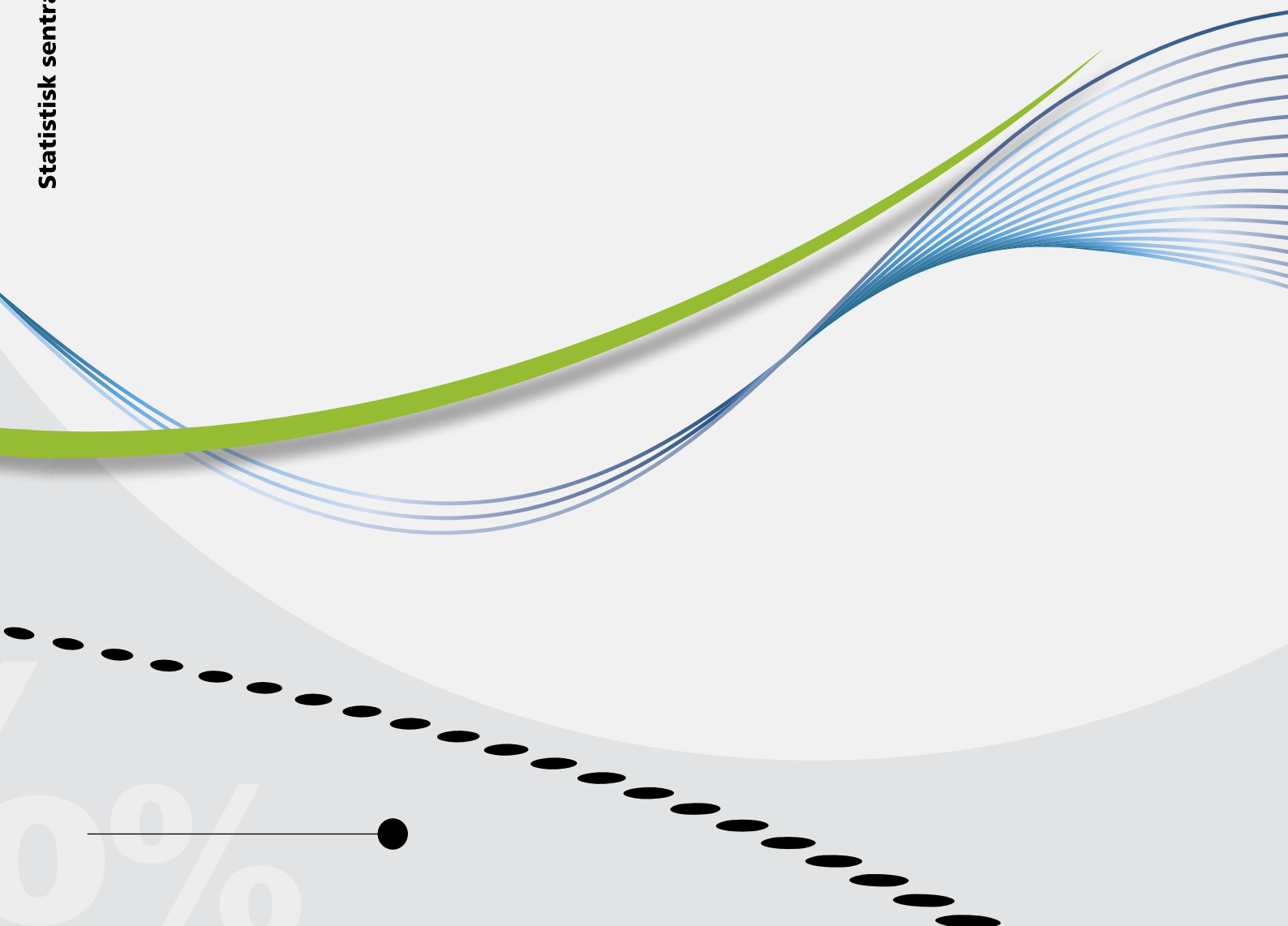


Kristine E. Kolshus, Trine H. Braathu and Frode Brunvoll

Environmental Goods and Services Sector

New reporting requirements and basic data needed



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Preface

The regulation (EU) No 691/2011 on European environmental economic accounts establishes a common framework for the collection, compilation and transmission of data on environmental accounts. Norway, represented by Statistics Norway, is according to the EEA agreement obliged to adopt the regulation as Norwegian law and provide data in future annual reporting.

The regulation (EU) No 691/2011 on European environmental economic accounts consists of various modules, of which three new modules are foreseen as new accounts to be reported to Eurostat from 2017 onwards. One of these modules is the Environmental Goods and Services Sector, which is the focus of this report.

This report summarizes the main findings of a project undertaken in 2013. The main purpose of the project was to examine the EGS-sector requirements that the European countries will meet in the future, as well as looking into possible data sources in Norway in order to follow up these requirements.

The project was initiated by a grant proposal from Statistics Norway under the leadership of Ms. Kristine E. Kolshus, in cooperation with the head of the division for energy and environmental statistics, Ms. Tonje Kjøber.

Contributors to the project have been Ms. Trine H. Braathu and Mr. Frode Brunvoll, both from the Division for energy and environmental statistics. Several experts from other divisions in Statistics Norway have also been consulted as part of this project, particular experts in the divisions for National Accounts, Public finances, Manufacturing and R&D statistics, and Labour market statistics.

Editors of this report have been Ms. Kristine E. Kolshus, Ms. Trine H. Braathu and Mr. Frode Brunvoll.

Statistics Norway would like to thank Eurostat for supporting this project on EGSS by the contribution of a grant.

Statistics Norway, 8 January 2014

Hans Henrik Scheel

Abstract

This document presents the results and work undertaken in the pilot study on the Environmental Goods and Services Sector (EGSS) according to Eurostat grant agreement no. 50904.2012.004-2012438.

The main objectives of this pilot study have been to:

- Identify the requirements for variables and data related to the proposed inclusion of the module of EGSS in the EU-regulation 691/2011 on environmental accounting.
- Identify possible existing data sources as well as identifying those areas of the EGS-sector where basic data do not exist.
- Identify the expected costs and future working tasks that would be necessary to undertake and/or check before Statistics Norway can comply with the requirements in the proposed reporting from 2017.
- Examine the international and the national use and demands for statistics covering the EGS-sector.

We have based our studies on the draft regulation of the EGSS module amending Regulation 691/2011 on European environmental economic accounts (as of 2.5.2013) and the draft questionnaire for the EGSS legal module.

Conclusions and main findings:

- Compilation of statistics for the EGS-sector is to be carried out using already existing statistical sources.
- Very few existing statistics could serve as a direct source for statistics for the EGS-sector with the required level of detail.
- The National Accounts can, only for some few NACE-industries, be used as a source.
- Using so-called “CPA-product-lists” for direct identification of environmental goods and services does not seem to be a useful approach, since the product categorisation in the National Accounts is too aggregated for the purpose of environmental goods and services.
- Using other existing statistics (indirect sources) in order to identify a proportion of the CPA-products that can be defined as an environmental good or service is the approach that seems most applicable and will be tested when taking this work a step further (e.g. Prodcom-statistics).
- Establishing the figures for the output table of environmental goods and services seems to be essential in order to compile the other requested data for value added, export and employment in the EGS-sector. Further work will therefore primarily be focused on the compilation of the output table.
- Although not obligatory, we will look into the possibilities of splitting the reporting between the connected products and the adapted products. The reason for this is that we expect the uncertainty to be bigger in the figures for the adapted products than for the connected products.
- Particular work with identifying the adapted goods is needed. Certain criteria must be established.

