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**Accounting for economic activities and
products related to the environment & Accounting for
other environmental related transactions**

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Revision of SEEA 2003:

Accounting for economic activities and products related to the environment

&

Accounting for other environmental related transactions

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Introduction

This clarification paper presents identified issues in chapter 5 *Accounting for economic activities and products related to the environment* and chapter 6 *Accounting for other environmental related transactions* of the SEEA 2003. The paper discusses and proposes the scope for the planned revision of these chapters.

The use of economic instruments in the environmental field is increasing. The trading system of carbon rights in Europe is now in place. Some new approaches have been taken to define environmentally motivated subsidies as parts of the economic instruments.

Within the UN Committee of Experts on Environmental-Economic Accounting (UNCEEA) and the London Group (LG) it was agreed to discuss the further developments of SEEA 2003 in this field. The aim being to elevate related statistics to an agreed international standard.

After the London Group meeting in June 2006 it was decided that Eurostat and Statistics Sweden would lead the revision of chapters 5 *Accounting for economic activities and products related to the environment* and 6 *Accounting for other environmentally related transactions* of the SEEA 2003. The needs were spelled out in the research agenda and classified as short term issues (to be solved by 2008)¹:

Environmental taxes and subsidies

Environmental taxes and subsidies are broadly defined in the SEEA-2003. Recently OECD and Eurostat have tested a definition of environmental taxes in several countries. There is a further need to standardize the definitions of environmental taxes and subsidies keeping also into consideration the practical implementation of these concepts. Today countries are developing own practises (in particular for subsidies) for what is presented within the accounting framework.

Permits to access the resources (e.g. fishing and water rights) and emission permits

There is a need for further development and standardization of concepts and methods for the recording of permits within the national accounts and balance of payments manual. The issue has to some extent been discussed by the Canberra II group but it could be useful to collect actual experiences and to add the perspective of environmental accountants and the environmental/physical dimension of permits in the discussion. The recent introduction of CO₂ emission trading scheme as a result of the Kyoto protocol will without doubt increase the users demand for this type of information, which will be used for making analysis.

Natural resources management expenditure accounts

The SEEA-2003 presents the Classification of Environmental Protection Activities (CEPA 2000). CEPA is an agreed classification, which however does not cover natural resources management activities and expenditures, such as expenditure for erosion control or water management expenditure. There is a need for developments in this area but little country experience is available today.

Environmental goods and services sector

There is a need to clarify some of the concepts presented in the 1999 OECD/Eurostat manual: *The Environmental Goods and Services Industry* in light of country experiences. However it is not to be expected that the area is fully discussed and evaluated within the short term.

¹ Research Agenda – a preliminary consolidated list of issues. ESA/STAT/AC.117. UNSD for the UNCEEA meeting of 22-23 June 2006.

1. Taxes

In SEEA 2003 taxes are described in chapter 5 within the framework of the Environmental Protection Expenditure Accounts (EPEA) and in chapter 6 relating to environmental taxes specifically.

1.1 Environmental taxes

In chapter 6 the concept and outline of environmental taxes are described. The description in the SEEA is based on the OECD/EC definition of an environmental tax.

*"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."*²

This definition is solely based on the physical unit of the tax. This means that motive from the legislator is disregarded.

The basic foundation of an environmental tax is the SNA description of a tax as a "compulsory, unrequited payment". In the ongoing revision of the SNA an issue paper on the definitions was put forward³. The paper described the need for accurate statistical methodology and where the SNA definition could need to be clarified. Below follows an extract of the issue paper.

"4. The existing conceptual framework for recording tax (SNA1993, chapters 3, 7 and 8 especially) is broadly adequate. The general definition of tax is not substantially questioned and there is no need to change the classification of tax payments in three categories: taxes on production and imports (D.2), current taxes on income and wealth, etc. (D.5), and capital taxes (D.91).

5. However, it is necessary:

- to clarify the definition of tax, the coverage of tax and some borderline cases
- to develop the recommendations for implementing the accrual principle. If the present SNA has endeavoured to be clear on the issue of time of recording, its recommendations on the amounts of tax to be recorded on an accruals basis are far from sufficient. It appeared in practice that the recommendations and guidelines were not developed sufficiently to ensure uniform application leading to meaningful tax aggregates and valid international comparisons of both the tax burden and the financial balances of the general government sector (the net borrowing/net lending). The SNA update is an opportunity to improve and develop these recommendations."

The recommendation that followed the issue paper agreed to these actions and declared that the issue paper was of a clarifying character "rather than [...] redefining existing principles"⁴.

The SNA decision leaves the basic concept intact and also the foundation for the OECD/EC definition of an environmental tax.

