

## Distribution of environmental taxes in Europe by tax payers in 2007

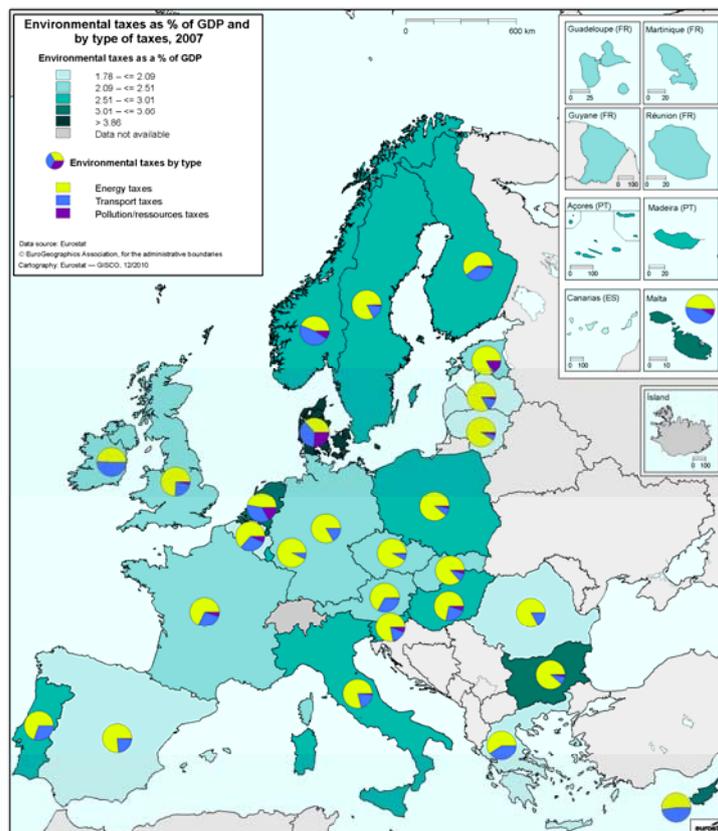
In many European countries, households are the main contributors to the energy and transport tax revenue

An environmentally related tax, also for convenience simply called environmental tax, is defined as a tax whose tax base is a physical unit (or a proxy of it) of something that has a proven specific negative impact on the environment. Besides revenue, the aim of environmental taxes can also be to discourage behaviour potentially harmful for the environment, to provide incentives to lessen the pressures from the economy on the environment and to preserve the

environment by integrating the cost of adverse impacts into prices. In this way, environmental taxes can help in implementing the “polluter-pays” principle.

The EU has increasingly favoured such financial instruments for reaching environmental objectives.

Figure 1: Environmental taxes as % of GDP and by type of taxes, 2007



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

The purpose of this publication is to present data on environmental taxes in a breakdown by three categories (energy taxes, transport taxes, pollution/resource taxes), as well as a detailed breakdown by the payers of these taxes (business sector, public sector, households as

consumers and not-allocated). The business sector covers agriculture, mining, industry, construction and market services, while the public sector comprises mainly public administration, education and health

## In 2007, the environmental taxes in most European countries ranged from 2% to 3% of GDP

In 2007, the revenue from environmental taxes in the EU-27, collected by the general government was 304 billion euro and accounted for almost 2.5% of GDP and 6.2% of total taxes and social contributions (TSC) (Table 1).

Denmark recorded by far the highest level of environmental taxation in the EU (5.9% of GDP). Four countries, the Netherlands, Malta, Bulgaria and Cyprus, had environmental taxes between 3% and 4% of GDP. Only two Member States, Spain and Lithuania, registered levels of environmental taxes slightly below 2% of their GDP.

**Table 1: Environmental taxes in EU-27, 2007**

Environmental taxes	million euro	% of total environmental taxes	% of GDP	% of total revenues from TSC
Energy taxes	219 244.14	72	1.77	4.46
Transport taxes	71 884.87	24	0.58	1.46
Pollution/Resource taxes	13 139.33	4	0.11	0.27
<b>Total environmental taxes</b>	<b>304 268.34</b>	<b>100</b>	<b>2.46</b>	<b>6.19</b>

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

Environmental taxes can be of four types: energy, transport, pollution and resource taxes. Energy taxes include taxes on energy products used for both stationary purposes (e.g. coal, fuel oils, natural gas and electricity) and transport purposes. By convention, CO<sub>2</sub> taxes are also included in this tax category. In the EU27, the energy taxes in 2007 accounted for almost 72% of total environmental taxes (Table 1). In most European countries, their share in total environmental taxes is higher than 50% (Figure 1).