Future work will be undertaken in close cooperation with the EPEA-work.

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1. Introduction

Statistics for the environmental goods and services sector (EGS-sector) is one of three new modules that are suggested to be included in the regulation (EU) No 691/2011 on European environmental economic accounts from 2015 on. EGSS is regarded as a satellite account to the National Accounts System. For Statistics Norway this means that data for output, value added and export of environmental goods and services, as well as employees involved in these activities, are to be reported annually to EU from 2017 onwards.

Statistics Norway does not currently produce statistics for the EGS-sector. A project has therefore been undertaken with the following main purposes:

- Identify the requirements for variables and data related to the proposed inclusion of the module of EGSS in the EU-regulation 691/2011 on environmental accounting.
- Identify possible existing data sources as well as identifying those areas of the EGS-sector where basic data do not exist.
- Identify the expected costs and future working tasks that would be necessary to undertake and/or check before Statistics Norway can comply with the requirements in the proposed reporting from 2017.
- Examine the international and the national use and demands for statistics covering the EGS-sector.

In order to identify future working tasks and expected costs for complying with the reporting requirements for statistics for the EGS-sector, it is necessary to have some ideas of what methods are planned to be used in order to compile the required figures. The Eurostat recommended methods for compiling statistics for the EGS-sector have been studied, and preliminary suggestions for future compilation methods in order to compile data for the Norwegian EGS-sector are presented.

One important starting point for the Norwegian approach is that this project will only look into the possibilities of using existing data sources, meaning that the use of surveys to collect the necessary information is not seen as an option.

The recommended approach of using the CPA-list of environmental goods and services produced by Eurostat in order to define the output in the EGS-sector has been particularly tested out to see if it could be an applicable method for Statistics Norway.

With some exceptions only statistics produced by Statistics Norway has been analyzed in order to see whether it can serve as a direct or indirect source for the compilation of statistics for the EGS-sector.

Since the statistics for the EGS-sector is to be compiled according to the national accounts definitions, we will aim at harmonising the figures for the EGS-sector with the national accounts figures also for those figures not taken directly from the national accounts.

This report summarizes the results of this project. In order to understand the requirements for data to be reported, the main variables used in the statistics for the EGS-sector are presented in chapter 2. In chapter 3 some proposed methods for compiling statistics for the EGS-sector are presented. In chapter 4 relevant existing data sources in Statistics Norway are presented as well as information about possible data gaps. Chapter 5 and 6, respectively, presents some external data sources as well as possible applications of the statistics for the EGS-sector.

Finally this report summarises the current situation in Statistics Norway regarding what parts of the EGS-sector tables that easily can be reported using existing data sources and what parts of these tables where there still are data gaps to be filled. The costs related to fill these data gaps are also indicated.

2. What does statistics for the EGS-sector cover?

Statistics for the EGS-sector cover several different economic variables as well as variables of social statistics. Statistics for the EGS-sector is defined as a satellite account to the national accounts system, established in order to identify the part of a national economy that can be related to environmental goods and services activities, i.e. the EGS-sector.

The relevant economic and social variables that are to be reported for the EGS-sector are output, value added and export of environmental goods and services, as well as employees involved in these activities. According to the suggested legal text for the EGSS-module in the EU-regulation for environmental accounts, the figures for the economic and social variables are to be reported cross-classified by economic activity and environmental activity i.e. by the NACE Rev. 2 (A21) and the classes of the classification of environmental protection activities (CEPA) and the classification of resource management activities (CReMA).

The reporting tables from Eurostat also allow for a voluntary reporting of a more detailed level of activity, especially within the manufacturing industries. Table 2.1 gives an aggregated illustration of the reporting tables' format and how statistics for the EGS-sector is to be systematized when reported to Eurostat.

Table 2.1. Illustration of the reporting tables for the EGS-sector

		Environmental protection activities			Resource management activities		
		CEPA ₁	CEPA ₂	CEPA _n	CReMA ₁	CReMA ₂	CReMA _n
NACE A21	Market output	Output - of which export Value added Employment					
	Non-market output						

Since statistics for the EGS-sector is linked to the national accounts system, it is the European System for National Accounts (ESA) and the UN System for National Accounts (SNA) that defines the boundaries and defines the economic and social variables that are to be included in the statistics for the EGS-sector. There are some characteristic definitions related only to the statistics for the EGS-sector that have no references to ESA or SNA. These definitions are specific for environmental economic accounts, and are either given by the System for Environmental Economic Accounts (SEEA Central Framework) or the legal framework related to the module for EGSS in EU-regulation 691/2011.

It is particularly the product categories that are specific only for the statistics for the EGS-sector. For the market output, value added and the export figures, it is voluntary in the reporting tables to split between different types of product classifications, i.e. whether it is an environmental specific service, an environmental sole purpose product (connected product), an adapted good or an environmental technology.

In this chapter, all relevant variables and classifications in the statistics for the EGS-sector will be defined and explained.

2.1. Definition of the EGS-sector

The environmental goods and services sector is defined according to a specific list of goods and services that are produced for a specific purpose, i.e. *these products (goods and services) and technologies must satisfy the end purpose criterion, i.e. they must have an environmental protection or resource management purpose (hereinafter 'environmental purpose') as their prime objective.*

More specific, the environmental goods and services sector consists of a heterogeneous set of producers of technologies, goods and services that:

- *Measure, control, restore, prevent, treat, minimise, research and sensitise environmental damages to air, water and soil as well as problems related to waste, noise, biodiversity and landscapes. This includes 'cleaner' technologies, goods and services that prevent or minimise pollution.*
- *Measure, control, restore, prevent, minimise, research and sensitise resource depletion. This results mainly in resource-efficient technologies, goods and services that minimise the use of natural resources.*

The environmental goods and services sector (EGS-sector) has the same system boundaries as ESA. This implies that the statistics for the EGS-sector are to be compiled in accordance with the definitions implemented in the national accounts.

2.2. Definition of EGS - environmental goods and services

Products produced in the EGS-sector are referred to as environmental goods and services. Goods and services are defined as in the national accounts (see ESA 2010 § 3.01). Which of these goods and services that are regarded as environmental ones is given by the definition of the EGS-sector cited in chapter 2.1: *they must have an environmental protection or resource management purpose as their prime objective.*

According to the suggested legal text for the EGSS-module in the EU-regulation for environmental accounts, environmental goods and services can be further categorized in different categories, i.e. environmental specific services, environmental sole purpose products (connected products), adapted goods or environmental technologies. The goods, services and technologies produced in the EGS-sector are classified according to their functions and characteristics within the categories listed above. These categories of environmental goods, services and technologies are explained in table 2.2.

Table 2.2. Definition of different product categories in statistics for the EGS-sector

Category	Definition
Environmental specific services	Consist of the output of environmental protection or resource management 'characteristic' activities. Characteristic activities are those "typical for the field under study". In the case of the EGSS, characteristic activities are those activities where the purpose is an environmental purpose.
Environmental sole purpose products (connected products)	Connected products may be services or goods (durable or non-durable goods). Connected products are "clearly covered by the concept of the field under study, without being typical, either by nature or because they are classified in broader categories of products". In the case of the EGSS, a connected product directly serves and has no use except for environmental protection or resource management.
Adapted goods	Adapted goods are goods which are less polluting or more resource efficient than equivalent normal goods which furnish a similar utility. Their primary use is not an environmental protection or resource management one.
Environmental technologies	Environmental technologies are technical processes, installations and equipment (goods) and methods or knowledge (services), the technical nature or purpose of which is environmental. <i>End-of-pipe technologies</i> which are mainly technical installations and equipment produced for the measurement, control, treatment and restoration/correction of pollution, environmental degradation and resources depletion. These installations and equipment operate independently of or are identifiable parts added to the production and end-life consumption cycles. <i>Integrated technologies</i> are technical processes, methods or knowledge used in production processes which are less polluting and resource intensive than the equivalent average technology used by national producers. Their use is less environmentally harmful than relevant alternatives.

