

Natural resource Use and management Expenditure Accounts

Classification of Resource Use and Management Activities and expenditures

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Environmental accounting

Summary

- **Background**
- **Follow-up of the last London Group meeting (Brussels, October 2008)**
- **The resulting classification for the outcome paper: draft CRUMA 2009**
- **Steps forward**

Background

- UNCEEA suggested to develop the area of natural **Resource Use and Management Expenditure Account (RUMEA)** in the context of the revision of the SEEA2003 chapters 5 and 6
- The London Group considered the revision of chapters 5 and 6 of SEEA2003 should emphasize the EPEA accounting methodology as holding for all areas of environmental expenditure, while the main conceptual issues to be dealt with would relate to the scope and **classification of resource use and management activities and expenditures**
- Istat had developed in 2006 a classification of natural Resource Use and Management Activities and expenditures (called CRUMA) fully consistent with CEPA
- The Italian CRUMA was presented at the **12th meeting of the London Group** (Rome, December 2007) → the LG invited Istat to prepare an issue paper on classification aspects
- Istat circulated a draft among Eurostat, Fao and Imf members of the LG. The final version benefited from contribution provided by the Eurostat “Reflection group on RUMEA” and was presented at **the 13th meeting of the London Group** (Brussels, October 2008) → the LG:
 - recommended that RUMEA be included in Volume I of the SEEA
 - agreed upon the changes / improvements on the Italian CRUMA proposed by the Eurostat reflection group and LG members
 - asked Istat to prepare a draft outcome paper including a new version of CRUMA to be submitted for a new round of comments

Follow-up of the last London Group meeting (Brussels 2008)

- Starting from the Italian CRUMA a new version of the classification - the **draft CRUMA 2009** – has been set up by endorsing the changes / improvements agreed upon in Brussels by the LG
- The **draft CRUMA 2009** includes the following main changes:
 - Clarification of boundary cases, with introduction of ad hoc changes in classification rules. The most important one concerns energy saving and production of renewable energy to be classified always within CRUMA (“13 Use and management of fossil energy”), no more within CEPA (“1 Protection of ambient air and climate”)
 - Specific focus on environmental activities related to climate change – belonging to both CEPA and CRUMA – highlighting the criteria for regrouping such activities for specific analysis and reporting purposes on this matter
 - Development and clarification of the description of the content of each 2/3-digit category
 - Improvement of labels
- In **January 2009** the draft outcome paper including the draft CRUMA 2009 was delivered to the LG Secretariat and was submitted to the Eurostat “Reflection group on RUMEA” for a new round of comments
- In the period **January-March 2009** the Eurostat reflection group provided new comments (still to be endorsed). In particular:
 - Suggested further wording improvements (mainly for the description of the content of 2/3-digit categories)
 - Indicated a number of topics that should be emphasized in the revised chapters 5 and 6 of SEEA

The classification for the outcome paper: draft CRUMA 2009

- **Scope**
- **Structure**
- **Main characteristics**
- **Correspondences to other accounting frameworks and COFOG**

Scope (1/3): RUM sector in the context of env. activities and exp

Environmental activities and actions (and expenditures) can be defined in general as all the measures aiming at preserving and maintaining the functions of environmental assets

Environmental problems faced	Main environmental functions concerned	Kind of environmental activities and expenditures	Classification	Expenditure aggregates and accounts
<ul style="list-style-type: none"> • Pollution • losses in quality • any kind of physical degradation 	<ul style="list-style-type: none"> • Sink functions • Service functions 	Environmental Protection (EP) according to	CEPA 2000	<ul style="list-style-type: none"> • how much does it cost to protect the environment against pollution and degradation? • who pays for it?
<ul style="list-style-type: none"> • Depletion 	<ul style="list-style-type: none"> • Resource functions 	Resource Management (RM), i.e. savings/ recycling/recovery	Draft CRUMA 2009	<ul style="list-style-type: none"> • how much does it cost to save the stock of natural resources? • who pays for it?
	<ul style="list-style-type: none"> • Resource functions 	Resource Use (RU), i.e. exploitation/ exploration		<ul style="list-style-type: none"> • how much does it cost to provide the economy with the natural resources needed? • who pays for it?

Scope (2/3): RUM sector: which kinds of natural resources

Restrictions: Only natural resources corresponding to non-produced natural assets whose use takes the form of use of goods, are included. Produced natural resources (livestock, plants) are excluded as well as environmental services which result from uses of certain functions of natural assets (pollutants absorption, aesthetic value, etc.).