² Environmental taxes – a statistical guide. Eurostat 2001

³ Update of the 1993 SNA – Issue No. 35 Issue paper for the meeting of the AEG, July 2005 Tax revenues and tax credits. SNA/M1.05/07.

⁴ Tax revenues, uncollectible taxes and tax credits. Recommendations from the AEG 2005-09-30

Some specifics discussed in Eurostat (2001) concerns value added tax (VAT) and tax on oil and gas extraction. Both items were excluded from the concept of environmental taxes. For the discussion on tax on oil and gas extraction please see the section on resource taxes.

VAT was excluded because it is deductible for many producers but not for households: This was considered to have no influence on the relative prices in the same way that other taxes on environmentally related tax bases do (i.e. VAT is related to price and not to the good itself). Another more practical reason was because VAT information are (were) often not available by product and estimation will/would therefore have to be made. EEA 2005 argues that sometimes VAT rates are differentiated with explicitly environmental rationale⁵. However, if the OECD/EC definition is to be used in the SEEA the motive of a certain action is not under consideration and thereby leaving VAT outside the concept of an environmental tax. It would of course be a possibility to record and monitor VAT as a sub-set of environmental economic instruments. The EEA argues that it would be important to follow VAT as it can be differentiated for environmental reasons, and could potentially be considered a subsidy.

Eurostat (2001) agreed to group environmental taxes into four categories described below. Annex A also describes what tax bases were agreed upon to be included:

Energy taxes

This group includes taxes on energy products used for both transport and stationary purposes. The most important energy products for transport purposes are petrol and diesel. Energy products for stationary use include fuel oils, natural gas, coal and electricity. The CO₂-taxes are included under energy taxes rather than under pollution taxes. There are several reasons for this. First of all, it is often not possible to identify CO₂-taxes separately in tax statistics, because they are integrated with energy taxes, e.g. via differentiation of mineral oil tax rates. In addition, they are partly introduced as a substitute for other energy taxes and the revenue from these taxes is often large compared to the revenue from the pollution taxes. This means that including CO₂-taxes with pollution taxes rather than energy taxes would distort international comparisons. If they are identifiable, CO₂-taxes should be reported as a separate category next to energy taxes. SO₂-taxes may be subject to the same problem as CO₂-taxes.

Transport taxes

This group mainly includes taxes related to the ownership and use of motor vehicles. Taxes on other transport equipment (e.g. planes), and related transport services (e.g. duty on charter or scheduled flights) are also included here, when they conform to the general definition of environmental taxes. The transport taxes may be 'one-off' taxes related to imports or sales of the equipment or recurrent taxes such as an annual road tax. Taxes on petrol, diesel and other transport fuels are included under energy taxes.

Pollution taxes

This group includes taxes on measured or estimated emission to air and water, management of solid waste and noise. An exception is the CO₂-taxes, which are included under energy taxes as discussed above.

Resource taxes

Under the OECD/EC definition resource taxes typically includes taxes on water abstraction, forest and some raw materials like gravel.

⁵ Market based instruments for environmental policy in Europe. EEA Technical report No 8/2005

Resource rents pose some particular problems. Resource extraction can lead to environmental problems, such as pollution and soil erosion. Taxes on extraction of minerals and petroleum are often designed to capture the resource rent, and do not influence prices in the way that other environmental taxes, e.g. product taxes, do. The resource rent can be defined as the value of output less all extraction costs, including a normal return to fixed capital, and represents a kind of “pure profit” from extraction (see e.g. European Commission 2000a). A tax on the resource rent does not introduce a difference between the price received by the extractor and the price paid by the users in the way that a product tax does, and the market price will be affected only if supply of the product changes because of the tax on the resource rent. For petroleum and minerals where prices are determined on the world market, the effect on prices of a tax on the resource rent in a single country should be small.

The question whether to include resource rents within the definition of environmental taxes has therefore two aspects:

(1) Taxes that purely capture the resource rent are welfare-neutral and do not internalise external effects. The OECD/EC definition leaves it somewhat open whether such a tax is an environmentally related tax or not, as it doesn't discuss the motivation of the tax which is relevant in this case. However, one could argue that the tax base is not a “physical unit (or proxy)” and hence the tax is not environmentally-related.

(2) Some resource taxes are differentiated according to the material produced (with the UK aggregates tax as one of the very few examples where the tax rate is based on the estimated external costs.) These taxes have a physical tax base and should be included.

