

## Methodological note

### Environmental taxes in Italy

#### 1. Definition and classification

Environmental taxes, as part of the more general group of taxes, are compulsory payments to the government, where the benefits provided to the taxpayer are not directly linked to the payment<sup>1</sup>.

A tax is defined as an environmental tax if its base is 'a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment'. This approach is consistent with the international guidelines on environmental taxes<sup>2</sup>

The following table lists the main categories of environmentally relevant tax bases.

**Table 1 - Tax bases included in the environmental tax statistics framework**

---

#### Measured or estimated emissions to air

Measured or estimated NOx<sup>3</sup> emissions

SO<sub>2</sub><sup>4</sup> content of fossil fuels

Other measured or estimated emissions to air

#### Ozone depleting substances (e.g. CFC<sup>5</sup> or halons)

#### Measured or estimated effluents to water

Measured or estimated effluents of oxydizeable matters (BOD<sup>6</sup>, COD<sup>7</sup>)

Other measured or estimated effluents to water

Effluent collection and treatment, fixed annual taxes

#### Certain non-point sources of water pollution

Pesticides

Artificial fertilisers

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

Unleaded petrol

Leaded petrol

Diesel

Other energy products for transport purposes (e.g. LPG<sup>8</sup> or natural gas)

Energy products used for stationary purposes

---

<sup>1</sup> Revenues from charges and fees are not included among environmental tax revenue data as in these cases the benefits received from a service are more directly linked to the payments, even when they are compulsory payments to the government.

<sup>2</sup> See *Environmental Taxes – A Statistical Guide*, Eurostat, Luxembourg, 2001, KS-39-01-077-EN-N. The definition is also used in *SERIEE Environmental Protection Expenditure Accounts Compilation Guide*, Eurostat, Luxembourg, 2002, KS-BE-02-001-EN-N.

<sup>3</sup> Nitrogen oxides.

<sup>4</sup> Sulphur oxides.

<sup>5</sup> Chlorofluorocarbons

<sup>6</sup> Biochemical oxygen demand

<sup>7</sup> Chemical oxygen demand

<sup>8</sup> Liquified Petroleum Gas

---

Light fuel oil, heavy fuel oil  
 Natural gas  
 Coal  
 Coke  
 Biofuels  
 Other fuels for stationary use  
 Electricity - consumption, production  
 District heat - consumption, production

**Transport**

Motor vehicles, one-off import or sales taxes  
 Registration or use of motor vehicles, recurrent (e.g. yearly) taxes

**Resources**

Water abstraction  
 Extraction of raw materials (except oil and gas)<sup>9</sup>  
 Other resources (e.g. forests)

---

Source: Eurostat, *Environmental Taxes – A Statistical Guide*, Luxembourg, 2001.

Existing environmental taxes in Italy are listed in the Table below:

**Table 2 – Environmental taxes in Italy**

TAX BASIS	ENVIRONMENTAL TAX
Emissions to air	SO <sub>2</sub> and NO <sub>x</sub> pollution tax
Certain non-point sources of water pollution	Contribution on sales of phytosanitary products and pesticides
Waste management	Regional special tax on landfill dumping Provincial tax for environmental protection
Noise	Regional tax on aircraft noise
Energy products	Excise duty on mineral oils In-bond surcharge on mineral oils In-bond surcharge on liquefied petroleum gases Excise duty on liquefied petroleum gases Excise duty on methane Local surcharge on electricity duty Excise duty on electricity Tax on coal consumption <sup>10</sup>
Transport	Motor vehicle duty paid by households Motor vehicle duty paid by enterprises Public motor vehicle register tax (PRA)

---

<sup>9</sup> According to the Eurostat guidelines there are three main reasons why taxes on the extraction of oil and gases should be excluded: i) the revenue from these taxes is important in only a few EU/OECD countries; ii) the tax systems differ between countries; iii) tax revenue from oil and gas is highly volatile, reflecting fluctuations in the prices of oil and gas.

<sup>10</sup> See Law n. 448 of 23.12.1998 (art. 8).

---

### Provincial tax on motor vehicles' insurance

---

In the internationally agreed definition of environmental taxes the tax base is of primary importance, while the purpose stated by the tax legislator is not relevant. Hence, environmental taxes include both instruments with an environmental motivation and instruments with a different stated purpose.