The categories are specified in more detail the Eurostat EGSS manual, and when reading the definitions it is seemingly quite clear what products are to be included in the different categories. However, when looking more detailed into the goods and services that are to be included in the statistics for the EGS-sector, it is not straightforward in all cases. In subjective assessments of the categorisation of products, comparison between products and countries might be misleading. A more practical division of the EGS can be to only separate between goods and services, where technologies are included in either of these products. This argument can be supported by the classification of products in the National Account where they only separate between goods and services.

For the Norwegian compilation of the EGSS, the categories will mainly be used as guidelines for determining what products to include as EGS products. However, if possible we will report the adapted goods separately. This is because these products will constitute a substantial part of the environmental goods and services, and since their primary use is not one of environmental protection or resource management.

The definitions of the products are under revision within the practical guide currently under development in Eurostat. The emphasis in the guide with regard to the products is on clarifications and practical use of the product definitions.

Statistics on supply and use of products are included in many different areas of statistics. Some of these are using the same product classifications, while some are using specific product classifications designed for specific purposes. The product classification referred to in the statistics for the EGS-sector is the classification of products by activity (CPA) used internationally in the national accounts. Most probably other statistical sources than the national accounts will have to be used as input in the compilation of the statistics for the EGS-sector. In most cases, converting-lists must be used (or developed) in order to be able to see the

connection between the different product classifications in use in the different statistics.

2.3. Definition of the economic variables covered in statistics for the EGS-sector

Statistics for the EGS sector are to be compiled for various economic activities. Primarily it is the production of the environmentally related goods and services that identifies the EGS-sector itself.

However, the total production is to be split into market and non-market output, of which the market output is the only output obligatory to report to Eurostat.

In addition to the market output of environmentally related goods and services, it is also obligatory to report how many people are employed in the EGS-sector as well as the value added of this activity. It is also obligatory to report on the share of the market output that is exported.

Not obligatory to report, but “nice to know”, is the ancillary production of environmentally related goods and services.

All the economic activities to be accounted for in the statistics for the EGS-sector are to follow the same definitions that are used in the national accounts, i.e. follow ESA. In chapter 2.3.1–2.3.6 the definitions of these economic activities will be explained.

2.3.1. Definition of market output (obligatory)

ESA 2010 (The European System of National and Regional Accounts) defines output as market output, output produced for own final use and non-market output. Market output consists of output that is disposed of on the market or intended to be disposed of on the market, i.e. it does not include production for own final use, and non-market production in general government and in NPISHs (Non-profit institutions serving households).

A more precise definition is given in ESA 1995 which states that market output includes the following:

- a) products sold at economically significant prices;
- b) products bartered;
- c) products used for payments in kind (including compensation of employees in kind and mixed income in kind);
- d) products supplied by one local KAU (kind-of activity-unit) to another within the same institutional unit to be used as intermediate inputs or for final uses;
- e) products added to the inventories of finished goods and work-in-progress intended for one or other of the above uses (including natural growth of animal and vegetable products and uncompleted structures for which the buyer is unknown).

2.3.2. Definition of value added of market activities (obligatory)

Value added is defined in the National Accounts as the difference between production (at basic prices) and the intermediate consumption (at purchasers' prices). In the national accounts value added is published in basic prices, i.e. subsidies on products are included, whereas VAT and other taxes on products are not (see basic price).

2.3.3. Definition of exports of market output (obligatory)

Exports of goods and services consist of transactions in goods and services (sales, barter, gifts or grants) from residents to non-residents. Export in the EGS-sector is to be defined similar as in the foreign trade statistics and the national accounts.

2.3.4. Definition of employment of market activities (obligatory)

According to ESA 95, employment covers all persons – both employees and self-employed – engaged in some productive activity that falls within the production boundary of the system (ESA).

The employment in the EGS-sector is to be reported in full time equivalent for international comparisons. For more information on employment in EGSS, see chapter 4.8.

2.3.5. Definition of non-market activities (voluntary)

Non-market activities in EGSS are included in the economic variables output, value added and export.

According to ESA 95 non-market output includes:

- Output produced for own final use: this consists of goods or services that are retained either for final consumption by the same institutional unit or for gross fixed capital formation by the same institutional unit.
- Other non-market output: this covers output that is provided free, or at prices that are not economically significant, to other units.

In ESA 10 non-market includes general government, non-profit organizations and production for own final use (for corporations). In ESA10 there has been a small alteration compared to ESA 95, with the exclusion of own account capital formation as non-market output.

In general government and other non-market production, output is estimated as total of compensation of employees, net taxes on production, consumption of fixed capital and intermediate consumption.

In general government and other non-market activities, value added is compiled as sum of compensation of employees, net taxes on production (taxes on production less subsidies on production) and consumption of fixed capital (national accounts).

2.3.6. Definition of ancillary activities (voluntary)

The definition of ancillary activities is those activities that “exist solely to support the main productive activities of an entity by providing non-durable goods or services for the use of that entity”.

The main ancillary activities with regard to EGSS are the production for own use of organic agriculture and of renewable energy.

2.4. Definition of environmental protection and resource management domains

All these economic variables are to be reported according to their relevant environmental domain (CEPA) or resource management domain (CReMA). The domains are the following:

Classification of Environmental Protection Activities (CEPA):

- CEPA 1 - Protection of ambient air and climate
- CEPA 2 - Wastewater management
- CEPA 3 - Waste management

- CEPA 4 - Protection and remediation of soil, groundwater and surface water
- CEPA 5 - Noise and vibration abatement
- CEPA 6 - Protection of biodiversity and landscapes
- CEPA 7 - Protection against radiation
- CEPA 8 – Environmental research and development
- CEPA 9 - Other environmental protection activities

Classification of Resource Management Activities (CReMA):

- CReMA 10 – Management of water
- CReMA 11 – Management of forest resources
- CReMA 12 – Management of wild flora and fauna
- CReMA 13 – Management of energy resources
 - CReMA 13A – Production of energy from renewable resources
 - CReMA 13B – Heat/energy saving and management
 - CReMA 13C – Minimisation of the use of fossil energy as raw materials
- CReMA 14 – Management of minerals
- CReMA 15 – Research and development activities for resource management
- CReMA 16 – Other resource management activities

A description of each of these domains is given in annex A (gathered from the EGSS manual (2009)).

Initially the different classifications appear clear and applicable, but further examination of the placing of the environmental products in the different activities showed that it might not be straight forward after all. In some cases it depended on what way you look at the product. Table 2.3 lists the different conflicts between the CEPA and CReMA classifications found.

The EGSS manual recognizes this problem and has the following recommendations:

For statistical purposes, technologies and products classification should be made in the main domain according to the main purpose and taking into account the technical nature as well as the producer's intention. Multi-purpose activities and products that address several CEPA and/or CReMA classes should be classified in the main domain. It is the case for example of most part of integrated technologies and adapted goods that prevent or reduce pollution and/or the intake of natural resources.

An additional factor that can help the determination of which class a product belongs to, and to secure a stable primary purpose criterion over time and better comparison between countries is to use the technical nature of the activity.

