

The Classification of Resource Use and Management  
Activities and expenditure - CRUMA

**Developed by Istat consistently with CEPA2000 for the Resource Use and  
Management Expenditure Accounts of SERIEE**

*Carolina Ardi, Federico Falcitelli*

*Rome, the 2<sup>nd</sup> August 2007*

## Table of contents

1.	INTRODUCTORY REMARKS: THE EUROPEAN SYSTEM FOR THE COLLECTION OF ECONOMIC DATA ON THE ENVIRONMENT – SERIEE.....	3
2.	THE CLASSIFICATION OF ENVIRONMENTAL PROTECTION ACTIVITIES AND EXPENDITURES – CEPA2000.....	4
3.	THE CLASSIFICATION OF RESOURCE USE AND MANAGEMENT ACTIVITIES AND EXPENDITURE – CRUMA .....	7
	REFERENCES.....	12

### List of Tables

Table 1 –	The [type of activity] by [environmental domain] classification matrix used to develop the CEPA2000.....	4
Table 2 –	The Classification of Environmental Protection Activities and expenditures – CEPA2000 .....	5
Table 3 –	CEPA2000: overview.....	6
Table 4 –	The [type of activity] by [natural resource] classification matrix used to develop the CRUMA.....	7
Table 5 –	The Classification of Resource Use and Management Activities and expenditure – CRUMA.....	8
Table 6 –	CRUMA: overview .....	11

## 1. Introductory remarks: The European System for the Collection of Economic Data on the Environment – SERIEE

The European System for the Collection of Economic Data on the Environment (SERIEE<sup>1</sup>) is intended to supply the Member States with a common framework for the collection and presentation of economic data on the environment

It comprises two satellite accounts:

- the Environmental Protection Expenditure Account (EPEA), aiming at the description of measures and related expenditures carried out to protect the environment against pollution and degradation phenomena (qualitative perspective);
- the Natural Resource Use and Management Expenditure Account (RUMEA), devoted to the description of measures and related expenditures carried out to manage and save the stock of natural resources against depletion phenomena (quantitative perspective).

Among these accounts, the EPEA is the most developed one both in terms of accounting procedures and implementation in the Member States and at Eurostat. For the EPEA, a classification (namely the CEPA2000) is defined and adopted at the international level, while a similar classification has not been developed yet for the RUMEA.

The Eurostat Working Group “Environmental Expenditure Statistics” has assigned a high priority to the development of the RUMEA in the next future<sup>2</sup>. The Working Group expressed the intention to fill the gap on this area as well as to contribute to the revision of Chapters 5 and 6 of the SEEA2003<sup>3</sup>.

Istat’s work in the field of RUMEA has been focussed so far on the following:

- calculation of resource use and management expenditures carried out by General Government
- compilation of the inland water use and management expenditure accounts (covering all the institutional sectors).

Istat’s experience shows that most of the EPEA methodological guidelines – such as the criteria for grouping the units, the classification of transactions, the accounting rules and the accounting tables – are suitable for the RUMEA as well. What needs to be developed specifically for the RUMEA are mainly a number of conceptual aspects including the classification of activities (similarly to the CEPA for the EPEA) and lists as appropriate for connected and adapted products (i.e. resource efficient/saving products).

The present document focuses on the classification to be developed for RUMEA purposes, here called Classification of Resource Use and Management Activities and expenditure (CRUMA).

In particular the document shows the CRUMA that Istat developed consistently with the SERIEE framework and the structure and classification principles of the CEPA. Indeed, a main principle followed by Istat is that a CRUMA should be developed following the same classification approach and principles adopted for setting up the CEPA. In order to highlight the need and possibility of

---

<sup>1</sup> Système Européen de Rassemblement de l’Information Economique sur l’Environnement. Eurostat (1994).

<sup>2</sup> Luxembourg, 22-23 May 2007.

<sup>3</sup> Namely Ch.5 Accounting for economic activities and products related to the environment, Ch.6 Accounting for other environmental related transactions (United nations and other international organizations, web site).

consistency between CRUMA and CEPA, the latter is briefly presented in this document before describing Istat's CRUMA<sup>4</sup>.

Several attempts made so far in order to identify the scope and classification of the resource management activities and expenditures seem to embrace a different view. As a matter of fact, in contexts such as Chapter 5 of SEEA2003, as well as the OECD/Eurostat manual on eco-industries<sup>5</sup> and the draft Eurostat compilation guide on the Environmental Goods and Services Sector (EGSS)<sup>6</sup>, while the environmental protection domain is classified accordingly to the CEPA, the structure and principles followed for setting up classifications for the resource use and management domain appear to be very much different from those followed for the CEPA.