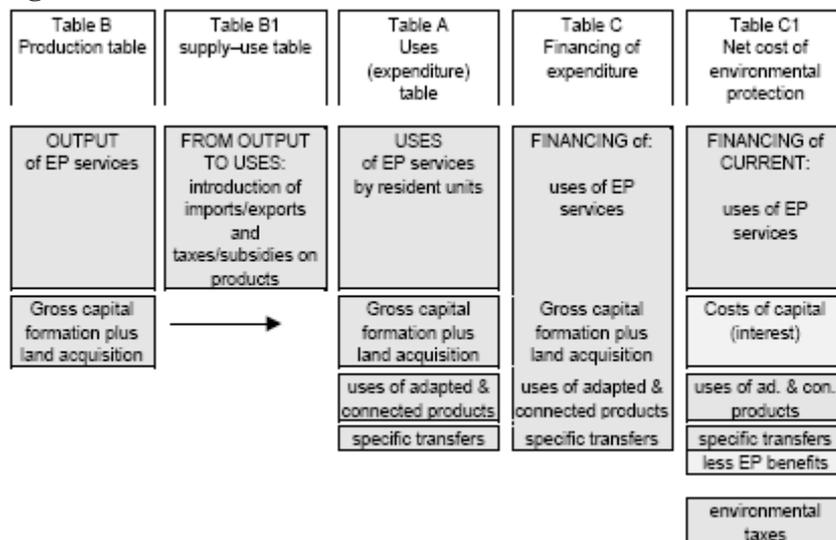
Looking at the practical experience, the OECD/EEA database on environmental economic instruments applies a broad definition of environmentally related taxes (i.e. that includes all resources taxes). The reason is said to be the cultural and historical background that may create differences among countries in applying the same instrument. This has turned out to be quite relevant in the use of natural resources, where, charges, fees and concessions together with taxes are also applied.

1.2 Taxes within Environmental Protection Expenditure Accounts

Chapter 5 discusses the concept of the Environmental Protection Expenditure Accounts (EPEA) which contains aspects of the taxation system. The EPEA contains production and income generation accounts for environmental protection activities (please see figure 1 Outline of the EPEA). The EPEA consists of 5 tables including items such as production of environmental protection activities (very much related to the environmental goods and services industry), uses of environmental protection activities (includes for example investments and current expenditure measured through regular surveys) and the financing aspects of environmental protection (includes aspects of income through subsidies or capital transfers).

Taxes on products and consumption of fixed capital are part of the EPEA as well as earmarked taxes for environmental protection. Environmental taxes as described above can be linked to the net cost of environmental protection but as a separate item.

Figure 1: Outline of the EPEA



Eurostat 2002

In the 2002, Eurostat publication *SERIEE – Environmental Protection Expenditure Accounts – a compilation guide* it is said that the financing aspects of environmental protection are important to follow. The financing flows can be followed, in addition to the EPEA by the indirect information that can be analysed with environmental taxes, that is: who pays taxes, how much and for what?

To summarise:

Environmental taxes within the environmental accounts highlight important information about fiscal policies, their impact on behaviour and, if presented by tax-payee where for example discrepancies in tax policies exist. It is important that the revised SEEA is clear about the concept, about the definition and analytical possibilities. The OECD/Eurostat definition has been proved to be useful and clear in its set-up for the majority of European countries. If this definition can be agreed upon as the standard definition this topic can be resolved within the short term deadline.

However, in the framework of the OECD/EEA database on economic instruments for environmental policy, the term is “environmentally related taxes”, as the national delegates of the OECD working party on national environmental policy – home of the database – could not agree on what an environmental tax is.

The work of compiling statistics within the framework of environmental accounts and the already existing database of the OECD/EEA is at the moment two separate items of work. It would be very interesting to see the two closer together for increased usability and statistical quality.

2. Environmentally related subsidies

This chapter discusses both environmentally motivated and environmentally harmful subsidies. Transfers as a whole are not targeted in this paper but the revised SEEA needs to address and explain issues such as for example transfer of funds from international institutions to national bodies and within national bodies. Other measures such as tax exemptions are also not mentioned here but could be of interest to describe and suggest calculations for in the revised SEEA.

Fiscal policies, or market based instruments to correct or change behaviour of environmentally degrading character can be very efficient tools. Taxes and charges related to environmental protection are well defined today in statistical terms and described in literature. In the field of subsidies (regardless if it is environmentally motivated or harmful) less agreed methodology is developed.

The SEEA presents: EPEA type environmental subsidies
Income/capital accounts: Table 6.3 in SEEA

By:

Environmental subsidies

Non-environmental subsidies (the rest)

The SEEA 2003 refers to the definition of System of National Accounts 1993 (SNA) subsidies on production. Transfers as a whole are mentioned sporadically in different chapters of the SEEA 2003 (such as in chapter 5.54 on forest management, chapter 5 in relation to environmental protection expenditure accounts, chapter 6 in a fiscal type of accounts (§6.33) and in relation to income/capital accounts in section E of chapter 6).