Table 2.3. Conflicting issues between CEPA and CReMA

CEPA/CReMA	Issues	In conflict with:
CEPA 1 - Protection of ambient air and climate	The same product may be related to energy resources and at the same time may contribute to the protection of air and climate.	CReMA 13B
CEPA 2 - Wastewater management	Management of water and wastewater have the same industry as their main data source (NACE 36). The activities may be intertwined.	CEPA 4, CEPA 6, CReMA 10
CEPA 3 - Waste management	Core-industry NACE 38. Material recovery and hazardous waste are also included in this industry and must be separated.	CEPA 4, CEPA 7, CReMA 11B, CReMA 13C, CReMA 14.
CEPA 4 - Protection and remediation of soil, groundwater and surface water	Measures taken to protect soil, groundwater and surface water may also affect the biodiversity. Measures taken with regards to waste and wastewater may affect the soil and groundwater.	CEPA 2, CEPA 3, CEPA 6
CEPA 5 - Noise and vibration abatement	The same products may have both noise abatement and energy efficient qualities.	CReMA 13B
CEPA 6 - Protection of biodiversity and landscapes	Biodiversity and wildlife may be difficult to separate and may be affected by measures taken in other environmental areas.	CEPA 2, CEPA 4, CReMA 12
CEPA 7 - Protection against radiation	The treatment of nuclear waste is included in NACE 38 which is mainly in CEPA 3.	CEPA 3
CEPA 8 – Environmental research and development	It may be difficult to separate environmental protection and resource management.	CReMA 15
CEPA 9 - Other environmental protection activities	It may be difficult to separate environmental protection and resource management.	CReMA 16
CReMA 10 – Management of water	Management of water and wastewater have the same industry as their main data source (NACE 36). The activities may be intertwined.	CEPA 2
CReMA 11 – Management of forest resources	Material recovery is in NACE 38.3.	CEPA 3
CReMA 12 – Management of wild flora and fauna	Biodiversity and wildlife may be difficult to separate.	CEPA 6
CReMA 13A – Production of energy from renewable resources	The substitution of fossil energy for renewable energy also affects emissions to air.	CEPA 1
CReMA 13B – Heat/energy saving and management	See CEPA 5.	CEPA 1, CEPA 5
CReMA 13C – Minimisation of the use of fossil energy as raw materials	See CEPA 3	CEPA 3
CReMA 14 – Management of minerals		CReMA 11, CReMA 13A
CReMA 15 – Research and development activities for resource management	It may be difficult to separate environmental protection and resource management.	CEPA 8
CReMA 16 – Other resource management activities	It may be difficult to separate environmental protection and resource management.	CEPA 9

3. Methods for compiling statistics for the EGS-sector

The compilation of data for the EGSS can be done using different methods. The use of method and different sources of data will depend on the type of producer (corporation or General government) and on the type of products produced (goods or services, adapted goods etc). It also depends on which variables/characteristics the data sources are intended to be used for (production, export, value added and employment).

There are two main methods that are referred to in the compilation of statistics for the EGS-sector, either the supply side approach or the demand side approach. It is only the supply side approach that is discussed in the Eurostat EGSS manual (2009) as a practical approach to the identification of the EGS-sector, while the demand side approach is used in the practical guide now in writing from Eurostat.

The supply side approach is characterized by identifying the supply or production of environmental goods, while the demand side approach is characterized by the use of information that enables the demand for environmental related goods to be quantified. Eurostat recommends using the supply side approach (see chapter 3.2), although the demand side approach (see chapter 3.1) is referred to in order to overcome some of the challenges related to the supply side approach.

Statistics Norway is looking into different methods to use when establishing statistics for the EGS-sector, and will mainly follow the supply side approach, although not fully in accordance to the recommendations from Eurostat (see chapter 3.3–3.6).

3.1. Explaining the demand side approach

The demand side approach uses mainly the statistics on expenditure for environmental protection.

Eurostat suggests that the demand side data can be used in the cases where producers are not classified in specific NACE industries characteristic for environmental protection or resource management.

There are however some conceptual and practical problems by using the demand side. The main implications according to Eurostat are that it will also include import of environmental goods and services and that the demand side focuses on the user rather than on the producers of the products. Another implication is that the statistics on expenditure for environmental protection doesn't cover resource management.

The demand side approach is elaborated in more detail in the practical guide on EGSS now in writing at Eurostat.

The use of the demand side approach poses some additional problems like that the level of detail might not be at the required level for the reporting. Further details would require additional surveying.

The use of the demand side approach is also seen as time consuming.

3.2. Explaining the supply side approach

The supply side approach is characterized by the collection of information on the supply of environmental technologies, goods and services by using existing statistics and/or collecting information by means of questionnaires. Regarding data coverage and data quality, Eurostat argues that compiling a "supply side survey" is

the best approach, but given some challenges in using this approach, the demand side approach has lately been given more attention.

The most used methods, and also recommended by Eurostat, is to identify a list of environmental products or identify environment related activities. Since the data that are to be collected are quite detailed, often other methods need to be applied in order to supplement the list of environmental products. The demand side approach might be considered as a proxy to the supply side approach.

The recommended procedure for the compilation of EGSS is, according to the Eurostat manual (2009), to identify and build a database of the EGSS population.

The first step is to identify the environmental activities through for example NACE categories. This step is especially suitable for the identification of environmental specific services. The so-called core-industries are identified in this step.

However, most of the EGSS activities are scattered across NACE categories where the main activity might not be environmental. Other sources like business associations' registers, internet, etc. will probably be needed in order to identify the share of the NACE activity to be defined as environmental.

The second step is to identify the environmental products (and technologies). This is done by analyzing product lists like the NA-product classification (CPA), the manufacturing industries product classification (PRODCOM), the foreign trade product classification CN (Combined Nomenclature – classification of products traded) and others.

Eurostat has made a list of environmental products based on the classification of NA-products (CPA). The idea is that countries can use this list in order to easily identify environmentally related products in their own statistical systems.

Furthermore, the PRODCOM codes can be applied to identify a more detailed level of the EGS-products of the manufacturing industries. The codes cover the production of commodities in manufacturing, mining and quarrying at a more detailed level than CPA.

The CN classification of products can be used to identify the EGS products that are exported.

In order to identify adapted goods and integrated technologies, specific requirements must be made.

To do this, various processes are suggested in the EGSS manual. In most cases expert studies of the field of environmental products are recommended in order to identify the adapted goods. The two first steps are suggested to be performed in parallel.

The third step is to identify the EGSS producers through the identified products in step one and two.

Eurostat will this year publish a practical guide with the purpose of assisting countries that are looking into the possibilities of developing statistics for the EGS-sector. The guide focuses on the use of already existing data sources as an alternative to using surveys to collect data.

3.3. A preliminary compilation method for the output of EGS

The preliminary compilation methods suggested for compiling the Norwegian statistics for the EGS-sector has been developed in order to have a starting point for a working plan on how to reach the requirements in the reporting tables for the statistics for the EGS-sector.