This document aims at contributing to Eurostat's work related to the CRUMA and to the EGSS, as well as to the revision of Chapters 5 and 6 of the SEEA2003.

## 2. The Classification of Environmental Protection Activities and expenditures – CEPA2000

The CEPA2000 is built starting from a classification matrix which cross-classifies the different kinds of activities carried out to protect the environment and the different kinds of environmental domains (i.e. different kinds of pollution and degradation). By applying such a classification matrix (Table 1) the different CEPA classes (1 digit) and categories (2 or more digits) are identified (Table 2)<sup>7</sup>.

Table 3 shows how the different CEPA categories listed in Table 2 can be allocated in the cells of the classification matrix reported in Table 1.

**Table 1 – The [type of activity] by [environmental domain] classification matrix used to develop the CEPA2000**

Type of activity	Environmental domain: type of environmental media or pollution-nuisance-degradation						
	Air pollution (and related climatic risks)	Surface water pollution	Waste	Soil and ground water pollution, erosion and other physical degradation of soil	Noise and vibration	Degradation of biodiversity and landscape	Radiation
Pollution/degradation prevention activities							
Pollution/degradation reduction activities							
- <i>reduction of emissions and discharges</i>							
- <i>reduction of pollution levels and degradation of environmental media</i>							
Measurement and control activities							
Research and development activities							
Teaching and training activities							
Administrative activities							

<sup>4</sup> This classification is currently used by Istat in particular for the calculation of the RUM expenditure of the General Government sector.

<sup>5</sup> OECD – Eurostat (1999).

<sup>6</sup> Eurostat (2007a).

<sup>7</sup> Table 2 lists all the CEPA2000 categories (1, 2 and 3 digit categories). For the description of the content of each category see e.g. The SERIEE, Environmental Protection Expenditure Accounts – Compilation Guide (Eurostat, 2002), [http://epp.eurostat.ec.europa.eu/pls/portal/docs/PAGE/PGP\\_DS\\_ENVACC/PGE\\_DS\\_ENVACC/TAB63667842/6.PDF](http://epp.eurostat.ec.europa.eu/pls/portal/docs/PAGE/PGP_DS_ENVACC/PGE_DS_ENVACC/TAB63667842/6.PDF)