Transport taxes, which mainly include taxes related to the ownership and use of motor vehicles, accounted for 24% of total environmental taxes at the EU27 level in 2007 (Table 1). This type of environmental

tax was significant in some European countries. It is the case, for example, in Malta, Cyprus, Ireland, Greece and Norway where their share in total environmental taxes is above 40% (Figure 1).

Resource and pollution taxes cover different types of taxes: taxes on extraction of raw materials; on measured or estimated emissions to air (as NO<sub>x</sub> and SO<sub>2</sub>) and water; on noise and on the management of waste. The share of resource and pollution taxes in total environmental taxes was 4% in the EU27 in 2007. Only for Estonia, Slovakia, the Netherlands, Denmark and Norway were the percentages higher than 10% of the total environmental taxes. Due to their low share in total environmental taxes, pollution and resource taxes are analysed together.

## Environmental taxes and climate change

Since the majority of environmental taxes are levied on energy products and on transport (as seen in Table 1) and these are also the main driving forces behind greenhouse gas (GHG) emissions, it is interesting to see a comparison of the two. Figure 2 shows the total GHG emissions for 2007 (left-hand scale) in tonnes, ranging from 957,335 tonnes for Germany to 3,006 tonnes for Malta. Five countries are responsible for

more than 60% of the EU-27 total GHG emissions: Germany, UK, Italy, France and Spain.

When looking at total environmental taxes (Figure 2, right-hand scale, in million euro), the same five countries represent a little over 65% of the EU-27 total (304 billion euro – see Annex). In absolute figures, the highest amount of taxes is paid in

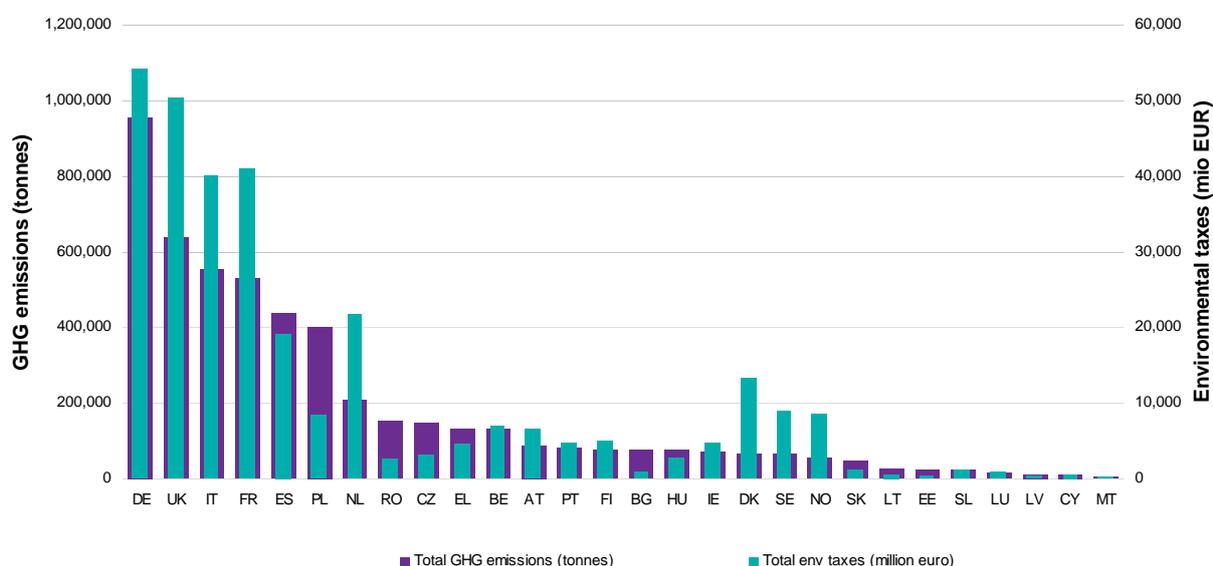
Germany – 54 billion euro, followed by the UK with 50 billion euro and France with 41 billion euro.