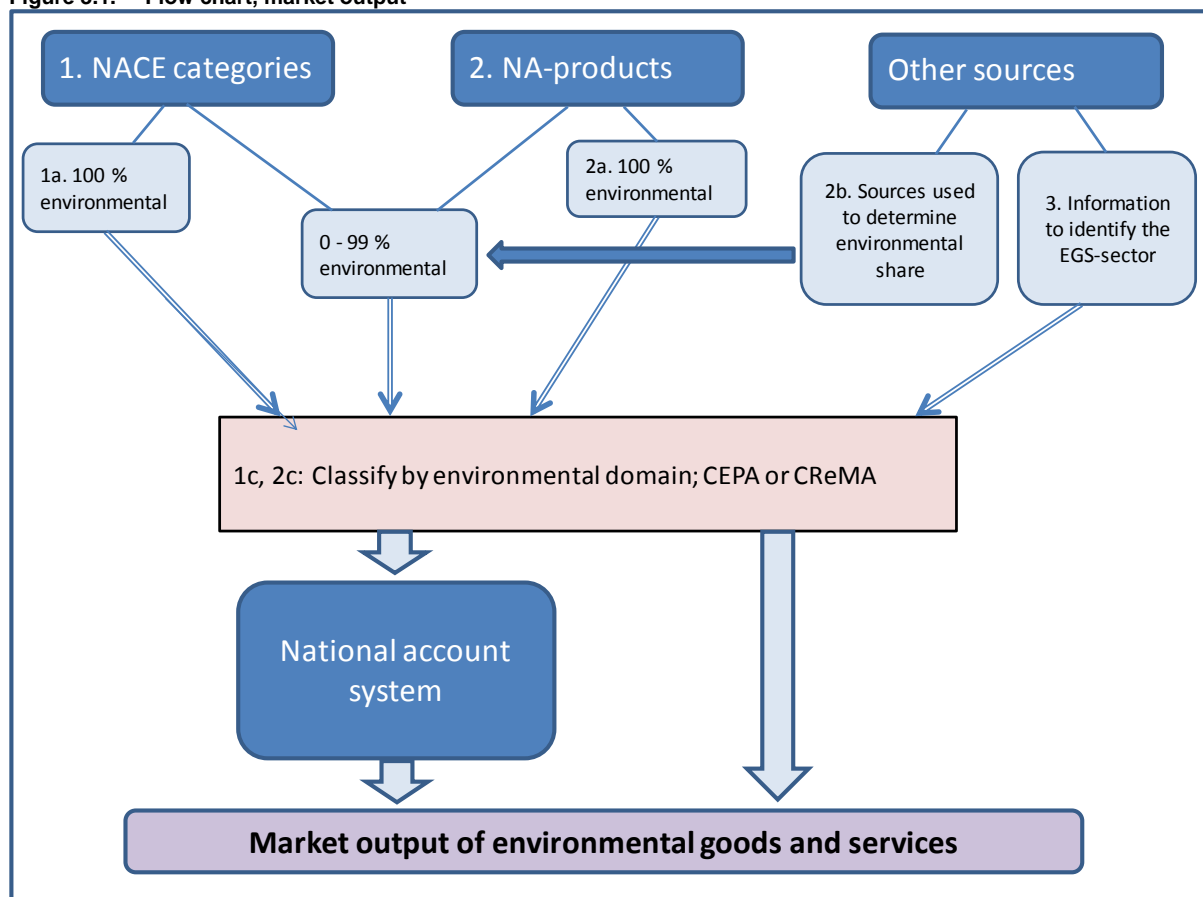
The reporting table for the output of environmental goods and services, and in particular the market output, will play a central role in the overall compilation of all the economic variables to be reported for the EGS-sector.

3.3.1. Suggested compilation method for market output of EGS

The basic idea is to develop a NA-product list for environmental goods and services developed for the compilation of the output in the EGS-sector. Maybe also a NA-industry list will have to be developed if not all activities in the EGS-sector can be identified using the NA-product list. Different statistics produced in Statistics Norway is regarded as either direct or indirect sources, while it is also expected that sources outside Statistics Norway will be used in order to identify (part of) the NA-products defined as environmental.

Figure 3.1 illustrates the preliminary compilation method suggested to use for the identification of the market output in the EGS-sector. The numbers in the figure refer to the different steps in the method discussed below.

Figure 3.1. Flow chart, market output



Statistics Norway is looking into different possibilities of compiling statistics for the EGS-sector.

Since the EGSS data are to be compiled in *accordance* with the ESA-definitions and the National Accounts, the basic idea of the compilation method is to use the

Norwegian National accounts as the “main source” of information for the output-figures. A few activities can be collected directly from the national accounts, however, the strategy is to develop input-lists to the National accounts defining the percentage of the production in the various NACE-activities that are to be regarded as environmental. In this way, the EGSS-data will be fully harmonized with the Norwegian national accounts. The idea is to establish one list for NACE-categories and one list for Product-categories.

In order to identify the share of the NACE categories or the CPA-products that are to be regarded as environmental, the supply-side approach will first be considered as the method to use when compiling statistics for the EGS-sector.

However, the recommended procedure from Eurostat was adjusted. The two main adjustments were mainly due to the fact that the preliminary goal of the work for Statistics Norway is not to identify and build a database of the EGSS population/enterprises and the preferred method for collecting information will not be by means of questionnaires.

In order to seek harmonization with other environmental accounts in Statistics Norway, the “demand side approach” will be looked into in order to identify if there are possibilities of using the Environmental Protection Expenditure Accounts as a source of information for some parts of the EGSS.

The preliminary idea of how to compile the market output figures for the EGS-sector can be explained using the following step-wise approach:

1. First step: Identify NACE categories that can be regarded as environmental activities.

1a: Identify those NACE categories that can be regarded as 100 % environmental. In practice this means to identify which areas where the National Accounts can be used directly as a source.

1b: Identify for which NACE categories there exist other information in order to split the activity of the NACE category into one environmental part. In practice this means that the National Accounts cannot be used directly as a source.

1c: Identify sources in order to classify the NACE activities according to CEPA and CReMA domains.

Expected outcome from the first compilation step:

A file listing all NACE categories that are regarded as environmental. The NACE categories will be marked either as per cent environmental, or with a value between 0 and 99 identifying the percentage of the activity that is regarded as environmental. In addition, each of the NACE categories in the list will be marked with a CEPA or CReMA domain, or a mix of different CEPA and/or CReMA domains.

Preliminary conclusions from the first step:

In Statistics Norway it is only the NACE industries 37-39 that are regarded as 100 per cent within the EGS-sector. The challenge with NACE 38 and 39 is that the market output is to be divided among several CEPA and CReMA domains. In the reporting tables, we miss a column giving us the possibility of reporting totals. Another issue with the 100 per cent industries is in regards to the relationship to EPEA where as of now the required level of detail is to demanding to separate NACE 38. To be in line with EPEA this industry would probably be kept together (i.e. the material recovery could be allocated to the respective domains, but would be kept under CEPA 3 Waste management). For further elaboration on this subject, see chapter 7.

2. Second step: Identify National accounts products that are to be defined as environmental.

2a: Identify the environmental products in the Norwegian National accounts using the list developed by Eurostat. In practice this means to identify if there are products in the Norwegian National accounts that are identical to the CPA-products listed by Eurostat.

2b: Identify sources that can be used to calculate the environmental share of the products in the Norwegian National accounts that are to be defined as partly environmental.

2c: Identify sources in order to classify the NA-products according to CEPA and CReMA domains where the products are aggregated.

Expected outcome from the second compilation step:

A file listing all national accounts products (NA-products) that are regarded as environmental. The NA-products will be marked either as 100 % environmental, or with a value between 0 and 99 identifying the percentage of the product that is regarded as environmental. In addition, each of the NA-products in the list will be marked with a CEPA or CReMA domain, or a mix of different CEPA and/or CReMA domains.