**Table 2 – The Classification of Environmental Protection Activities and expenditures – CEPA2000**

<p><b>1 PROTECTION OF AMBIENT AIR AND CLIMATE</b></p> <p>1.1 Prevention of pollution through in-process modifications</p> <p>    1.1.1 for the protection of ambient air</p> <p>    1.1.2 for the protection of climate and ozone layer</p> <p>1.2 Treatment of exhaust gases and ventilation air</p> <p>    1.2.1 for the protection of ambient air</p> <p>    1.2.2 for the protection of climate and ozone layer</p> <p>1.3 Measurement, control, laboratories and the like</p> <p>1.4 Other activities</p> <p><b>2 WASTEWATER MANAGEMENT</b></p> <p>2.1 Prevention of pollution through in-process modifications</p> <p>2.2 Sewerage networks</p> <p>2.3 Wastewater treatment</p> <p>2.4 Treatment of cooling water</p> <p>2.5 Measurement, control, laboratories and the like</p> <p>2.6 Other activities</p> <p><b>3 WASTE MANAGEMENT</b></p> <p>3.1 Prevention of pollution through in-process modifications</p> <p>3.2 Collection and transport</p> <p>3.3 Treatment and disposal of hazardous waste</p> <p>    3.3.1 Thermal treatment</p> <p>    3.3.2 Landfill</p> <p>    3.3.3 Other treatment and disposal</p> <p>3.4 Treatment and disposal of non-hazardous waste</p> <p>    3.4.1 Incineration</p> <p>    3.4.2 Landfill</p> <p>    3.4.3 Other treatment and disposal</p> <p>3.5 Measurement, control, laboratories and the like</p> <p>3.6 Other activities</p> <p><b>4 PROTECTION AND REMEDIATION OF SOIL, GROUNDWATER AND SURFACE WATER</b></p> <p>4.1 Prevention of pollutant infiltration</p> <p>4.2 Cleaning up of soil and water bodies</p> <p>4.3 Protection of soil from erosion and other physical degradation</p> <p>4.4 Prevention and remediation of soil salinity</p> <p>4.5 Measurement, control, laboratories and the like</p> <p>4.6 Other activities</p>	<p><b>5 NOISE AND VIBRATION ABATEMENT</b> (excluding workplace protection)</p> <p>5.1 Preventive in-process modifications at the source</p> <p>    5.1.1 Road and rail traffic</p> <p>    5.1.2 Air traffic</p> <p>    5.1.3 Industrial and other noise</p> <p>5.2 Construction of anti noise/vibration facilities</p> <p>    5.2.1 Road and rail traffic</p> <p>    5.2.2 Air traffic</p> <p>    5.2.3 Industrial and other noise</p> <p>5.3 Measurement, control, laboratories and the like</p> <p>5.4 Other activities</p> <p><b>6 PROTECTION OF BIODIVERSITY AND LANDSCAPES</b></p> <p>6.1 Protection and rehabilitation of species and habitats</p> <p>6.2 Protection of natural and semi-natural landscapes</p> <p>6.3 Measurement, control, laboratories and the like</p> <p>6.4 Other activities</p> <p><b>7 PROTECTION AGAINST RADIATION</b> (excluding external safety)</p> <p>7.1 Protection of ambient media</p> <p>7.2 Transport and treatment of high level radioactive waste</p> <p>7.3 Measurement, control, laboratories and the like</p> <p>7.4 Other activities</p> <p><b>8 RESEARCH AND DEVELOPMENT</b></p> <p>8.1 Protection of ambient air and climate</p> <p>    8.1.1 Protection of ambient air</p> <p>    8.1.2 Protection of atmosphere and climate</p> <p>8.2 Protection of water</p> <p>8.3 Waste</p> <p>8.4 Protection of soil and groundwater</p> <p>8.5 Abatement of noise and vibration</p> <p>8.6 Protection of species and habitats</p> <p>8.7 Protection against radiation</p> <p>8.8 Other research on the environment</p> <p><b>9 OTHER ENVIRONMENTAL PROTECTION ACTIVITIES</b></p> <p>9.1 General environmental administration and management</p> <p>    9.1.1 General administration, regulation and the like</p> <p>    9.1.2 Environmental management</p> <p>9.2 Education, training and information</p> <p>9.3 Activities leading to indivisible expenditure</p> <p>9.4 Activities not elsewhere classified</p>
---	---

**Remarks<sup>8</sup>**

- **General classification principles**

Classification should be made according to the main purpose taking into account the technical nature as well as the policy purpose of an action or activity. Multi-purpose actions, activities and expenditure that address several CEPA classes should be divided by these classes. Classification under the heading 'indivisible expenditure and activities' should only be made as a last resort.

- **Classification of transversal activities and expenditure**

Transversal activities are R&D, administration and management as well as education, training and information.

All R&D should be allocated to CEPA 8.

Administration and management as well as education, training and information should, to the extent possible, be allocated to the 'Other' positions in CEPA 1-7. When these activities concern simultaneously two or more environmental domains they should be allocated respectively to 9.1 or 9.2 positions.

<sup>8</sup> For details see The SERIEE, Environmental Protection Expenditure Accounts – Compilation Guide (Eurostat, 2002), [http://epp.eurostat.ec.europa.eu/pls/portal/docs/PAGE/PGP\\_DS\\_ENVACC/PGE\\_DS\\_ENVACC/TAB63667842/6.PDF](http://epp.eurostat.ec.europa.eu/pls/portal/docs/PAGE/PGP_DS_ENVACC/PGE_DS_ENVACC/TAB63667842/6.PDF)