We can observe two groups of countries with different patterns of relations between GHG emissions and environmental taxes. In Poland for example, GHG emissions are 7.9% of the EU total GHG emissions (or 399,877 tonnes), while its environmental taxes share in total EU environmental taxes is 2.7% (or 8 billion euro). Similar situations exist in Romania, the Czech Republic, Bulgaria, Greece, Hungary, Slovakia, Lithuania and Estonia where the percentage of GHG emissions in the total is higher than that of environmental taxes in total taxes. At the same time, the three Scandinavian countries Denmark, Sweden and Norway record the opposite situation.

These differences could suggest a taxation system where taxes are targeted to tax bases (e.g. energy products) that cause GHG emissions. But they need to be interpreted with caution as they might also be partly due to differences in price levels. Some differences in levels of emissions may also be due to different fuel mixes whereby the use of coal or solid fuels (more widely used in Eastern European Member States) is much more GHG-intensive than natural gas, for example. Finally, the size of the country's population could be another factor to be taken into account.

In addition, in order to analyse whether a country's taxation system veers toward an ecological reform, the analysis must consider not only environmental tax revenues but rather tax rates (not included here), as high tax revenue might be due to a larger tax base (that is, bigger consumption of energy products).

**Figure 2: Environmental taxes (million euro) and total GHG emissions (tonnes) in European countries, 2007**



Source: Eurostat (online data code: [env\\_ac\\_tax](#)) and EEA available at Eurostat (online data code: [env\\_air\\_gge](#)). Data on GHG emissions covers IPCC sectors 1-7, excluding 5. LULUCF, expressed in tonnes of CO<sub>2</sub>-equivalents.

## Who pays energy taxes?

Business sector and households (as consumers) are usually the main payers of environmental taxes. In some cases there are environmental taxes which are paid by public services activities (mainly education, public administration and defence) or taxes which can not be attributed to one of the tax payer categories mentioned above, and therefore fall into the category "not-allocated".

In most European countries for which data are available, households pay between 20% and 60 % of

total energy taxes, while business activities also contribute a significant share (between 25% to 75%).

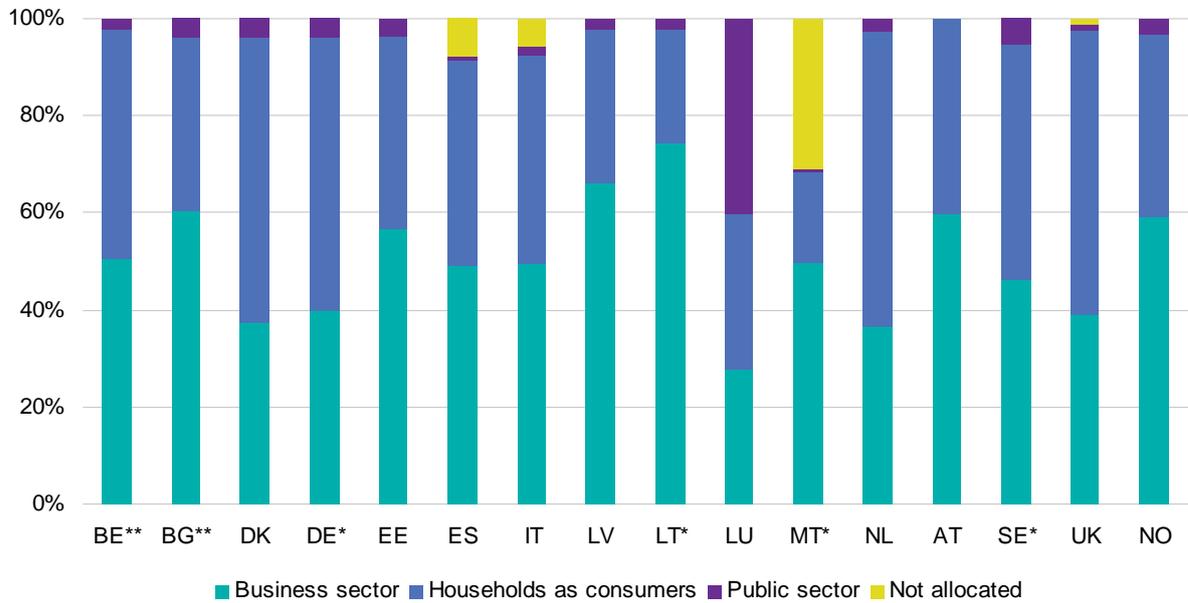
In Estonia, Austria, Bulgaria, Latvia and Lithuania, business activities contribute more than 55% of the energy tax revenues collected by their governments (Figure 3). In all European countries (except for Luxembourg), only a small part of the total energy taxes comes from the public services activities.