NATURAL RESOURCES

1. Water resources
2. Natural forest resources (timber resources and wooded land)
3. Wild flora and fauna
4. Energy resources (fossil fuels)
5. Minerals (metallic and non-metallic)

LAND AND ASSOCIATED
SURFACE WATER

ECOSYSTEMS

Possible further break down for establishing a closer link between data on RUM expenditures and Economy-wide MFA data (input flows)

1. Water resources
2. Natural forest resources
3. Wild flora and fauna
4. Fossil energy
 - a. coal
 - b. oil
 - c. gas
 - d. other (e.g. bituminous shale)
5. Minerals
 - a. Metal ores and concentrates
 - b. Non metallic minerals
 - i. industrial minerals
 - ii. construction minerals

Scope (3/3): RUM sector: which kinds of activities and actions

<p>“RM activities” Activities preserving natural resource stocks</p>	<ul style="list-style-type: none"> ▪ activities aimed at reducing withdrawals: recovery, reuse, recycling, savings, substitution of natural resources ▪ restoration activities: increases/ recharges of natural resource stocks (for renewable resources, i.e. inland waters, forest and wild flora and fauna) ▪ natural resource administration and regulation activities carried out by the general government (e.g. planning, the release of any kind of licenses and permits for exploiting resources, the enforcement of quotas, ...) ▪ monitoring, control and surveillance (including the control on the compliance with licenses, permits, quotas, ...), measurement, inventories, data collection and the like ▪ teaching, training, information and communication activities ▪ R&D activities in the field of natural resource use and management 				
<p>“RU activities” Activities relating to exploration, withdrawals and distribution of natural resources</p>	<table border="1"> <tr> <td data-bbox="367 925 614 999"> <p><i>Exploration</i></p> </td> <td data-bbox="614 925 1889 999"> <ul style="list-style-type: none"> ▪ research and exploration for new reserves and resources </td> </tr> <tr> <td data-bbox="367 999 614 1290"> <p><i>Withdrawals and distribution</i></p> </td> <td data-bbox="614 999 1889 1290"> <ul style="list-style-type: none"> ▪ withdrawals from existing resources ▪ management and maintenance activities carried out by the public or private authorities in charge of the direct management and exploitation of the reserves of natural resources ▪ distribution of natural resources (only for inland waters) </td> </tr> </table>	<p><i>Exploration</i></p>	<ul style="list-style-type: none"> ▪ research and exploration for new reserves and resources 	<p><i>Withdrawals and distribution</i></p>	<ul style="list-style-type: none"> ▪ withdrawals from existing resources ▪ management and maintenance activities carried out by the public or private authorities in charge of the direct management and exploitation of the reserves of natural resources ▪ distribution of natural resources (only for inland waters)
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Structure: CRUMA classification matrix: [type of activity] by [natural resource]

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	RM				
Use of alternative resources	RM				
Reduction of losses, leaks and scraps	RM				
Reduction of the intake of natural resources indirectly through the reduction of the consumption of natural resource-related products (energy savings, water savings, etc.)	RM				
Reuse, recycling	RM				
Increase/recharge of natural resource stocks	RM				
Direct management of natural resource stocks (mobilization/exploitation, exploration, extraction, treatment, distribution, etc.)	RU				
Measurement and control activities	RM				
Research and development activities	RM				
Teaching and training activities	RM				
Administrative activities	RM				

Draft CRUMA 2009: main characteristics

- It is a functional multi-purpose classification to be used for characteristic activities, as well as products, producers, actual outlays and any kind of transactions
- Complementary to CEPA: there is no overlapping with CEPA
- Structured similarly to CEPA, by cross-cutting kinds of activity and natural resources
- Broken down (classes, i.e. 1-digit categories) according to the classification of natural resources of the SEEA
- Based on the “main purpose” criterion; as for CEPA, this is to be applied mainly by considering the technical nature of the activity
- Including the following main changes:
 - ❑ **Clarification of boundary cases, introduced ad hoc changes in classification rules. The most important one concerns energy saving and production of renewable energy to be classified always within CRUMA 13 no more within CEPA1**
 - ❑ **Specific focus on environmental activities related to climate change – belonging to both CEPA and CRUMA – highlighting the criteria for regrouping such activities for specific analysis and reporting purposes on this matter (already endorsed in the Eurostat handbook on Environmental goods and services sector - EGSS)**
 - ❑ **Improvement of labels**

CEPA and CRUMA overview

CEPA 2000

- 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 (excluding workplace protection)
- 6 Protection of biodiversity and landscapes
- 7 Protection against radiation (excluding external safety)
- 8 R&D for environmental protection
- 9 Other environmental protection activities for environmental protection
 - 9.1 General environmental administration and management
 - 9.2 Education, training and information
 - 9.3 Activities leading to indivisible expenditure
 - 9.4 Activities not elsewhere classified

draft CRUMA 2009

- 10 Use and management of water resources
- 11 Use and management of natural forest resources
- 12 Use and management of wild flora and fauna
- 13 Use and management of fossil energy
- 14 Use and management of minerals
- 15 R&D for natural resource use and management
- 16 Other natural resource use and management activities
 - 16.1 General administration of natural resources
 - 16.2 Education, training and information
 - 16.3 Activities leading to indivisible expenditure
 - 16.4 Activities not elsewhere classified

Correspondences to other accounting frameworks: CRUMA is consistent with the following systems