**Table 3 – CEPA2000: overview**

Type of activity	Environmental Domain: type of environmental media or type of pollution-nuisance-degradation						
	Air pollution (and related climatic risks)	Surface water pollution	Waste	Soil and ground water pollution, erosion and other physical degradation of soil	Noise and vibration	Degradation of biodiversity and landscape	Radiation
Pollution/degradation prevention activities	1.1 Prevention of pollution through in-process modifications	2.1 Prevention of pollution through in-process modifications	3.1 Prevention of pollution through in-process modifications	4.1 Prevention of pollutant infiltration 4.3 Protection of soil from erosion and other physical degradation 4.4 Prevention and remediation of soil salinity	5.1 Preventive in-process modifications at the source	6.1 Protection and rehabilitation of species and habitats 6.2 Protection of natural and semi-natural landscapes	7.1 Protection of ambient media
Pollution/degradation reduction activities:	1.2 Treatment of exhaust gases and ventilation air	2.2 Sewerage networks 2.3 Wastewater treatment 2.4 Treatment of cooling water	3.2 Collection and transport 3.3 Treatment and disposal of hazardous waste 3.4 Treatment and disposal of non-hazardous waste	4.2 Cleaning up of soil and water bodies 4.3 Protection of soil from erosion and other physical degradation 4.4 Prevention and remediation of soil salinity	5.2 Construction of anti noise/vibration facilities		7.2 Transport and treatment of high level radioactive waste
- reduction of emissions and discharges	1.2 Treatment of exhaust gases and ventilation air	2.3 Wastewater treatment 2.4 Treatment of cooling water	3.3 Treatment and disposal of hazardous waste 3.4 Treatment and disposal of non-hazardous waste				
- reduction of pollution levels and degradation of environmental media		2.2 Sewerage networks	3.2 Collection and transport	4.2 Cleaning up of soil and water bodies 4.3 Protection of soil from erosion and other physical degradation 4.4 Prevention and remediation of soil salinity	5.2 Construction of anti noise/vibration facilities	6.1 Protection and rehabilitation of species and habitats 6.2 Protection of natural and semi-natural landscapes	7.2 Transport and treatment of high level radioactive waste
Measurement and control activities	1.3 Measurement, control, laboratories and the like	2.5 Measurement, control, laboratories and the like	3.5 Measurement, control, laboratories and the like	4.5 Measurement, control, laboratories and the like	5.3 Measurement, control, laboratories and the like	6.3 Measurement, control, laboratories and the like	7.3 Measurement, control, laboratories and the like
Research and development activities	8.1 R&D for protection of ambient air and climate 8.8 Other research on the environment	8.2 R&D for protection of water 8.8 Other research on the environment	8.3 R&D for waste 8.8 Other research on the environment	8.4 R&D for protection of soil and groundwater 8.8 Other research on the environment	8.5 R&D for abatement of noise and vibration 8.8 Other research on the environment	8.6 R&D for protection of species and habitats 8.8 Other research on the environment	8.7 R&D for protection against radiation 8.8 Other research on the environment
Teaching and training activities	1.4 Other activities 9.2 Education, training and information	2.6 Other activities 9.2 Education, training and information	3.6 Other activities 9.2 Education, training and information	4.6 Other activities 9.2 Education, training and information	5.4 Other activities 9.2 Education, training and information	6.4 Other activities 9.2 Education, training and information	7.4 Other activities 9.2 Education, training and information
Administrative activities	1.4 Other activities 9.1 General environmental administration and management	2.6 Other activities 9.1 General environmental administration and management	3.6 Other activities 9.1 General environmental administration and management	4.6 Other activities 9.1 General environmental administration and management	5.4 Other activities 9.1 General environmental administration and management	6.4 Other activities 9.1 General environmental administration and management	7.4 Other activities 9.1 General environmental administration and management

### 3. The Classification of Resource Use and Management Activities and expenditure – CRUMA

As already pointed out, in order to build the CEPA the following steps were followed:

1. first a classification matrix was set up (Table 1) which cross-classifies the different kinds of activities carried out to protect the environment and the different kinds of environmental domains (i.e. different kinds of pollution and degradation);
2. secondly the list of CEPA categories was derived (Table 2) by specifying the possible content of each cell of the classification matrix (Table 3).

Istat's CRUMA was built in a similar way, starting from an analogous classification matrix defined *ad hoc* for the CRUMA and arriving at a list of CRUMA categories with a structure similar to the CEPA's one.

The scope of the RUMEA (and then of the CRUMA) was preliminarily delimited according to the SERIEE guidelines<sup>9</sup>: "Only those natural resources corresponding to non-produced natural assets whose use takes the form of goods, are dealt with in the natural resource use and management account. Hence, produced natural resources (livestock, plants) are excluded as well as those environmental services which result from uses of certain functions of natural assets (assimilation of pollutants, aesthetic value, etc.)". Afterwards the following steps were followed:

- first a classification matrix was set up (Table 4) which cross-classifies the different kinds of activities carried out to use and manage the natural resources and the different kinds of natural resources (the natural resources considered are those identified in chapter X of the 1994 SERIEE manual; the kinds of activities are identified according to the indications of chapter X of the 1994 SERIEE manual as well as taking into account the kinds of activities considered for developing the CEPA);
- secondly, a list of CRUMA categories was derived (Table 5) by identifying the possible resource management activities falling within each cell of the classification matrix (Table 6).