In the SNA 93 subsidies are included in the primary distribution of income accounts (chapter 7). The income account consists of two accounts: the generation of income account and the allocation of primary income account. The purpose of the primary distribution of income account is to show how primary incomes are distributed among institutional units and sectors. This account includes compensation of employees, taxes on production and on imports, subsidies, operating surplus or mixed income, and property income.

When it comes to defining what a **subsidy** for the protection of the environment is, the SNA states:

§7.71 Subsidies are current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services which they produce, sell or import. They are receivable by resident producers or importers. In the case of resident producers they may be designed to influence their levels of production, the prices at which their outputs are sold or the remuneration of the institutional units engaged in production.

§7.79b Other subsidies on production:

Subsidies to reduce pollution: these consist of subsidies intended to cover some or all of the costs of additional processing undertaken to reduce or eliminate the discharge of pollutants into the environment.

A subsidy given by a government to an enterprise is defined in a clear understandable manner but depending on the selection criteria of the identification the results can differ. §7.79 identify subsidies *undertaken* to reduce or eliminate the discharge. From this paragraph it can

be deducted that it was the *motive behind* the subsidy that was of importance when allocating the expenditure to the accounting framework and not the *results* of the actions. It is argued by the EEA during the consultation of this paper that the term *unrequited* would exclude e.g. PSO (public service obligations) in public transport, which could be said to have an environmentally motivation, next to the more prominent social motif. These types of issues are needed to be resolved in the revised SEEA. It is also questioned by the EEA if for example agri-environment scheme payments that are based on income would be excluded on the basis of the SNA definition.

EEA (2005) identified two additional definitions:

From the OECD a subsidy is defined as '*any measure that keeps prices for consumers below market levels, or for producers above market levels, or that reduces costs for consumers and producers*' (OECD, 1998).

The World Trade Organisation definition of subsidies contains three basic elements (WTO, 1994):

- a financial contribution, including direct transfers of funds (e.g. grants, loans, and equity infusion) and potential direct transfers of funds or liabilities (e.g. loan guarantees). A financial contribution also exists where government revenue that is otherwise due is forgone or not collected (e.g. fiscal incentives such as tax credits); where a government provides goods or services other than general infrastructure, or purchases goods; or where a government entrusts or directs a private body to carry out these functions;
- the financial contribution must be made by a government or any public body, including sub-national governments and public bodies such as State-owned companies;
- it must confer a benefit.

Another recent (2007) EEA report *Size, structure and distribution of transport subsidies in Europe* defines a subsidy as: subsidies which are paid directly from public budgets or affect public budgets via lower tax returns and where there is no direct service in return.

To summarise:

The revised SEEA needs to address subsidies that are environmentally related at large. Those that are beneficial to the environment and those that are of a more damaging character. Statistical definitions and delimitations of subsidies in general and environmentally motivated/beneficial subsidies can be resolved within the short term perspective due to the large number of studies already conducted in this field, some of them mentioned above. However subsidies that could potentially be of an environmentally harmful character and indirect subsidies in the form of tax reductions are areas that not many countries or institutions have looked into and they would need more time to be evaluated.

Helpful contributions can also be derived from the reflections made on this topic by the Eurostat Working Group "Environmental Expenditure Statistics", included in the publication: "Environmental expenditure statistics: General Government and Specialised Producers data collection handbook". This handbook describes in more detail the thoughts behind the different variables needed for the EPEA compilation.

3. Investment grants

In discussions with the broader public, that is, with researchers and national or international agencies, the terminologies for subsidies are not within the limits of the SNA-definition for subsidies. Often, investment grants are included, which in the SNA are placed elsewhere in the system compared with subsidies. Nevertheless, the importance of capturing investment grants makes it necessary to also define the same selection criteria for investment grants within the satellite accounts of environmental accounts.

Investment grants are included in capital account (chapter 10) of the SNA, that is, the accumulation accounts and balance sheets. These form a group of accounts that are concerned with the values of the assets owned by institutional units or sectors, and their liabilities §10.1. The capital account includes gross capital formation, consumption of fixed capital and capital transfers (in which investment grants are included).

Investment grants D.92 §10.137

Investment grants consist of capital transfers in cash or in kind made by governments to other resident or non-resident institutional units to finance all or part of the costs of their acquiring fixed assets. The recipients are obliged to use investment grants received in cash for purposes of gross fixed capital formation, and the grants are often tied to specific investment projects, such as large construction projects. If the investment project continues over a long period of time, an investment grant in cash may be paid in instalments. Payments of instalments continue to be classified as capital transfers even though they may be recorded in a succession of different accounting periods.

