greece, Luxembourg, Malta, Iceland and Norway not available. (2) Eurostat estimates. (3) 2002. (4) 2007. (5) 2008. (6) 2006. (7) 2003.

Source: Eurostat (online data codes : [env\\_ac\\_exp1](#), [env\\_ac\\_exp1r2](#))

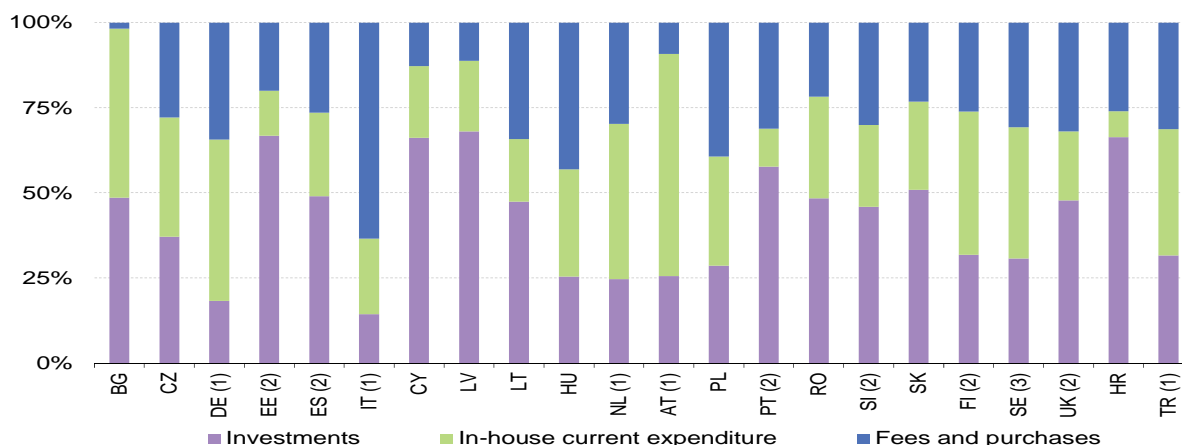
Industry EPE includes investments and in-house current expenditure for producing environmental services internally. Furthermore, industry buys environmental services from specialised producers (purchases) and from public sector (fees), hence this spending is called fees and purchases.

A large part of internal expenditure is related to operating environmental protection equipment. It also includes general administration, education,

information, environmental management and certification, research and development expenditure.

In most of the countries for which data are available the money spent by industry to buy environmental services from specialised producers and public sector ranges between 20% and 40% of their total EPE. The highest share was recorded in Italy where more than 60% of EPE was spent on fees and purchases.

**Figure 16: Investments, in-house expenditure and fees and purchases of the industrial sector by country, 2009 (% of total EPE)**



(1) 2007. (2) 2008. (3) Mining and quarrying not included.

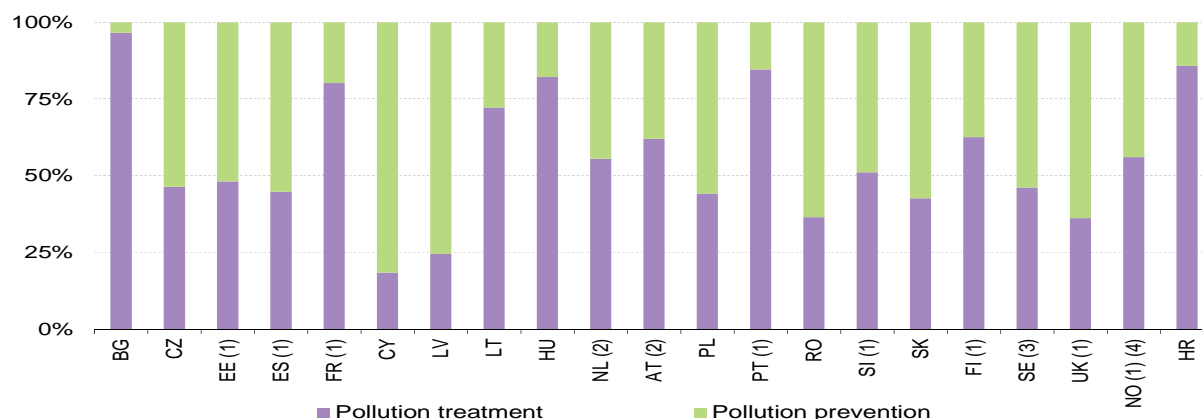
Source: Eurostat (online data codes : [env\\_ac\\_exp1](#) and [env\\_ac\\_exp1r2](#))

Investment data for the industrial sector can be further broken down into integrated (also called pollution prevention) and end-of-pipe (pollution treatment) investments.

Integrated investments are investments which lead to a modified or adapted production process. They serve to reduce the amount of pollution generated. End of pipe investments serve to treat pollution already generated.