**Table 4 – The [type of activity] by [natural resource] classification matrix used to develop the CRUMA**

Type of activity	Natural resources				
	Inland waters	Natural forest resources	Wild flora and fauna	Fossil energy	Raw materials
Reduction of the intake of natural resources through preventive in-process modifications					
Use of alternative resources					
Reduction of losses, leaks and scraps					
Reduction of the intake of natural resources indirectly through the reduction of the consumption of natural resource-related products (energy savings, water savings, etc.)					
Reuse, recycling					
Increase/recharge of natural resource stocks					
Direct management of natural resource stocks (mobilization/exploitation, exploration, extraction, treatment, distribution, etc.)					
Measurement and control activities					
Research and development activities					
Teaching and training activities					
Administrative activities					

<sup>9</sup> Eurostat (1994), (§§ 10040 and seq.)

The CRUMA categories are coded continuing the numbering of the CEPA, i.e. starting from the code 10. The structure and classification principles are the same as those of CEPA.

In Table 5 some explanatory notes are provided which describe the content of CRUMA categories; sometimes only a number of examples are provided. In some cases the explanatory notes are derived – *mutatis mutandis* – from those concerning analogous categories of CEPA; in most part of cases explanatory notes and examples are derived from international manuals (like e.g. 1994 SERIEE manual or the Eurostat IEEAF manual) as well as from Eurostat standard tables.

**Table 5 – The Classification of Resource Use and Management Activities and expenditure – CRUMA**

Code	Description	Explanatory notes/Examples
<b>10</b>	<b>Use and management of inland waters</b>	
10.1	Reduction of the intake	Reduction of the intake through in-process modifications related to the reduction of the water input for the production process
10.2	Reduction of water losses and leaks, water reuse and savings	Reduction of water use through the reduction of water losses and leaks, the installation of facilities for water reuse and savings, etc.
10.3	Replenishment of water stocks	Ex.: recharge of groundwater bodies to increase/restore water stocks (not to improve water quality or fight salinity → CEPA 4.4); land improvement, development of vegetal cover in order to increase water infiltration and recharge phreatic water bodies (not for the protection of soil against erosion → CEPA 4.3)
10.4	Direct management of water stocks	Ex.: water abstraction, conduction and distribution (waterworks), including water use for irrigation and electricity production; lakes and reservoirs regulation; etc.
10.5	Measurement, control, laboratories and the like	Ex.: measurement, monitor and control of the level of water stocks
10.6	Other activities	Education, training and information and general administration when they refer exclusively to inland waters Ex.: information campaigns to encourage water savings; release of licences for water abstraction
<b>11</b>	<b>Use and management of natural forest resources</b>	
11.1	Reduction of the intake	Reduction of the intake through in-process modifications related to the reduction of the input of forest resources for the production process
11.2	Reduction of the consumption of forest (wood and non wood)-related products	Recycling, reuse or savings of forest products and by-products (wood, paper, etc.)
11.3	Reforestation and afforestation	Replenishment of existing wooded areas or development of new wooded areas
11.4	Forest fires	Prevention and control of forest fires (concerning forest areas relevant mainly as economic resource and not as habitats → CEPA 6.2) Ex.: development of fireballs, mobilisation of fire fighting means or measures aimed at the prevention of fires in forest areas
11.5	Direct management of forest areas (as a resource and not as a habitat)	Ex.: management and maintenance of forest areas for forestry and logging purposes (except for reforestation and afforestation activities); management and maintenance of forestry and nursery plants; monitoring and control activities carried out by forest rangers on forest areas as economic resources (not to protect forest habitats or the biodiversity of flora and fauna species living in forest areas → CEPA 6.1 or 6.2)
11.6	Measurement, control, laboratories and the like	Ex.: inventories and assessment of forest resources
11.7	Other activities	Education, training and information and general administration when they refer exclusively to forest areas Ex.: release of logging licences
<b>12</b>	<b>Use and management of wild flora and fauna</b>	
12.1	Reduction of the intake	Reduction of the intake through in-process modifications Ex.: vessel buy-back programmes for the introduction of more efficient fishing fleets and equipments
12.2	Replenishment of wild flora and fauna stocks	Ex.: breeding for the replenishment of stocks for fishing or hunting (for restocking purposes and not for protection of biodiversity → CEPA 6.1)
12.3	Direct management of wild flora and fauna stocks	Ex.: management of fish and game reserves
12.4	Measurement, control, laboratories and the like	Ex.: inventories and assessment of wild fauna stocks; control on the observance of licences, quotas, temporary or permanent fishing/hunting bans