To summarise:

The selection criteria need to be established for selecting appropriate items of investment grants. Since the criteria on environmentally motivated subsidies can be accomplished based on the purpose for subsidies, it is recommended that the same criteria be applied here. If the SNA type subsidies are considered it would be beneficial to group together subsidies and investment grants in the presentation of environmentally beneficial type of subsidies.

4. Permits to access the resources (e.g. fishing and water rights) and emission permits

The SNA revision has had on its agenda to resolve the issue on several aspects related to property rights, rents and permits. It is foreseen in the SEEA revision to keep informed about the outcomes of the SNA revision in this matter and to evaluate the effects of the proposed recommendations. In the field of government permits the Advisory Expert Group (AEG) had the following to say (posted 2006-04-07 on UNSD web-site):

Government permits

The AEG was almost equally split on this issue, with a very narrow majority favouring treatment as a tax rather than as a sale of a non-produced non-financial asset. The Intersecretarial Working Group on National Accounts (ISWGNA) will consider this matter further. AEG was asked if they agreed with the following recommendations of the Canberra II Group which were as follows:

Recommendation 1 All government permits that rely on the exercise of sovereign powers and are issued on a restricted basis should be treated as taxes.

This recommendation should have referred to the treatment of government permits without any underlying assets. The discussion identified the possible treatments as taxes, assets or services, depending on the situation.

Recommendation 2 The method of setting the price of a restricted government permit is not relevant for its treatment as a tax or an asset.

Recommendation 3 If permits are valid for several years, only the portion representing the current year is a tax. The remainder is a financial asset for the purchaser and a liability for the government.

Recommendation 4 Permits that are transferable or that can be returned to the issuing government for a refund of the unexpired portion are treated as financial assets/liabilities. If a multi-year permit is transferable, a non-produced, non-financial asset is deemed to be created, with a value that varies according to market conditions.

Outcome

After some consideration and deliberation the area is still not solved⁶. A draft chapter 17 'Crosscutting and special issues' of the SNA is to consider emission permits as assets if they are tradeable (§17.291 draft chapter 17)⁷ but chapter 10 (§10.181) defines permits given by governments as a tax.

From the perspective of environmental accounts it is very important that the London Group in its work with the emission permits not limit itself only to the alternatives tax or assets, which are the alternatives in relation to the description of the permits in the SNA.

Emission permits are of course important from an economic perspective and should be included in the national accounts, but the description of the 'physical' flow (and the monetary values attached to it) of the emission permits is also very policy relevant. Environmental accounts for emission permits should be able to address a series of questions, which are not reflected in the regular national accounts.

⁶AEG recommendations on Leases and licences, part 1 and part 2:

<http://unstats.un.org/unsd/sna1993/recomm.asp?ID=20>

⁷The new draft chapter 17 will be posted shortly on:

<http://unstats.un.org/unsd/sna1993/draftingPhase/ChapterIssueMatrix.asp>

For instance:

What are the origins of the permits?

- Are they issued by the Government?
- Are they purchased from abroad by the industries? Or by the Government?
- Or did the permits enter the economy as a consequence of the use of the flexible mechanisms (joint implementation or clean development mechanism)?

From where have the industries received the permits?

- Are they received from the Government for free (grandfathering)?
- Are they bought, maybe on an auction, from the Government?
- Are they bought from a foreign company?

Who owns / holds the permits?

- Is it the energy companies or manufacturing industries that have to have permits in order to undertake their activities?
- Or is it investment banks who are only interested in the permits from an arbitrage perspective?

What is the relationship between the emissions of CO2 and the emission permits?

- Have the industries acquired a sufficient number of permits compared to their CO2 emissions?

Etc. etc.

The issue of grand-fathering is also something to bring up for discussion. On one side, assimilating taxes and permits makes sense in the case of auctioning when a price is paid (which can be assimilated to the payment of the tax). However, in the case of grandfathering when the permits are allocated for free, they resemble subsidies from the government to the enterprise and can be sold to generate income.

On the other side, the reason why tradable permits should be treated equally whether they are grandfathered or auctioned is that grandfathering means a price of zero, yet. When auctioning would become more fashionable, different treatment would mean disturbing the accounts and break up time series.

To summarise:

The London Group needs to continue to follow the discussion within the AEG and with the final decision of the AEG evaluate the impact on the current text in the SEEA. However, concerning how the London Group decides to describe the flow of permits, in terms of numbers of permits or in monetary values, the SEEA should not be too restricted by the final outcome of the national accounts.