Preliminary conclusions from the second step:

A study of the EGSS list developed by Eurostat has been undertaken. The list was matched to the Norwegian CPA list to identify which national account products that can be used directly to identify the environmental products. In the cases where the national account products were too aggregate or didn't identify the environmental part of the product PRODCOM was investigated for the manufacturing industries.

The overall conclusion of the study was that the EGSS list cannot be used directly in most of the cases. Additional information is needed to separate the environmental share of most of the products. Further work is necessary in order to identify the percentage in the NACE-activities and NA-products.

Annex A gives a detailed analysis of the comparison of the Eurostat EGSS list and the Norwegian CPA list where each environmental domain was thoroughly examined.

3. Third step: Other sources not comparable to NACE-activities or NA-products

Identify sources that for particular reasons cannot be classified according to NACE-categories or NA-products but still is a source of information in order to identify the EGS-sector. In practice this means that the information obtained using these sources will not be included in any files that will be used as input to the national accounts. This might be relevant for some CEPA or CReMA domains for which there exist external statistics covering specific areas of the EGS-sector, but not directly comparable to any of the detailed NACE-categories or NA-products. This information will be used directly as a source for the statistics for the EGS-sector without having been harmonized with the national accounts data.

Data sources outside the National Accounts proposed by Eurostat are structural business statistics and industrial commodity statistics (PRODCOM) where the entire industry or enterprise are EGSS, if not it is proposed to use surveys, estimated shares based on other variables or physical data. It is proposed to use turnover from SBS (Structural Business Statistics) as a proxy for market output when the definitions are not entirely compatible.

Expected outcome from the third compilation step:

A file that has converted the relevant sources into usable input-data for the statistics on the EGS-sector. The strategy is to limit the amount of these files since each of these files will need to be treated differently according to the source-data that have been found and the information in these files have not been based on the national account data.

Preliminary conclusions from the third step:

Several data sources have been identified as applicable for use as a direct input into the EGS-sector. The main sources are for organic agriculture and production of renewable energy. For organic agriculture Debio (organic certification) and the Norwegian Agricultural Authority are important sources. For production of renewable energy the energy statistics can presumably be used (additional work on this area will be done in 2014). Several studies have been done both at Statistics Norway and in the practical guide now in writing at Eurostat.

Further work is needed to map other sources and information to further identify the EGS-sector.

4. The fourth step: Compiling and presenting statistics for the EGS-sector

This step will need to include some kind of system to be established in order to

- compile the input files in an effective process
- run the input files through the national accounts system
- have an effective system to systematize the data received from the national accounts as well as possible other data
- fill in the reporting tables to Eurostat and present the results nationally

The three first compilation steps must be finalised before work with the establishment of an IT-solution can start.

General comments:

We know it will be a challenge to develop the suggested NA-product and NA-activity lists for the output in the EGS-sector. In particular challenges are expected in relation to the identification of the adapted goods. In the further work, the environmental and resource management domains will have to be prioritized according to which areas that are to be compiled first. It could also be a possible solution that some of these domains or some of the NACE categories are to be compiled using a different and less resource demanding method.

3.3.2. Suggested compilation method for non-market output of EGS

Although the non-market output in the EGS-sector is voluntary data to report, the basic data needed in order to compile these figures can be found in the government statistics. The following steps have been identified in order to identify the data needed in order to report the non-market data from the government sector:

1: The first step: Identify the environmental expenditure in COFOG and KOSTRA.

Identify the general government expenditure that is defined as environmental.

2: Second step: Classify the environmental expenditure by environmental and resource management domain.

Expected outcome from the two steps:

The expected outcome from these two steps is a file specifying the environmental expenditure from General Government classified by environmental and resource management domains (CEPA and CReMA).

Preliminary conclusions from the two steps:

This file will be compiled in connection with the compilation of the requested government data needed for the EPEA-tables.

3.4. A preliminary compilation method for the export figures in the EGS-sector

All necessary figures for export of goods and services from the EGS-sector, divided by NACE-industries (NACE rev. 2 A21) classified according to environmental and resource management domains can not be found directly in existing trade statistics.

A preliminary method for compiling export figures has therefore been developed and will serve as the starting point for further work when developing the statistics for the EGS-sector.

The Eurostat proposed data sources are the foreign trade statistics and national accounts. It is also these two data sources that will be further looked into as possible sources for the Norwegian export figures in the EGS-sector.

The preliminary compilation method for the export figures in the EGS-sector has two, rather similar, optional starting points.

The first option is to use the national accounts as a direct source of information for the export from those NACE-industries (NACE rev. 2 A*21) defined as 100 per cent environmental.

Then for export from the EGS-sector outside the NACE-industries defined as 100 per cent environmental, Statistics Norway will look into the possibilities of using the NA-product list for environmental goods and services developed for the compilation of the output in the EGS-sector (see step 2 in chapter 3.2) as a starting point. This product list will then have to be converted from NA-products to CN-products.

The second option is to start directly to convert the NA-product list for environmental goods and services developed for the compilation of the output in the EGS-sector as a starting point. Instead of receiving some of the export figures from the national accounts and some figures from the trade statistics, we will only have to use one main source for the export data, and all the export data will have the same format. Using national accounts data for parts of the export figures will not give details about what products and to what countries the products have been exported. These details are not obligatory data to report, but could be "nice to know" when analysing the export from the EGS-sector.

The preliminary compilation method for the export figures in the EGS-sector is based on the second option described above, i.e. converting the NA-product list for environmental goods and services developed for the compilation of the output in the EGS-sector to CN-products.

1. First step: Identify those CPA-products that have a 1:1 relationship with the CN-products. In practice this means to identify which areas where the NA-product list for environmental goods and services can be used directly as a source.

One could have situations where one CPA-product covers several CN-products. This is not considered to be a problem.

One could have situations where one CPA-product defined as environmental and one CPA not defined as environmental cover one CN-product. In this situation only a part of the CN-product is to be defined as environmental.

2. Second step: For the CPA-products that in the NA-product list for environmental goods and services only are defined as partial environmental, the same percentage cannot necessarily be converted to the CN-product.

Other sources may be studied in order to see if they can provide information that will help in identifying the CN-products regarded as environmental or to split the CN-products.

One could also have situations where one CPA-product defined as partial environmental covers several CN-products or the opposite. In both situations the challenge is to decide which CN-products to define as environmental or to decide a percentage of the CN-product to be defined as environmental.

An important part of this step is to establish criteria in order to decide when it is considered acceptable to use the same percentages for the CN-products as used for the CPA-products in the NA-product list for environmental goods and services and when other percentages have to be used.

Although the CN-products in most cases are more detailed than the CPA-products, we do not expect that there are substantially more CN-products defined as 100 per cent environmental than is the case with the CPA-products.

3. Third step: Classifying the CN-products according to CEPA and CReMA domains. It is expected that this step is a relatively straightforward converting procedure for the CEPA and CReMA domains used for the CPA-products in the NA-product list for environmental goods and services developed for the compilation of the output in the EGS-sector.

Expected outcome from these three compilation steps:

The expected outcome is a list of all the CN-products that are defined as 100 per cent environmental or partially defined as environmental (percentage between 0 and 100). In addition, CEPA or CReMA domains are to be assigned each of the CN-products.

Possibilities must be looked into in order to link this list to the trade statistics (and/or the national accounts) in order to get data for export values divided by NACE industries.

Preliminary conclusions:

This preliminary compilation method for the export figures in the EGS-sector heavily depends on the success of developing a NA-product list of environmental goods and services developed for the compilation of the output in the EGS-sector. It is expected, as is also the situation with the output-data, that the biggest challenges will be related to the export of the adapted goods.