Code	Description	Explanatory notes/Examples
12.5	Other activities	Education, training and information and general administration when they refer exclusively to wild flora and fauna Ex.: release of fishing and hunting licences, enforcement and administration of quotas, enforcement and regulation of temporary or permanent fishing/hunting bans
<b>13</b>	<b>Use and management of fossil energy</b>	
13.1	Reduction of the intake	Reduction of the intake through in-process modifications related to the reduction of the input of non-renewable energy sources for the production process Reduction of non-renewable energy sources exploitation through the production of energy from renewable sources, including solar, wind, tidal, geothermal or biomass sources (production of energy from renewable sources mainly aimed at reducing air pollution is excluded → CEPA 1.1)
13.2	Reduction of heat and energy losses, and energy savings	Reduction of the use of non-renewable energy sources through the minimisation of heat and energy losses and through energy savings (energy savings mainly aimed at reducing air pollution is excluded → CEPA 1.1)
13.3	Direct management of the stocks of non-renewable energy sources	Ex.: exploitation, management and maintenance of the stocks of non-renewable energy sources including exploration and discovery of new reserves (distribution of electricity is excluded)
13.4	Measurement, control, laboratories and the like	Ex.: assessment and reassessment of existing reserves
13.5	Other activities	Education, training and information and general administration when they refer exclusively to non-renewable energy sources
<b>14</b>	<b>Use and management of raw materials</b>	
14.1	Reduction of the intake	Reduction of the intake through in-process modifications related to the reduction of the raw material input for the production process or the consumption or use of resource-efficient products
14.2	Reduction of raw materials use through the reduction of scraps and the production and consumption of recycled materials and products	Ex.: Processing of waste and scrap into a form which is readily transformed into new raw materials, production of recycled goods (recycling activities insofar as they constitute waste collection, transport, treatment or disposal activities are excluded → CEPA 3.2, 3.3 and 3.4)
14.3	Direct management of raw material stocks	Ex.: exploitation, management and maintenance of raw material stocks including research and exploration activities; management of quarrying sites (activities for the rehabilitation of abandoned mining and quarrying sites are excluded → CEPA 6.2)
14.4	Measurement, control, laboratories and the like	Ex.: inventories and assessment of non-energy mineral stocks
14.5	Other activities	Education, training and information and general administration when they refer exclusively to raw materials Ex.: release of licences for mining and quarrying activities
<b>15</b>	<b>Research and development activities for natural resource use and management</b>	Creative work undertaken on a systematic basis in order to increase the stock of knowledge and the use of this knowledge to devise new applications in the field of natural resource management and savings. Excluded are R&D activities related to environmental protection → CEPA 8
15.1	Inland waters	R&D activities exclusively related to inland water resources
15.2	Natural forest resources	R&D activities exclusively related to natural forest resources
15.3	Wild flora and fauna	R&D activities exclusively related to wild flora and fauna resources
15.4	Fossil energy	R&D activities exclusively related to energy sources (non-renewable and renewable)
15.5	Raw materials	R&D activities exclusively related to raw materials
15.6	Other R&D activities for natural resource use and management	Other R&D activities concerning other natural resources (not specified)
<b>16.</b>	<b>Other natural resource use and management activities</b>	
16.1	General administration of natural resources	Any identifiable activity that is directed at the general support of decisions taken in the context of natural resource use and management whether by governmental or by non-governmental units.
16.1.1	General administration, regulation and the like	Any identifiable activity within general government and NPISH units that is directed towards the regulation, administration of the environment and the support of decisions taken in the context of natural resource use and management activities. When possible such activities should be allocated to other CRUMA classes (within the "other activities" category). If this is impossible, they should be included under this position of the classification. If the general administration activities concern both environmental protection and use and management of natural resources, they should be