As concerns specifically the list of taxes in Table 2:

- taxes on energy products and transport do not carry an environmental purpose, with the exception of the tax on coal consumption whose revenue is partly earmarked for environmental protection;
- all other taxes are designed with an environmental purpose, consisting either in providing an incentive to consumers and producers for a more environmentally friendly behaviour or in raising revenues to be earmarked for environmental protection purposes<sup>11</sup>.

## 2. Environmental tax revenue - data sources

Environmental tax data are derived from the 'General Government aggregates and Accounts' (*Conti ed aggregati economici delle Amministrazioni pubbliche*) produced by Istat National Accounts consistently with Eu regulation n. 2223/96 (ESA95). In some cases the revenue raised by a specific instrument is singled out within the accounts, while in other cases is part of the revenue raised by a broader tax.

Table 3 reports the ESA95 aggregate<sup>12</sup> to which each tax belongs to and indicates whether the revenue raised by the specific instrument is singled out within the 'General Government aggregates and Accounts' or is part of another aggregate.

---

<sup>11</sup> For details on the use of revenue, see:

- for SO<sub>2</sub> and NO<sub>x</sub> pollution tax, Law n. 449, 27 December 1997, art. 17;
- for Contribution on sales of phytosanitary products and pesticides, Law n. 388, 23 December 2000, art. 123, and Law n. 488, 23 December 1999, art. 59;
- for Regional special tax on landfill dumping, Law n. 549, 28 December 1995, Art. 3;
- for Provincial tax for environmental protection, Decreto Legislativo n. 504, 30 December 1992, Art. 19;
- for Regional tax on aircraft noise, Law n. 342 21 November 2000, Art. 90.

<sup>12</sup> See also paragraph 4.

**Table 3 – Environmental taxes grouped and ESA95 tax categories**

ENVIRONMENTAL TAX	ESA95 CATEGORY
SO <sub>2</sub> and NO <sub>x</sub> pollution tax (a)	Other taxes on production (D.29)
Contribution on sales of phytosanitary products and pesticides (b)	Other taxes on production (D.29)
Regional special tax on landfill dumping (a)	Taxes on products, except VAT and import taxes (D.214)
Provincial tax for environmental protection (a)	Other taxes on production (D.29)
Regional tax on aircraft noise (c)	Other special duties on production (D.29)
Excise duty on mineral oils (a)	Taxes on products, except VAT <sup>13</sup> and import taxes (D.214)
In-bond surcharge on mineral oils (a)	Taxes on imports excluding VAT and import duties (D.2122)
Excise duty on liquefied petroleum gases (a)	Taxes on products, except VAT and import taxes (D.214)
In-bond surcharge on liquefied petroleum gases (d)	Taxes on imports excluding VAT and import duties (D.2122)
Excise duty on methane (a)	Taxes on products, except VAT and import taxes (D.214)
Local surcharge on electricity duty (a)	Taxes on products, except VAT and import taxes (D.214)
Excise duty on electricity (a)	Taxes on products, except VAT and import taxes (D.214)
Tax on coal consumption (e)	Other taxes on production (D.29)
Motor vehicle duty paid by households (a)	Other current taxes (D.59)
Motor vehicle duty paid by enterprises (a)	Other taxes on production (D.29)
Public motor vehicle register tax (PRA) (a)	Taxes on products, except VAT and import taxes (D.214)
Provincial tax on motor vehicles' insurance (a)	Taxes on products, except VAT and import taxes (D.214)

(a) revenue data released by Istat as individual item within the 'General Government aggregates and Accounts';

(b) revenue data released by Istat within the 'General Government aggregates and Accounts', not as individual item but as part of 'Other taxes on production';

(c) revenue data released by Istat within the 'General Government aggregates and Accounts', not as individual item but as part of 'Other special duties on production'.

(d) revenue data released by Istat within the 'General Government aggregates and Accounts', not as individual item but as part of 'In-bond surcharge on liquefied petroleum gases and other surcharges';

(e) revenue data released by Istat within the 'General Government aggregates and Accounts', not as individual item but as part of 'Other taxes on production'; since 2008 part of the revenue is included within 'Excise duty on mineral oils'.