3.5. Recommended compilation method for employment in the EGS-sector

In order to compile the employment in the EGS-sector, there is a need to know the number of employees that are involved in the production of the environmental goods and services. From existing data sources, this is only known for the NACE-categories defined as 100 per cent within the EGS-sector.

Data source proposed by Eurostat is the employment statistics. However, if a NACE-category or an establishments' output is not 100 per cent EGSS, then the employment have to be estimated by the share of the EGSS output of the total output.

In Statistics Norway, the employment statistics does not have additional information necessary to identify the employment in the EGS-sector outside those NACE-categories defined as 100 per cent within the EGS-sector.

The most relevant employment statistics to be used as a source in the statistics for the EGS-sector is register based. As long as there is no information about the employment in the EGS-sector in these registers, it will be difficult to incorporate this kind of information in the employment statistics. Other methods must therefore be looked into first.

Eurostat recommends a basic model for the estimation of the employment in the EGS-sector. Since the EGSS module compiles data on employment directly linked with the production of EGSS output, a relatively simple method to compile employment figures is to combine the estimates of the output from the EGS-sector by industry with national accounts data on wages and employment by industry. Industry specific labour intensity coefficients can be multiplied with the output-figures from the EGS-sector to estimate the employment in the EGS-sector. This approach seems to be satisfactory for all industries whose major part of production is in the EGS-sector. However, the lower the share of EGS in total production of an industry, the bigger is the uncertainty concerning the representativeness of the industries' labour intensities for the EGS-sector. The representativeness may then depend on the similarity between the technologies applied in the production of the EGS and the non-EGS output within an industry. For example, the labour intensity in the production of low air emission cars may be not much different from the one in the production of normal cars, whereas different technologies used in the production of electricity from renewable and non-renewable sources may result in different intensities.

The model for employment in the EGS-sector uses the same framework as the model for the output in the EGS-sector. For better international comparison employment should be measured in full time equivalent (FTE) rather than in number of persons employed. Employment in the EGS-sector broken down by industries and environmental activities is estimated from the output in the EGS-sector linked with national accounts information on the ratios between compensation of employees and output (these ratios are called hereafter 'c-ratios') and labour compensation rates per FTE (these ratios are called hereafter 'w-ratios'):

$$EGSS_Emp_{cepa/crema, nace} = EGSS_P1_{cepa/crema, nace} * c-ratio_{nace} / w-ratio_{nace}$$

with:

$$c-ratio_{nace} = NA_D1_{nace} / NA_P1_{nace} \text{ and } w-ratio_{nace} = NA_D1_{nace} / FTE_{nace}$$

where:

$EGSS_Emp_{cepa/crema, nace}$: Employment cross-classified by industries and environmental activities (EGSS)

$EGSS_P1_{cepa/crema, na}$: Output cross-classified by industries and environmental activities (EGSS)

NA_D1_{nace} : Compensation of employees by industries (NA)

NA_P1_{nace} : Output by industries (NA)

FTE_{nace} : Employment by industries in full time equivalents

The basic assumption in this approach is that the average labour compensation rates and intensities for an industry are sufficiently precise indicators for the EGS activities within the same industry.

In principle the quotient of c- and w-ratios in the above formula could be replaced by the ratio ' FTE_{nace}/NA_PI_{nace} '. However, for plausibility checks of the data it is easier to interpret the c- and w-ratios than directly the FTE to output ratio. Also, in case that the employment data have gaps it is easier to estimate the c- and w-ratios separately than to directly estimate their combined ratio.

As explained earlier in this chapter, the basic assumption of the estimation approach is that the labour compensation rates and intensities in an industry are sufficiently precise indicators for the EGS activities within the same industry. The method described above may, however, be supplemented by information that allows capturing differences in the labour compensation rates and intensities.

Data on wage to output ratios and wages per employee or full time equivalents for a certain industry may not be a good proxy for the EGS-related employment within the same industry. Therefore additional information may be needed to improve the estimates.

Eurostat recommends using results from specific surveys on EGS-activities that ask for the wages, number of employees, full time equivalents may be used for this purpose. To reduce the financial burden of statistical production as well as the burden of survey respondents and at the same time to maintain a high level of quality, detail and coverage in the EGS-sector statistics it may be meaningful to combine the survey based approach with the data integration approach. For example, in some areas (e.g. manufacture of machinery and equipment, construction, architectural and engineering services) producers may be surveyed only every two to five years and for the intermediate years the survey data could be linked with the result from the data integration approach. Such an approach may significantly reduce the statistical burden while maintaining a high level of statistical quality and detail in the EGSS module.

Preliminary conclusions:

Statistics Norway's main employment statistics is register-based, and it is therefore not a desirable first solution to use surveys in order to receive information on the employment in the EGS-sector. Other solutions will first have to be examined. One of the possible solutions is to examine for which industries the Eurostat recommended approach, i.e. calculating average labour compensation rates and intensities for an industry, are seen as sufficiently precise indicators for the EGS activities.

3.6. Recommended compilation method for value added in the EGS-sector

In order to compile the value added for the industries in the EGS-sector, there is a need to know the value of the output and the intermediate consumption. Output is already known, but the intermediate consumption used in order to produce the environmental goods and services is not known unless for the NACE-categories defined as 100 per cent within the EGS-sector.

The data sources proposed by Eurostat for this purpose are the National Accounts and Structural Business Statistics (SBS). However, the value added may be difficult to estimate if there is not a one-to-one relationship between production/output and value added.

Eurostat recommends a basic model for the estimation of the gross value added in the EGS-sector.

The model for EGSS gross valued added (GVA) uses the same framework as the models for EGSS output and employment.

EGSS GVA broken down by industries and environmental activities is estimated from EGSS output linked with national accounts information on the ratios between gross valued added and output. Gross valued added covers compensation of employees, net operating surplus and mixed income and the consumption of fixed capital:

$$\text{EGSS_BIG}_{\text{cepa/crema, nace}} = \text{EGSS_P1}_{\text{cepa/crema, nace}} * \frac{(\text{NA_D1}_{\text{nace}} + \text{NA_B2NB3N}_{\text{nace}} + \text{NA_K1}_{\text{nace}})}{\text{NA_P1}_{\text{nace}}}$$

where:

$\text{EGSS_BIG}_{\text{cepa/crema, nace}}$: Gross valued added cross-classified by industries and environmental activities (EGSS)

$\text{EGSS_P1}_{\text{cepa/crema, nace}}$: Output cross-classified by industries and environmental activities (EGSS)

$\text{NA_D1}_{\text{nace}}$: Compensation of employees by industries (NA)

$\text{NA_B2NB3N}_{\text{nace}}$: Net operating surplus and net mixed income by industries (NA)

$\text{NA_K1}_{\text{nace}}$: Consumption of fixed capital by industries (NA)

$\text{NA_P1}_{\text{nace}}$: Output by industries (NA)

The basic assumption in this approach is that the average gross value added shares in output for an industry are sufficiently precise indicators for the EGS-sector activities within the same industry. This will be true for those NACE categories where the production of EGS constitutes a major part of the production. In other situations, it is not sure that this method is sufficiently good for estimating the value added in the EGS-sectors.

Preliminary conclusions:

We see the compilation of the value added in the EGS-sector as one of the most resource demanding variables to estimate. How this will be done has not yet been decided upon. One of the first studies to be done, is to analyze for which industries the Eurostat recommended approach, i.e. calculating the average gross value added shares in output for an industry, will be regarded as a sufficiently precise indicators for the EGS-activities.