5. Natural resource management expenditure accounts

The SEEA 2003 presents the Classification of Environmental Protection Activities (CEPA 2000). CEPA is a UN adopted classification that does not cover natural resources management activities and expenditures. Natural resource management activities are very important in particular for certain policies such as the European Water Framework Directive or the variety of national policies and programmes such as the Natural Resource Management and conservation programme in Australia or the policy framework for sustainable forestry in Canada⁸.

The European System for the Collection of Economic Information on the Environment (SERIEE) published in 1994 outlined environmental protection activities and also described in brief natural resource management activities (SERIEE 1994 §§10040 sq).

SERIEE as a system is not limited to recording environmental protection activities but is also meant to describe activities for the management and use of natural resources. In this way a more comprehensive overview of the related interactions between human activity and the environment can be established. However, in terms of building up this type of accounts very little has been done world wide.

Water management is well covered from a physical perspective by different schemes of data collection by the UN, OECD and Eurostat (I.e. the UNSD water questionnaire and the OECD/Eurostat Joint Questionnaire on inland waters). These questionnaires cover items such as treatment and distribution. However, little or no economic data are collected with the relation to national accounts for water management with the exception of what is collected through NACE 41 (production, value added etc). Other areas such as industries and governments expenditure to preserve wild flora and fauna (in the form of sustainable management of hunting, fishing and harvesting), or natural forest resources are today not collected in a systematic way within the SERIEE system.

Istat's experience shows that most of the elements available from the Environmental Protection Expenditure Account (EPEA) – such as the criteria for grouping the units, the classification of transactions, the accounting rules and the accounting tables – are suitable for Resource Use and Management Expenditure Accounts (RUMEA) as well. What needs to be developed specifically for the RUMEA are mainly a number of conceptual aspects like those concerning the classification of activities (similarly to the CEPA for the EPEA) and the lists of connected and adapted (i.e. resource efficient/saving) products.

Proposal on new classification

A Classification of Resource Use and Management Activities (CRUMA) should be derived as much as possible consistently with the CEPA, i.e. starting from an analogous classification matrix and arriving to a classification with a similar structure.

The approach below has been followed by Istat for developing the Italian CRUMA (see also Annex B):

- first a classification matrix has been set up which cross-classifies different kinds of activities that can be carried out to use and manage the natural resources and 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

⁸ <http://www.nrm.gov.au/> and <http://ontariosforests.mnr.gov.on.ca/publications.cfm#strategic>

indications of chapter X of the 1994 SERIEE manual as well as the kinds of activities used for CEPA purposes);

- secondly, the specific items of the above matrix have been re-grouped, resulting in a classification which is structured similarly to CEPA (table 1).

Table 1 Classes of Istat's CRUMA

1: Use and management of inland waters
2: Use and management of natural forest resources
3: Use and management of wild flora and fauna
4: Use and management of fossil energy resources
5: Use and management of raw materials (other than fossil energy resources)
6: Research and development for the use and management of natural resources
7: Other natural resources use and management activities

The CRUMA is in Italy being applied successfully, in particular to the General Government sector.

To summarise:

This area was suggested for development by the UNCEEA preliminary list of research items but in the light of lack of studies in this area it is not recommended to be included in the revised SEEA as a standard but as a "best practise" area. However, if the Italian experience can be further evaluated and adopted within the specified time line a standard might be achieved. The revision of chapters 5 and 6 of SEEA could reflect the fact that the accounting methodology holds for all the areas of environmental expenditure; this should be emphasised, while the main conceptual issues be dealt with relate to the scope and classification of resource use and management activities and expenditures.

6. Environmental goods and services sector

Already in 1986 a commission communication *Industrial Competitiveness and Protection of the Environment* stressed that “the significance of the environmental protection industry as a quickly expanding industrial market can no longer be denied, even though considerable doubt surrounds its exact level of development”. The increased awareness of environmental pollution and its measures of pollution control have led to the creation of activities and services to measure, prevent and reduce pollution. Environmental policies and legislation have continued the development of environmental protection activities. Today the policy interest focuses on different aspects of the environment industry including: growth potential, employment creation, success in exporting environmental technologies; increased competitiveness in industry due to applications of cleaner technologies; research and development for cleaner products and processes.

In SEEA 2003 the “Environment Industry” is briefly mentioned as an area related to environmental protection activities. The definitions presented are based on the 1999 OECD/Eurostat definition on the environmental goods and services industry. This definition is still used today by those countries compiling related statistics.