<sup>13</sup> Value added tax.

### 3. Classification of environmental taxes for different analytical purposes

The development of statistics on environmental tax revenue stems from the need to supply adequate information in the context of the increasingly important role of economic instruments for environmental policy.

Environmental tax revenue data produced by Istat supply policy-relevant statistical information both directly and indirectly; in the latter case they can be used as inputs for analytical models that allow to evaluate e.g. the effect of introducing an economic instrument either on the costs born by the economic sectors, or on inflation, international competitiveness, etc..

Statistics on environmental tax revenue are also used within official statistics itself, where they are presented by means of specific classifications. In the context of satellite accounts, environmental tax data are included within the *Seriee (Système Européen de Rassemblement de l'Information Economique sur l'Environnement)* and *Namea (National Accounts Matrix including Environmental Accounts)* framework.

The following sections describe existing classifications of environmental tax revenue, namely: the European Commission's classification of environmental tax data derived from national accounts and the breakdown adopted in the framework of satellite accounts: *Seriee* and *Namea*.

#### *Classification of environmental tax data derived from national accounts*

On the basis of tax revenue data supplied by the National Statistical Offices, the European Commission's Directorate General Taxation and Customs Union (DG TAXUD) publishes the National List of Taxes database, which contains data on revenue by individual tax in the Eu Member States<sup>14</sup>, including environmental taxes, selected consistently with the definition provided in § 1. The latter are published as well in the Eurostat search database<sup>15</sup>, grouped according to the guidelines' four categories: energy, transport, pollution and resources<sup>16</sup>.

Energy taxes include all taxes on energy products used for both transport (mainly petrol and diesel) and stationary purposes (mainly fuel oils, natural gas, coal and electricity). CO<sub>2</sub>-taxes are also included under energy taxes rather than under pollution taxes as they are often introduced as a substitute for other energy taxes.

Transport taxes mainly include taxes related to the ownership and use of motor vehicles. Taxes on other transport equipment (e.g. planes), and related transport services are also included here, to the extent that they are consistent with the general definition of environmental taxes.

Pollution taxes include taxes on measured or estimated emission to air and water, management of solid waste and noise. As already mentioned CO<sub>2</sub>-taxes are included under energy taxes.

Resource taxes include fiscal instruments related to the intake of natural resources.

---

<sup>14</sup> See: [http://ec.europa.eu/taxation\\_customs/taxation/gen\\_info/economic\\_analysis/tax\\_structures/article\\_5985\\_en.htm](http://ec.europa.eu/taxation_customs/taxation/gen_info/economic_analysis/tax_structures/article_5985_en.htm).

<sup>15</sup> See: [http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search\\_database](http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database) (section: Environmental Accounts - Monetary Accounts - Environmental tax revenue)

<sup>16</sup> Data on revenue from taxes on 'pollution' and 'resources' are jointly presented.

Table 4 presents all environmental taxes existing in Italy grouped according to the European Commission's categories.

**Table 4 – Environmental taxes by category**

Energy	<ul style="list-style-type: none"> <li>▪ Excise duty on mineral oils</li> <li>▪ In-bond surcharge on mineral oils</li> <li>▪ In-bond surcharge on liquefied petroleum gases</li> <li>▪ Excise duty on liquefied petroleum gases</li> <li>▪ Excise duty on methane</li> <li>▪ Local surcharge on electricity duty</li> <li>▪ Excise duty on electricity</li> <li>▪ Tax on coal consumption</li> </ul>
Transport	<ul style="list-style-type: none"> <li>▪ Motor vehicle duty paid by households</li> <li>▪ Motor vehicle duty paid by enterprises</li> <li>▪ Public motor vehicle register tax (PRA)</li> <li>▪ Provincial tax on motor vehicles' insurance</li> </ul>
Pollution	<ul style="list-style-type: none"> <li>▪ SO<sub>2</sub> and NO<sub>x</sub> pollution tax</li> <li>▪ Contribution on sales of phytosanitary products and pesticides</li> <li>▪ Regional special tax on landfill dumping</li> <li>▪ Provincial tax for environmental protection</li> <li>▪ Regional tax on aircraft noise</li> </ul>

In order to compare environmental tax revenue data in Italy and in the Eu, Tables 7-10 should be used; the latter are based on Eurostat data<sup>17</sup> and not identical to Istat data reported in Tables 1-4<sup>18</sup>.