The burden of energy taxes on each sector of the economy can also be compared to the actual consumption of energy of each sector (Figure 4).

Austria, Estonia and Lithuania where it is the primary (e.g. agriculture, fishing and forestry) sector (see Figure 4).

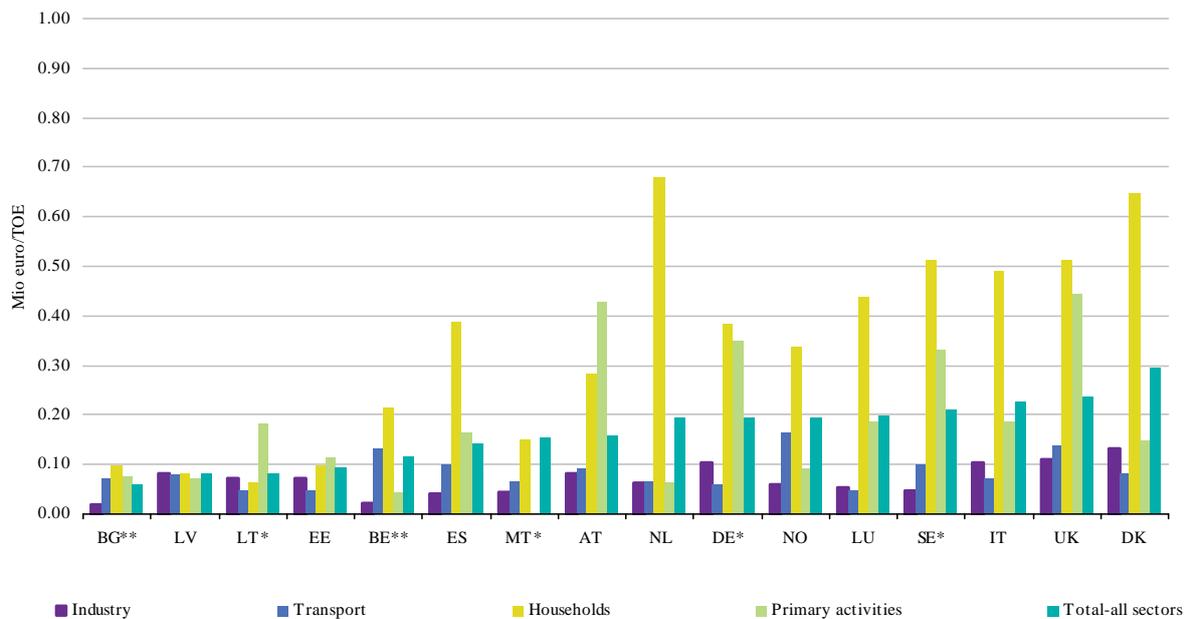
Households are the sector paying the most with respect to their energy consumption, except in

**Figure 3: Energy taxes by tax payers in European countries, 2007**  
(% of energy taxes)



Source: Eurostat (online data code: [env\\_ac\\_taxind](#)) \*\* 2005, \* 2006.; °MT not allocated include taxes from non residents