General accounting frameworks	Accounting frameworks focused on specific natural resources
<ul style="list-style-type: none"> • SEEA • SERIEE and all derived handbooks and compilation guides 	<ul style="list-style-type: none"> • Water resources <ul style="list-style-type: none"> <input type="checkbox"/> System of Environmental-Economic Accounting for Water (SEEAW) <input type="checkbox"/> Eurostat Water accounts – standard tables
<ul style="list-style-type: none"> • Data Collection Handbook on Environmental Goods and Services Sector - EGSS (recently approved by the Eurostat working group on env. exp. statistics) 	<ul style="list-style-type: none"> • Natural forest resources <ul style="list-style-type: none"> <input type="checkbox"/> FAO global Forest Resources Assessment (FRA) <input type="checkbox"/> The European Framework for Integrated Environmental and Economic Accounting for Forests – IEEAF and the derived Eurostat standard tables
	<ul style="list-style-type: none"> • Wild flora and fauna <ul style="list-style-type: none"> <input type="checkbox"/> FAO – UN, Integrated Environmental and Economic Accounting for Fisheries (SEEAFF)
	<ul style="list-style-type: none"> • Fossil energy <ul style="list-style-type: none"> <input type="checkbox"/> Eurostat Subsoil asset accounts for oil and gas – standard tables

Correspondences to COFOG

CEPA 2000 (EPEA)		COFOG (exact correspondence between the whole CEPA and the whole div. 05)	
1	protection of ambient air and climate	5.3	Pollution abatement
2	wastewater management	5.2	Waste water management
3	waste management	5.1	Waste management
4	protection and remediation of soil, groundwater and surface water	5.3	Pollution abatement
5	noise and vibration abatement	5.3	Pollution abatement
6	protection of biodiversity and landscapes	5.4	Protection of biodiversity and landscape
7	protection against radiation	5.3	Pollution abatement
8	R&D for environmental protection	5.5	R&D Environmental protection
9	other environmental protection activities	5.6	Environmental protection n.e.c.
CRUMA (RUMEA)		COFOG (no exact correspondence: CRUMA is an "of which" of div. 04 and 06)	
10	use and management of water resources	4.2.1 6.3.1	Agriculture (irrigation and drainage systems) Water supply
11	use and management of natural forest resources	4.2.2	Forestry
12	use and management of wild flora and fauna	4.2.3	Fishing and hunting
13	use and management of fossil energy	4.3	Fuel and energy
14	use and management of minerals	4.4.1	Mining of mineral resources other than mineral fuels
15	R&D for natural resource use and management	4.8.2 4.8.3 4.8.4 6.5	R&D Agriculture, forestry, fishing and hunting R&D Fuel and energy R&D Mining, manufacturing and construction R&D Housing and community amenities
16	other natural resource use and management activities		no specific correspondance the code "4.7.4 - Multi-purpose development projects" can be used for multi purpose activities concerning several RUM activities falling within division 04

Topics to be emphasized in the revised chapters 5 and 6 of SEEA

- **Scope of RUMEA**
 - ❑ RUM activities in the wider context of environmental activities
 - ❑ Coverage of CRUMA in terms of natural resources, by highlighting in particular that land resource and related ecosystems are already and fully covered by CEPA
 - ❑ Restriction to non-produced/non-cultivated natural resources
- **Classification criteria**
 - ❑ Highlight and clarify the “main purpose” criterion: in practice the main purpose is not identified by looking at the intention of the producer or the user; it is identified on the basis of operational requirements that are characterised by being: 1) objective; 2) not the same in all cases but depending on the kind of transaction, the environmental domain, etc. (e.g. for taxes the main purpose is identified on the basis of the physical tax base; for pollution prevention/treatment activities on the basis of the technical nature of the output; sometimes the characteristics of the territory are relevant, etc.). The revised SEEA should emphasize and develop further these aspects
 - ❑ Boundary cases between CEPA and CRUMA should be dealt with in the revised SEEA, giving the proper classification criteria
- **Development of a complete methodological framework for RUMEA**
 - ❑ The revised SEEA should emphasize that EPEA accounting methodologies, principles, rules and tables hold also for RUMEA.
 - ❑ After defining the classification (CRUMA), possible remaining clarification issues mainly have to do with connected and adapted products. On this matter the Eurostat Handbook on EGSS has made important progress to be considered

Steps forward

- **Outcome paper** after the 14th meeting of the London Group (by endorsing the last comments of the Eurostat Reflection Group together with those of the LG)
 - A specific decision should be taken on whether the proposed further break down for linking RUMEA and MFA data should be recommended or not
- Submission of the outcome paper to the **UNCEEA**
- Submission of CRUMA to the **United Nations Expert Group on Classifications** in order to have CRUMA included in the international family of classifications on the par with CEPA
- Ensuring support as appropriate to editors for endorsing CRUMA and other issues in the wider context of the revised chapters 5 and 6