Across European countries' industrial sectors, about half of the EP investments are devoted to investments to prevent pollution at the source. In 2009 integrated investments were bigger than end-of-pipe investments in 10 out of 21 countries for which data are available. The biggest shares of pollution prevention investments were recorded in Cyprus and Latvia, while Bulgaria, Portugal and Croatia invested mainly in pollution treatment technologies.

**Figure 17: Industrial environmental protection investments by type and by country, 2009 (% of total EP investments)**



(1) 2008. (2) 2007. (3) Mining and quarrying not included. (4) Electricity, gas and water supply not included.

Source: Eurostat (online data codes : [env\\_ac\\_exp1](#) and [env\\_ac\\_exp1r2](#))

## METHODOLOGICAL NOTES

Environmental protection expenditure is the money spent on activities and actions that are aimed at the prevention, reduction and elimination of pollution as well as any other degradation of the environment.

Eurostat collects environmental protection expenditure data every two years through the Joint Eurostat/OECD Questionnaire on Environmental Protection Expenditure and Revenues (JQ-EPER). (The JQ-EPER data are collected based on a Gentlemen's Agreement.)

The JQ classifies units of the economy into four main sectors: specialised producers, public sector, business and households. Units classified as specialised producers or under the public sector are units that carry out environmental protection activities for third parties. Units in the business sector carry out environmental protection activities internally and buy environmental services from specialised producers (mainly) or the public sector. Households mainly buy environmental protection services from specialised producers and the public sector.

The JQ distinguishes two expenditure concepts: expenditure according to the abater principle (EXP I) and according to the financing principle (EXP II). The framework of the JQ is based on double entry bookkeeping, where each activity and expenditure item has an abater and a financing side. Excluded are calculated cost items such as depreciation (consumption of fixed capital) or the cost of capital as this questionnaire only records actual outlays.

For a given sector or economic unit, expenditure according to the abater principle (EXP I) comprises all expenditure by the sector on the environmental protection activities it undertakes.

For a given sector or economic unit, expenditure according to the financing principle (EXP II) corresponds to what the sector contributes to overall environmental protection activities, whatever the unit that executes them.

Obtaining data on the variables needed for calculating EXP I and EXP II can be quite resource intensive for national statistical offices. For this reason many countries have not reported any data for some variables. Taking into account the limitations that occur due to data availability, Eurostat regularly publishes the indicator environmental protection expenditure (EPE). This indicator can give an idea of the money spent by each sector for environmental protection activities directly and indirectly, i.e. not only by producing EP activities for own use, but also by buying environmental services from other

economic units and financing through subsidies and other transfers EP expenditures carried out by other units.

While the EPE indicator can be used for comparison of a sector among countries, care is needed when it is used for comparing among sectors of the same economy and to sum up expenditures from the different sectors to build up a "national" expenditure figure for a given country.

When comparing EPE of specialised producers and business, for example, care is needed as some spending for producing environmental protection services will be counted twice: by the current expenditure and investments of specialised producers which are producing the service and by the payments of the business sector which is buying these services.

The scope of environmental protection is defined according to the Classification of Environmental Protection Activities (CEPA), which distinguishes nine environmental domains: 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 and other environmental protection activities.

Data on EPE are available in current prices by country, year (1990-2009) and NACE sector. Data are published for the European Union as well as for each Member State separately. In addition, data for Croatia, Turkey and for the EFTA countries Iceland, Norway and Switzerland are provided. Eurostat estimates the data for countries that are missing in order to create totals for EU-27 and EU-15 for the main economic variables, sectors and environmental domains.

**Country codes:** European Union (27 countries) is written as EU-27 and consists of Belgium (BE), Bulgaria (BG), the Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Ireland (IE), Greece (EL), Spain (ES), France (FR), Italy (IT), Cyprus (CY), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Malta (MT), the Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Romania (RO), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE) and the United Kingdom (UK). For Croatia (HR) and Turkey (TR) and Iceland (IS), Switzerland (CH) and Norway (NO) data are also available.

## Further information

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Eurostat Website: <http://ec.europa.eu/eurostat>

Data on 'environmental protection expenditure'

<http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/data/database>

Select 'environmental accounts'

Further information about 'environment'

<http://epp.eurostat.ec.europa.eu/portal/page/portal/environment/introduction>

More information about 'environmental protection expenditure'

Eurostat, (2011), [Environmental protection expenditure in Europe - Data 1995-2009](#)

Eurostat, (2011), [Key figures on Europe - 2011 edition, Pocketbook](#)

Eurostat, (2010), [Environmental protection expenditure and revenues in the EU, EFTA and candidate countries, 2001-2006 - Statistics in Focus 31/2010](#)

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