Currently work in Europe is ongoing to interpret and further develop statistics from the 1999 manual. In 2006 an expert group under the supervision of Eurostat *The Environmental Goods and Services Sector (EGSS)* was created. The TF has as a mandate to create a set of standard tables for a new data collection and a compilation guide interpreting and explaining the existing manual of 1999. The Eurostat task force working on some of the following:

Consistency with expenditure accounts. The sector should be defined consistently with the scope of the environmental expenditure accounts, i.e.:

- the definition and the classification of the area of environmental protection and of the field of resource management should be the same as those used for the expenditure accounts;
- the relationship between the coverage of the EGSS and the coverage of the environmental protection and resource management expenditure accounts should be well clarified and pointed out (e.g. such kind of questions should be addressed: are there any products that are covered by the EGSS from the supply side and is not covered by the expenditure accounts from the use side? Which ones?, etc.)

In order to ensure this consistency, the relevant parts of chapter 5 and 6 in SEEA 2003 should be revised consistently to each other; in particular the advancements concerning the area of resource management accounts should be taken into account in the definition and classification of the EGS sector.

Today a few countries are continuing the work started in the end of the 1990's. Germany, Canada and Sweden have for some years published statistics in the field and the Netherlands, Austria, Spain the United Kingdom and Norway are/have recently conducted pilot projects.

To summarise:

This area was suggested for development by the UNCEEA preliminary list of research items. In the light of lack of studies focusing on methodology in this area it is not recommended to be included in the revised SEEA as a standard but as a “best practise” area. Relevant inputs, ideas and expertise concerning these issues can be derived from the Eurostat Working Group “Environmental Expenditure Statistics” and the ongoing Task Force “Environmental goods and services sector”.

7. Concluding suggestions and summary

Below follows a brief summary of what has been discussed in the previous six chapters.

Summary of chapter 1 Taxes:

Environmental taxes within the environmental accounts highlight important information about fiscal policies, their impact on behaviour and, if presented by tax-payee where for example discrepancies in tax policies exist. It is important that the revised SEEA is clear about the concept, about the definition and analytical possibilities. The OECD/Eurostat definition has been proved to be useful and clear in its set-up for the majority of European countries. If this definition can be agreed upon as the standard definition this topic can be resolved within the short term deadline.

However, in the framework of the OECD/EEA database on economic instruments for environmental policy, the term is “environmentally related taxes”, as the national delegates of the OECD working party on national environmental policy – home of the database – could not agree on what an environmental tax is.

The work of compiling statistics within the framework of environmental accounts and the already existing database of the OECD/EEA is at the moment two separate items of work. It would be very interesting to see the two closer together for increased usability and statistical quality.

Summary of chapter 2 Environmentally related subsidies:

The revised SEEA needs to address subsidies that are environmentally related at large. Those that are beneficial to the environment and those that are of a more damaging character. Statistical definitions and delimitations of subsidies in general and environmentally motivated/beneficial subsidies can be resolved within the short term perspective due to the large number of studies already conducted in this field, some of them mentioned above. However subsidies that could potentially be of an environmentally harmful character and indirect subsidies in the form of tax reductions are areas that not many countries or institutions have looked into and they would need more time to be evaluated.

Helpful contributions can also be derived from the reflections made on this topic by the Eurostat Working Group “Environmental Expenditure Statistics”, included in the publication: “Environmental expenditure statistics: General Government and Specialised Producers data collection handbook”. This handbook describes in more detail the thoughts behind the different variables needed for the EPEA compilation.

Summary of chapter 3 Investment grants:

The selection criteria need to be established for selecting appropriate items of investment grants. Since the criteria on environmentally motivated subsidies can be accomplished based on the purpose for subsidies, it is recommended that the same criteria be applied here. If the SNA type subsidies are considered it would be beneficial to group together subsidies and investment grants in the presentation of environmentally related subsidies.

Summary of chapter 4 Permits to access the resources and emission permits:

The London Group needs to continue to follow the discussion within the AEG and with the final decision of the AEG evaluate the impact on the current text in the SEEA. However, concerning how the London Group decides to describe the flow of permits, in terms of

numbers of permits or in monetary values, the SEEA should not be too restricted by the final outcome of the national accounts.

Summary of chapter 5 Natural resource management expenditure accounts:

This area was suggested for development by the UNCEEA preliminary list of research items but in the light of lack of studies in this area it is not recommended to be included in the revised SEEA as a standard but as a “best practise” area. However, if the Italian experience can be further evaluated and adopted within the specified time line a standard might be achieved. The revision of chapters 5 and 6 of SEEA could reflect the fact that the accounting methodology holds for all the areas of environmental expenditure; this should be emphasised, while the main conceptual issues be dealt with relate to the scope and classification of resource use and management activities and expenditures.