#### *Classification of environmental taxes in the SERIEE framework*

Environmental tax statistics have an important role to play in the framework of the SERIEE satellite accounts system, made up by two main accounts:

- EPEA – *Environmental Protection Expenditure Account*;
- RUMEA – *Resource Use and Management Expenditure Account*<sup>19</sup>.

Although both focussed on environmental protection, the two accounts are different in scope: EPEA covers environmental protection from a *qualitative* standpoint, i.e. all actions and activities that are aimed at the prevention, reduction and elimination of pollution as well as any other degradation of the environment; RUMEA concerns the *quantitative* availability of natural resources (water, energy, wild flora and fauna, etc.)

<sup>17</sup> Data on environmental tax revenue included in Tables 7-10 are derived from the Eurostat database (cfr. nota 15), by using for Italy a more updated time series than that available on the Eurostat website as at December 2010.

<sup>18</sup> Three are the main reasons explaining the difference: 1) the measurement unit adopted for the years 1995-1998 – 'euro fixed' million for Table 1 and million ECU (*European Currency Unit*) – for Eurostat data; 2) the individual taxes included in the two cases: Eurostat data for Italy, being based on national accounts data, include taxes whose revenue is released as an individual item but not environmental taxes whose revenue is published as part of a broader tax; Eu revenue data do not include the following: Contribution on sales of phytosanitary products and pesticides, Regional tax on aircraft noise, Tax on coal consumption (up to 2007; since 2008 part of the revenue is included in the 'Excise duty on mineral oils'); 3) as concerns specifically the share of environmental tax revenue out of total receipts from taxes and social contributions, the difference is due to the denominator: Table 3 includes taxes and social contributions received from General Government whereas in Table 9 also taxes and social contributions received from Eu Institutions are included (the latter accounting for about 1% of total tax receipts in recent years both for Italy and the Eu).

<sup>19</sup> For details see Istat [http://www.istat.it/salastampa/comunicati/non\\_calendario/20081008\\_00/](http://www.istat.it/salastampa/comunicati/non_calendario/20081008_00/)

i.e. their management, exploitation and all actions and measures aimed at avoiding or reducing their depletion. Environmental tax revenue data released by Istat concern environmental protection from a qualitative standpoint and hence relate to EPEA.

Two kinds of environmental taxes are included in EPEA<sup>20</sup>:

- **specific taxes**, or earmarked taxes, i.e. taxes whose revenue is used to finance environmental protection expenditure;
- **other environmental taxes**, i.e. taxes whose revenue is NOT earmarked for environmental protection expenditure.

In the EPEA accounting Tables earmarked environmental taxes contribute to financing of expenditure<sup>21</sup> and are not part of current expenditure for environmental protection (see SERIEE 1994 § 2046).

Other environmental taxes are by their nature not relevant for the analysis of financing of national expenditure and are not part of current expenditure for environmental protection. They are covered in total 'environment-related financing burden' or cost, by sector and for the society as a whole<sup>22</sup>.

Environmental taxes can also be broken down by CEPA class (*Classification of Environmental Protection Activities and expenditures*): 1) Protection of ambient air and climate, 2) Wastewater management, 3) Waste management, 4) Protection and remediation of soil, groundwater and surface water, 5) Noise and vibration abatement, 6) Protection of biodiversity and landscape, 7) Protection against radiation, 8) Research and development, 9) Other environmental protection activities<sup>23</sup>.

Table 5 presents environmental taxes cross classified by CEPA class and use of revenue.

---

<sup>20</sup> The same categories apply, *mutatis mutandis*, to RUMEA.

<sup>21</sup> See *SERIEE Environmental Protection Expenditure Accounts Compilation Guide*, Eurostat, § 5.7.

<sup>22</sup> See *SERIEE Environmental Protection Expenditure Accounts Compilation Guide*, Eurostat, Table 5.21.

<sup>23</sup> Only classes 1 – 7 are relevant for environmental taxes.