Code	Description	Explanatory notes/Examples
16.1.2	Environmental management	<p>broken down between this position and the corresponding CEPA category (→ CEPA 9.1.1). If this is impossible, they should be classified alternatively in this position or in the CEPA one according to the “main purpose” criterion; if this is impossible as well, they should be classified within the corresponding CEPA category (→ CEPA 9.1.1)</p> <p>Any identifiable activity of corporations that is directed at the general support of decisions taken in the context of natural resource use and management activities. It includes the preparation of declarations or requests for permission, internal environmental management, environmental certification processes (ISO 14000, EMAS), as well as the recourse to environmental consultancy services. Activities of units specialised in environmental consultancy, supervision and analysis are included. When possible such activities should be allocated to other CRUMA classes (within the “other activities” category). If this is impossible, they should be included under this position of the classification.</p> <p>If the general administration activities concern both environmental protection and use and management of natural resources, they should be broken down between this position and the corresponding CEPA category (→ CEPA 9.1.2). If this is impossible, they should be classified alternatively in this position or in the CEPA one according to the “main purpose” criterion; if this is impossible as well, they should be classified within the corresponding CEPA category (→ CEPA 9.1.2)</p>
16.2	Education, training and information	<p>Activities that aim at providing general environmental education or training and disseminating information on natural resource use and management. Included are high school programs, university degrees or special courses specifically aimed at training for natural resource use and management. Activities such as the production of environmental reports, environmental communication, etc. are also included. When possible such activities should be allocated to other CRUMA classes (within the “other activities” category). If this is impossible, they should be included under this position of the classification.</p> <p>If the general education, training and information activities concern both environmental protection and use and management of natural resources, they should be broken down between this position and the corresponding CEPA category (→ CEPA 9.2). If this is impossible, they should be classified alternatively in this position or in the CEPA one according to the “main purpose” criterion; if this is impossible as well, they should be classified within the corresponding CEPA category (→ CEPA 9.2)</p>
16.3	Activities leading to indivisible expenditure	Natural resource use and management activities that lead to indivisible expenditure, i.e. which cannot be allocated to any other CRUMA class
16.4	Activities not elsewhere classified	This position groups together all the natural resource use and management activities that cannot be classified under other positions of the classification

#### Remarks

- **General classification principles**

Classification should be made according to the main purpose taking into account the technical nature as well as the policy purpose of an action or activity. Multi-purpose actions, activities and expenditure that address several CRUMA classes should be divided by these classes. Classification under the heading ‘indivisible expenditure and activities’ should only be made as a last resort.

- **Classification of transversal activities and expenditure**

Transversal activities are R&D, administration and management as well as education, training and information.

All R&D should be allocated to CRUMA 15.

Administration and management as well as education, training and information should, to the extent possible, be allocated to the ‘Other’ positions in CRUMA 10-14. When these activities concern simultaneously two or more natural resources they should be allocated respectively to 16.1 or 16.2 positions.

**Table 6 – CRUMA: overview**

Type of activity	Natural resource				
	Inland waters	Natural forest resources	Wild flora and fauna	Fossil energy	Raw materials
Reduction of the intake of natural resources through preventive in-process modifications	10.1 Reduction of the intake	11.1 Reduction of the intake	12.1 Reduction of the intake	13.1 Reduction of the intake	14.1 Reduction of the intake
Use of alternative resources					
Reduction of losses, leaks and scraps	10.2 Reduction of water losses and leaks, water reuse and savings	11.2 Reduction of the consumption of forest (wood and non wood)-related products		13.2 Reduction of heat and energy losses, and energy savings	14.2 Reduction of raw materials use through the reduction of scraps and the production and consumption of recycled materials and products
Reduction of the intake of natural resources indirectly through the reduction of the consumption of natural resource-related products (energy savings, water savings, etc.)					
Reuse, recycling					
Increase/recharge of natural resource stocks	10.3 Replenishment of water stocks	11.3 Reforestation and afforestation	12.2 Replenishment of wild flora and fauna stocks		
Direct management of natural resource stocks (mobilization/exploitation, exploration, extraction, treatment, distribution, etc.)	10.4 Direct management of water stocks	11.4 Forest fires 11.5 Direct management of forest areas (as a resource and not as a habitat)	12.3 Direct management of wild flora and fauna stocks	13.3 Direct management of the stocks of non-renewable energy sources	14.3 Direct management of raw material stocks
Measurement and control activities	10.5 Measurement, control, laboratories and the like	11.6 Measurement, control, laboratories and the like	12.4 Measurement, control, laboratories and the like	13.4 Measurement, control, laboratories and the like	14.4 Measurement, control, laboratories and the like
Research and development activities	15.1 R&D for use and management of inland waters 15.6 Other R&D activities for natural resource use and management	15.2 R&D for use and management of natural forest resources 15.6 Other R&D activities for natural resource use and management	15.3 R&D for use and management of wild flora and fauna 15.6 Other R&D activities for natural resource use and management	15.4 R&D for use and management of fossil energy 15.6 Other R&D activities for natural resource use and management	15.5 R&D for use and management of raw material 15.6 Other R&D activities for natural resource use and management
Teaching and training activities	10.6 Other activities 16.2 Education, training and information	11.7 Other activities 16.2 Education, training and information	12.5 Other activities 16.2 Education, training and information	13.5 Other activities 16.2 Education, training and information	14.5 Other activities 16.2 Education, training and information
Administrative activities	10.6 Other activities 16.1 General administration of natural resources	11.7 Other activities 16.1 General administration of natural resources	12.5 Other activities 16.1 General administration of natural resources	13.5 Other activities 16.1 General administration of natural resources	14.5 Other activities 16.1 General administration of natural resources