Summary of chapter 6 Environmental goods and services sector;

This area was suggested for development by the UNCEEA preliminary list of research items. In the light of lack of studies focusing on methodology in this area it is not recommended to be included in the revised SEEA as a standard but as a “best practise” area. Relevant inputs, ideas and expertise concerning these issues can be derived from the Eurostat Working Group “Environmental Expenditure Statistics” and the ongoing Task Force “Environmental goods and services sector”.

Suggestions:

- ◆ To some extent, chapter 5 and 6 cover related issues. In particular, taxes and subsidies are covered in chapter 5 within Environmental Protection Expenditure Accounts and in chapter 6 as environmental taxes. We suggest the rearrangement of these two chapters to include Environmental Protection Expenditure Accounts and environmental taxes in chapter 5 and leave chapter 6 with the other environmentally related transactions such as emission trading, property rights etc. Chapter 5 would then be further elaborated on the issue of subsidies and be given some clarifications concerning EPEA.
- ◆ The text already included in the manual on taxes is sufficient with some minor changes. Clarification should be developed about the standard definition to be used and how to implement it. An up-date will be done taking the new instructions from the revised SNA.
- ◆ For emissions permits, the new SNA recommendation will be discussed and its implications will be assessed. In-depth applications can also be further developed.
- ◆ We suggest that a working group of countries is formed to write this text and also to coordinate with the needs of OECD or other relevant organisations.

Suggested timeline and process

1. To send this clarification paper out to the volunteers of the London group
2. The two working groups "Environmental Accounts" and "Environmental Expenditure Statistics" of Eurostat will also be consulted for further discussions on the draft paper.
3. Following meeting of the London Group in the latter half of 2007 the work can continue.

Annex A: Tax bases

Tax bases included in the environmental tax statistics framework (Eurostat 2001)

Measured or estimated emissions to air

- Measured or estimated NO_x emissions
- SO₂ content of fossil fuels
- Other measured or estimated emissions to air

Ozone depleting substances (e.g. CFC or halon)

Measured or estimated effluents to water

- Measured or estimated effluents of oxydizeable matters (BOD, COD)
- 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
 - Unleaded petrol
 - Leaded petrol
 - Diesel
 - Other energy products for transport purposes (e.g. LPG or natural gas)
- Energy products used for stationary purposes
 - Light fuel oil
 - Heavy fuel oil
 - Natural gas
 - Coal
 - Coke
 - Biofuels
 - Other fuels for stationary use
 - Electricity consumption
 - Electricity production
 - District heat consumption
 - District heat 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)
- Other resources (e.g. forests)

Annex B: The Classification of Resource Use and Management Activities and expenditure – CRUMA (Istat 2007)

Code	Description	Explanatory notes/Examples
10	Use and management of inland waters	
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
11	Use and management of natural forest resources	
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
12	Use and management of wild flora and fauna	
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
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
13	Use and management of fossil energy	
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

Code	Description	Explanatory notes/Examples
		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
14	Use and management of raw materials	
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
15	Research and development activities for natural resource use and management	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)
16.	Other natural resource use and management activities	
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 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)
16.1.2	Environmental management	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

Code	Description	Explanatory notes/Examples
16.2	Education, training and information	<p>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> <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

Literature

EEA 2005. Market based instruments for environmental policy in Europe. EEA Technical report No 8/2005

EEA 2007 Size, structure and distribution of transport subsidies in Europe. EEA Technical report No 3/2007

Eurostat 1994. SERIEE 1994.

Eurostat 2001. Environmental taxes – a statistical guide.

Eurostat 2002. SERIEE – Environmental Protection Expenditure Accounts – a compilation guide.

Eurostat 2007. Environmental expenditure statistics – General government and specialised producers data collection handbook.

Istat 2007. 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.

OECD 1998. Improving the environment through reducing subsidies, Part I: Summary and conclusions.

Statistics Denmark 2006. Integrated Environmental and Economic Accounts for Tradeable Carbon Dioxide Emission Permits.

UN. Research Agenda – a preliminary consolidated list of issues. ESA/STAT/AC.117. UNSD for the UNCEEA meeting of 22-23 June 2006.

UN. Update of the 1993 SNA – Issue No. 35 Issue paper for the meeting of the AEG, July 2005 Tax revenues and tax credits. SNA/M1.05/07.

UN. Tax revenues, uncollectible taxes and tax credits. Recommendations from the AEG 2005-09-30

UN et al. 1993. System of National Accounts.

WTO 1994. Agreement on Subsidies and Countervailing Measures, Article 1.