**Figure 4: Energy taxes per energy consumption by sector, 2007**  
(million euro per tonne of oil equivalent – TOE)



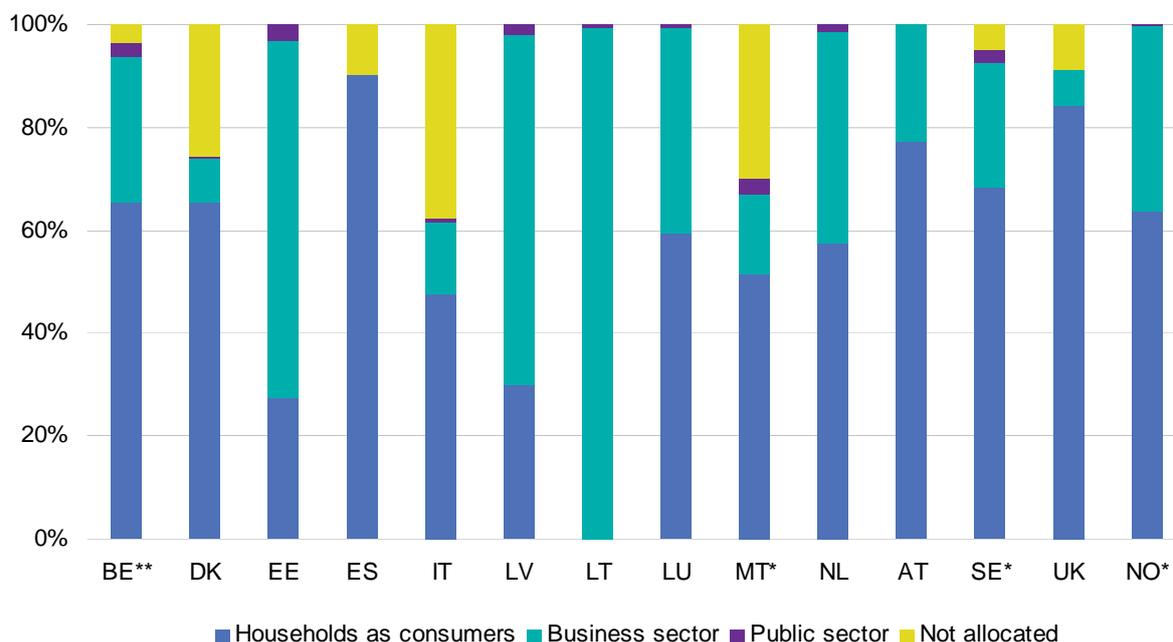
Source: Eurostat (online data code: [env\\_ac\\_taxind](#)) \*\* 2005, \* 2006 and ([nrg\\_100a](#))

## Who pays transport taxes?

Similar to the case of energy taxes, in 2007, households paid most of the transport taxes in almost all European countries (55%-75%). There were only three main exceptions to this rule: at the lower end of the scale Estonia and Latvia, where households pay around 25%-30% of transport taxes, and at the upper end Spain with 90% (Figure 5). In general, public administration, education and similar services contribute the least to transport taxes. Indeed, these

activities, i.e. public means of transportation, generally benefit from tax exemptions. On the other hand, the business sector's contribution to the transport tax revenue collected by general government ranges between 15%-41% for most European countries, except for Latvia, Estonia and Lithuania where it is above 68%, and Spain which can not yet distribute transport taxes by business and includes them in the not-allocated category.

**Figure 5: Transport taxes by tax payers in European countries, 2007**  
(% of transport taxes)



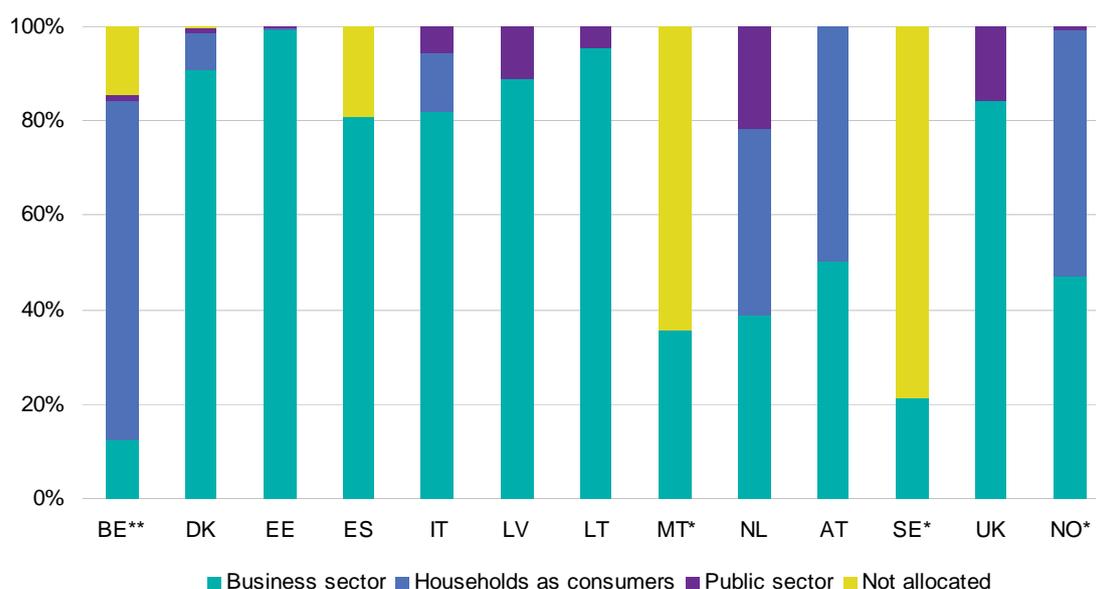
Source: Eurostat (online data code: [env\\_ac\\_taxind](#)) \*\* 2005, \* 2006.