## References

- Eurostat (1994), *SERIEE – 1994 Version*, Theme Environment, Series Methods, Luxembourg.
- Eurostat (1999), *The European Framework for Integrated Environmental and Economic Accounting for Forests – IEEAF*, Luxembourg.
- Eurostat (2002a), *SERIEE Environmental Protection Expenditure Accounts – Compilation Guide*, Luxembourg.
- Eurostat (2002b), *Classification of Environmental Protection Activities and Expenditure (CEPA2000)*, <http://europa.eu.int/comm/eurostat/ramon>
- Eurostat (2005), *Environmental expenditure statistics: Industry data collection handbook*, Luxembourg.
- Eurostat (2007a), *Draft Compilation guide on environmental sector (version 4)*, Task Force on Environmental sector of the Working Group "Environmental Expenditure Statistics", Meeting of 22-23 May 2007, Luxembourg
- Eurostat (2007b), *Environmental expenditure statistics: General Government and Specialised Producers data collection handbook*, Luxembourg.
- Eurostat (web site), *IEEAF – Integrated Environmental and Economic Accounting for Forests – standard tables*, [http://epp.eurostat.ec.europa.eu/pls/portal/url/page/PGP\\_DS\\_ENVACC/PGE\\_DS\\_ENVACC](http://epp.eurostat.ec.europa.eu/pls/portal/url/page/PGP_DS_ENVACC/PGE_DS_ENVACC)
- Eurostat (web site), *Water accounts – standard tables*, [http://epp.eurostat.ec.europa.eu/pls/portal/url/page/PGP\\_DS\\_ENVACC/PGE\\_DS\\_ENVACC](http://epp.eurostat.ec.europa.eu/pls/portal/url/page/PGP_DS_ENVACC/PGE_DS_ENVACC)
- Eurostat (web site), *Subsoil asset accounts for oil and gas – standard tables*, [http://epp.eurostat.ec.europa.eu/pls/portal/url/page/PGP\\_DS\\_ENVACC/PGE\\_DS\\_ENVACC](http://epp.eurostat.ec.europa.eu/pls/portal/url/page/PGP_DS_ENVACC/PGE_DS_ENVACC)
- Food and Agriculture Organization of the United Nations (2004), *Integrated Environmental and Economic Accounting for Fisheries*, Handbook of National Accounting, Final draft circulated for information prior to official editing, <ftp://ftp.fao.org/FI/DOCUMENT/UNhandbook/UNhandbook.pdf>
- Istat – Ministry of Economy and Finance (2005), *Development policies and the environment: using environmental accounts for better decision making*, Joint project Ministry of Economy and Finance – Istat, Ministry of Economy and Finance, Materiali UVAL Numero 5 – Anno 2005, Roma, [http://www.dps.tesoro.it/documentazione/uval/materiali\\_uval/MUVAL5\\_eng.pdf](http://www.dps.tesoro.it/documentazione/uval/materiali_uval/MUVAL5_eng.pdf)
- Istat – Ministry of the Environment (2007), *Il calcolo della spesa pubblica per la protezione dell'ambiente. Linee guida per riclassificare i rendiconti delle amministrazioni pubbliche* [Calculation of General Government Environmental Protection Expenditure. Guidelines to reclassify public accounts], Metodi e norme n. 33/2006, Rome, [http://www.istat.it/dati/catalogo/20070212\\_00/](http://www.istat.it/dati/catalogo/20070212_00/)
- OECD – Eurostat (1999), *The Environmental Goods & Services Industry. Manual for data collection and analysis*, Paris.
- United Nations (1999), *Classification Of the Functions Of Government*, <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=4&Lg=1>.
- United Nations and other international organizations (web site), *Integrated Environmental and Economic Accounting 2003 - Handbook of National Accounting*, Handbook of National Accounting, <http://unstats.un.org/unsd/envaccounting/ceea/archive/Framework/seea2003.PDF>