**Table 5 - Environmental taxes by CEPA class and use of revenue**

	PROTECTION OF AMBIENT AIR AND CLIMATE	WASTE MANAGEMENT	PROTECTION AND REMEDIATION OF SOIL, GROUNDWATER AND SURFACE WATER	NOISE AND VIBRATION ABATEMENT
EARMARKED FOR ENVIRONMENTAL PROTECTION (specific taxes)	Tax on coal consumption (part of)	Regional special tax on landfill dumping (part of)  Provincial tax for environmental protection	Contribution on sales of phytosanitary products and pesticides	Regional tax on aircraft noise (part of)
NOT EARMARKED FOR ENVIRONMENTAL PROTECTION (other environmental taxes)	All of the taxes on energy products and Transport (see Table 2), <i>of which</i> Tax on coal consumption (part of)  SO <sub>2</sub> and NO <sub>x</sub> pollution tax	Regional special tax on landfill dumping (part of)		Regional tax on aircraft noise (part of)

*Classification of environmental taxes by economic activity and households' consumption function according to NAMEA*

Since the late '90s all Eu15 countries as well as some of the new Member States have regularly produced Namea tables, in which national accounts economic aggregates (production, value added, intermediate consumption, employment, households' consumption) are put side by side to environmental pressure indicators, most often air emissions, generated by the various production and households' consumption activities<sup>24</sup>.

In 2006 Eurostat started a European-wide data collection on environmental tax revenue cross-classified by category - energy, transport, pollution, resources<sup>25</sup> - and by a Namea-consistent classification of economic activities and households' consumption function.

<sup>24</sup> For Italian Namea data see <http://www.istat.it/conti/ambientali/>.

<sup>25</sup> The 2009 data collection includes the revenue from taxes on oil and gas, previously excluded (see footnote 9).

#### 4. *Environmental taxes and relevant ESA95 tax and social contributions aggregates.*

In ESA95 there are three main categories of taxes:

- · Taxes on production and imports (D.2)
- · Current taxes on income, wealth, etc. (D.5)
- · Capital taxes (D.91)

Taxes on production and imports are divided into:

a) taxes on products (D.21), consist of compulsory, unrequited payments, which are levied by general government, or by the Institutions of the European Union that are payable per unit of some good or service produced or transacted (ESA95, § 4.16), specifically:

- (1) value added type taxes (VAT) (D.211);
- (2) taxes and duties on imports excluding VAT (D.212):
  - import duties (D.2121);
  - taxes on imports excluding VAT and import duties (D.2122);
- (3) taxes on products, except VAT and import taxes (D.214).

b) other taxes on production (D.29)<sup>26</sup>.

Current taxes on income, wealth, etc. (D.5) cover all compulsory, unrequited payments, in cash or in kind, levied periodically by general government and by the rest of the world on the income and wealth of institutional units, and some periodic taxes which are assessed neither on the income nor the wealth. (ESA95, § 4.77).

Current taxes on income, wealth, etc. are divided into:

- a) taxes on income (D.51);
- b) other current taxes (D.59).

Capital taxes (D.91) consist of taxes levied at irregular and very infrequent intervals on the values of the assets or net worth owned by institutional units or on the values of assets transferred between institutional units as a result of legacies, gifts *inter vivos* or other transfers. (ESA95, § 4.148)

The share of environmental tax revenue out of *total revenues from all taxes and social contributions* is calculated for analytical purposes:

- total taxes (D.2 + D.5 + D.91)
- compulsory actual social contributions:
  - compulsory employers' actual social contributions (D.61111)
  - compulsory employees' social contributions (D.61121)
  - compulsory social contributions by self and non-employed persons (D.61131)

<sup>26</sup> "Other taxes on production (D.29) consist of all taxes that enterprises incur as a result of engaging in production, independently of the quantity or value of the goods and services produced or sold" (see European system of accounts – ESA 1995, Eurostat, Luxembourg, 1996, § 4.22); included are "taxes on pollution resulting from production activities. These consist of taxes levied on the emission or discharge into the environment of noxious gases, liquids or other harmful substances. They do not include payments made for the collection and disposal of waste or noxious substances by public authorities, which constitute intermediate consumption of enterprises;" (see European system of accounts – ESA 1995, Eurostat, Luxembourg, 1996, § 4.23 f).