## Who pays resources and pollution taxes?

Households and business activities pay together more than 80% of the resource/pollution taxes in most of the European countries for which data are available (Figure 6). In Latvia, the United Kingdom and the Netherlands, public activities and other services

contribute 11% - 21% of the total transport taxes. In the rest of the countries for which data are available, these activities are practically insignificant contributors.

**Figure 6: Resources/pollution taxes by tax payers in European countries, 2007**  
(% of resources/pollution taxes)



Source: Eurostat (online data code: [env\\_ac\\_taxind](#)) \*\* 2005, \* 2006

## Annex

**Table 2 : Environmental taxes by countries and by type of tax, million euros, 2007**

	Energy taxes	Transport taxes	Taxes on Pollution/Resources	Total environmental taxes
EU27	219244.14	71884.87	13139.32	304268.33
BE	4468.80	2024.90	498.90	6992.60
BG	881.07	87.66	24.94	993.66
CZ	2939.03	212.71	33.42	3185.16
DK	4872.25	5023.92	3419.62	13315.79
DE	45275.00	8910.00	20.00	54205.00
EE	289.90	8.83	54.45	353.19
IE	2305.60	2367.89	4.93	4678.42
EL	2739.00	1888.00	0.00	4627.00
ES	14639.00	4287.00	198.00	19124.00
FR	27862.00	11087.00	2035.00	40984.00
IT	31715.70	7860.00	491.00	40066.70
CY	280.36	254.85	0.00	535.21
LV	361.83	59.92	15.46	437.21
LT	459.35	29.87	18.34	507.56
LU	887.82	66.00	0.00	953.82
HU	2008.98	647.03	141.81	2797.81
MT	97.58	91.32	16.44	205.34
NL	10267.00	7743.00	3688.00	21698.00
AT	4453.19	2086.58	81.96	6621.73
PL	7403.60	739.75	208.00	8351.35
PT	3330.40	1453.36	1.65	4785.40
RO	2110.01	432.31	22.43	2564.75
SI	807.38	169.36	61.69	1038.43
SK	1004.23	110.44	47.17	1161.84
FI	2961.00	1847.00	126.00	4934.00
SE	7317.87	1414.80	124.00	8856.66
UK	37506.21	10981.38	1806.12	50293.71
NO	3716.83	3988.52	798.48	8503.84

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

## METHODOLOGICAL NOTES

An environmental tax is defined as a tax whose tax base is a physical unit (or a proxy of it) of something that has a proven specific negative impact on the environment, for example emissions of polluting substances (CO<sub>2</sub>, NO<sub>x</sub>, etc.). Value added type taxes (VAT) are excluded from the definition of environmental taxes. This is mainly because of the special characteristics of this type of tax. VAT is a tax levied on all products (with few exceptions), and it is deductible for many producers, but not for households. Because of this, it does not influence relative prices in the same way that other taxes on environmentally related tax bases do. Environmental taxes can be of four types: energy, transport, pollution and resources taxes.

Energy taxes include taxes on energy products used for both stationary purposes (e.g. coal, fuel oils, natural gas and electricity) and transport. By convention, CO<sub>2</sub> taxes are also included in this tax category.

Transport taxes include taxes related to the ownership and use of motor vehicles.

Resources and pollution taxes cover different types of taxes: taxes on extraction of raw materials; on measured or estimated emissions to air (as NO<sub>x</sub> and SO<sub>2</sub>) and water; on noise and on the management of waste.

The main categories of environmentally relevant tax bases are the following:

Measured or estimated emissions to air		
Measured or estimated NO <sub>x</sub> emissions	Other measured or estimated emissions to air	
SO <sub>2</sub> content of fossil fuels		
Ozone depleting substances (e.g. CFC or halon)		
Measured or estimated effluents to water		
Measured or estimated effluents of oxydable matters (BOD- biochemical oxygen demand, COD – chemical oxygen demand)	Other measured or estimated effluents to water	
	Effluent collection and treatment, fixed annual taxes	
Certain non-point sources of water pollution		
Pesticides (Based on e.g. chemical content, price or volume)	Artificial fertilisers (Based e.g. on phosphorus or nitrogen content or price)	
Manure		
Waste management		
Waste management in general (e.g. collection or treatment taxes)	Waste management, individual products (e.g. packaging, beverage containers)	
Noise (e.g. aircraft take-off and landings)		
Energy products		
Energy products used for transport purposes	Natural gas	Electricity consumption
Unleaded petrol	Coal	Electricity production
Leaded petrol	Coke	District heat consumption
Diesel	Biofuels	Heavy fuel oil
Other energy products for transport purposes	Light fuel oil	District heat production
Energy products used for stationary purposes (mostly CO <sub>2</sub> taxes)	Other fuels for stationary use	
Transport		
Motor vehicles, one-off import or sales taxes	Registration or use of motor vehicles, recurrent (e.g. yearly) taxes	
Resources		
Water abstraction	Other resources (e.g. forests)	Extraction of raw materials (except oil and gas)

DG Taxation and Customs Union, using Table 9 from the ESA 95 transmission programme, gathers data on environmental taxes for the four categories of environmental taxes: energy taxes, transport taxes, pollution taxes and resource taxes. Eurostat validates and disseminates these data on its data base, in the table "env\_ac\_tax".

Eurostat collects data on environmental taxes at a more detailed level, namely in a breakdown by economic activities who pay the tax (following NACE classification two-digit level plus households as consumers, non-residents and not-allocated). Malta

is the only country that was able to identify environmental taxes paid by non-residents, but for comparison purposes these data are not presented in this SIF. Eurostat validates and disseminates these data via its data base, in the table "env\_ac\_taxind". This annual data collection is based on a Gentlemen's Agreement, and therefore in some cases there is not enough data available to attempt a rigorous analysis. The current proposal for the Legal Base on Environmental Accounts includes an annex which will make this mandatory. The normal frequency of reporting of these data will then be on a T+21 months basis, where T is the reference year.

## Further information

---

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

Data on "environmental taxes by industry"

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

Select "environmental accounts"

More information on "environmental taxes by industry"

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

Eurostat, (2007), "Environmental taxes in the European economy 1995-2003", [Statistics in focus 1/2007](#);

Eurostat, (2009), "[Energy, Transport and Environmental indicators](#)", Pocketbook;

Eurostat, (2009), "[Taxation trends in the European Union: Data for EU Member States Iceland and Norway](#)"

---

### Journalists can contact the media support service:

Bech Building Office A4/125 L - 2920 Luxembourg

Tel. (352) 4301 33408 Fax (352) 4301 35349

E-mail: [eurostat-mediasupport@ec.europa.eu](mailto:eurostat-mediasupport@ec.europa.eu)

---

### European Statistical Data Support:

With the members of the 'European statistical system', Eurostat has set up a network of support centres in nearly all Member States and in some EFTA countries.

Their mission is to provide help and guidance to Internet users of European statistical data.

Contact details for this support network can be found on our Internet site:

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

---

All Eurostat publications can be ordered via EU Bookshop

<http://bookshop.europa.eu/>

This SIF was prepared in cooperation with ICEDD asbl (Institut de Conseil et d'Etudes en Développement Durable), Namur, Belgium.

---

Manuscript completed on: 17.12.2010

Data extracted on: 02.11.2010

ISSN 1977-0316

Catalogue number: KS-SF-10-067-EN-N

© European Union, 2010