4. Potential data sources in Statistics Norway

The use of each source can be limited to some products and characteristics and not applicable to the entire population of EGSS.

4.1. National Accounts

4.1.1. Why is the national accounts data a potential data source?

The data to be reported on environmental goods and services are to be fully compatible with the data reported under ESA (European System of Accounts). Since the National Accounts is a part of this system, the EGSS data are to be fully compatible with the National Accounts. Furthermore, EGSS is a part of environmental accounting and environmental accounting as a satellite account to the National Accounts.

This makes the National Accounts a good starting point in the mapping of available data on EGSS. In addition, the activities considered in the definition of the EGSS are production activities in the sense of National Accounts.

The National Accounts also use systems that are compatible with other statistics. However, the National Accounts publish data on a very aggregate level (NACE Rev. 2 A*64). Since the data on EGS require a very detailed level to be able to identify the environmental sector of the economy, the National Accounts might not be used directly in the data compilation. It is as of now only possible to apply this on the so-called core industries within the EGSS. These are NACE 37-39.

Since the National Accounts use the Structural Business Statistics (SBS) as a data source, it contains all the characteristics required in the future reporting of EGSS. However, as stated before, this is on a much more aggregate level than required, but may serve as an upper limit when using other data sources or calculations to estimate the proper level of details.

4.1.2. Classification of products in the national accounts

The classification of products by activity (CPA) is a complete list of products covering goods and services. The four first digits in the CPA code is equivalent to the first four digits in the NACE codes.

There are both international CPA codes and national versions of CPA codes adapted to national conditions in the level of detail.

4.1.3. What data from the NA can directly be used in the EGS-statistics?

The NACE industries may serve as an identifier of the EGSS producers. A study of the NACE industries shows that figures for some industries can be used directly. These are the industries NACE 37-39 dealing with sewerage, waste and remediation activities. Some subgroups might also be identified by NACE industries. Additional information may be needed for the required level of detail for the environmental goods and services.

In Statistics Norway, the export figures in the national accounts are not broken down by products. This means that the national accounts can only be used for those NACE categories that are defined as 100 per cent within the EGS-sector.

4.2. PRODCOM

4.2.1. Why is the Prodcom-statistics a potential data source?

The term PRODCOM comes from the French "PRODUCTION COMMunautaire". It is a system for classification of manufactured goods and as with CPA it has a European system and a national one. The PRODCOM codes can be used within

EGSS in the cases where CPA is not detailed enough to get the environmental share of more aggregate levels of products. The PRODCOM is a 8 digit levelled classification system with the same structure as CPA, but with more details about the manufactured goods since CPA only has 6 digits. However, the PRODCOM is somewhat limited since it only covers the manufacturing industries and mining and quarrying (NACE 03, 05, 07-08, 10-33) and not all the economic activities. In addition, PRODCOM only covers goods and not services.

The survey of PRODCOM is on enterprise level, this means that manufacturing of goods in local-kind-of-activity units in enterprises situated in other industries is not included. This may give some deviation to the National Accounts which uses local-kind-of-activity units

4.2.2. What data from the PRODCOM can directly be used in the EGS-statistics?

The PRODCOM can mainly be used as a source when the detailed EGS products in the manufacturing industries and mining and quarrying cannot be directly identified in the national accounts and through the CPA codes. The PRODCOM can then be used to find shares of more aggregate products of CPA down to more detailed information, i.e. from a 6 digit level in CPA to an 8 digit level in PRODCOM.

The results from the project showed that PRODCOM gives the detailed level needed in the EGSS for some products. However, there are still some products where the environmental share needs to be calculated with the use of other data sources. Further investigation also revealed that some products listed as EGS in Eurostat were actually not present in Norway, i.e. some of the products are not produced in Norway.

PRODCOM can either be used directly into EGSS where the environmental products are identified or it can be used as input for the national account products to determine the environmental share in more aggregated products.

4.3. Energy statistics

4.3.1. Why is the energy statistics a potential data source?

The energy statistics can be used to calculate the production of renewable energy, including hydro power, wind energy and district heating. We can also get data on ancillary energy production within the manufacturing, mining and quarrying industry. A case study on the renewable energy sector was done in 2008 and made up the groundwork within this area. Some questions may still remain to be answered.

The official statistics cover energy produced and consumed in physical units, but no economic figures. To estimate the corresponding economic value of the energy produced for own consumption, we have to use prices for substitute energy.

4.3.2. What data from the energy statistics can directly be used in the EGS-statistics?

It has not yet been examined in detailed what data from the energy statistics that can be used. This will be done when statistics for CReMA 13 will be further examined in a project planned for 2014.

4.4. Trade statistics

4.4.1. Why is the trade statistics a potential data source?

The trade statistics is the main source of data for the compilation of export data and serves as the source for nearly all trade-data that are used in various statistics in Statistics Norway.

In relation to the export from the EGS-sector, it is particularly two trade statistics that are of interest:

- External trade in goods
- External trade in services.

The external trade statistics are a part of the national and international statistical system, and are used in the compilation of the national accounts and the balance of payment statistics in Statistics Norway. Both trade statistics coincides with the economic territory and are therefore using the same boundaries as the statistics for the EGS-sector.

The external trade statistics on goods is classifying the goods in accordance with the six-digit HS-based commodity classification. National adjustments are made at the national eight-digit level. The HS-based commodity classification is harmonised with the CPA-product classification in use in the national accounts.

The external trade statistics on services is classifying the services according to the EU classification of products by activity (CPA).

Both external trade statistics also classify the total export and import according to NACE-activities, but published data is on a rather aggregated level.

4.4.2. What data from the trade statistics can directly be used in the EGS-statistics?

The external trade statistics is being compiled using classification systems for both goods, services and activities that are comparable with the classifications elsewhere used in statistics for the EGS-sector, making it a good starting point for the compilation of export figures in the EGS-sector.

However, this also means that the same challenges that we meet when using the national accounts data also are applicable to the trade statistics. It will only be figures for those products (CPA and/or CN) and those NACE-industries that are defined as 100 per cent environmental that can be collected directly from the trade statistics. For the activities defined as 100 per cent environmental, the national accounts can also be used as a source for the export figures.

4.5. COFOG

4.5.1. Why is COFOG-statistics a potential data source?

COFOG is short for the Classification of the Functions of Government. The allocation of expenditure by a COFOG code is made using the purpose criterion or the individual term of expenditure. However, as all expenditure should be classified under one and only one position of the COFOG, in some cases, expenditure might be classified under an item other than the environmental one.

Revenues and expenditure are classified in main groups according to type. The division by type is based on the National Accounts' chart of accounts (NACE and CPA).

Environmental protection has its own division (04, economic affairs) with groups based on the environmental domains in the CEPA. Unlike in the case of

environmental protection, there is not a full division of COFOG dedicated to resource management (RM). RM expenditure carried out by General Government is mainly classified within divisions four and six of COFOG, together with other non-environmental expenditure, as e.g. energy conservation/renewable energy (COFOG 04) and expenditure related to low energy/passive buildings (COFOG 06, housing and community amenities).

A part of the Eurostat grant project for 2014 is to look into the COFOG and improve the quality of the government expenditure related to environmental protection expenditure (EP) and resource management (RM). This includes a method to identify the expenditure on EP and RM as a second purpose criterion for government expenditure in addition to the first purpose criterion used in COFOG.

4.5.2. What data from the COFOG-statistics can directly be used in the EGS-statistics?

The data from COFOG can be used to report non-market output, value added and employment within EGSS. Since structure is compatible with the National Accounts the data can be allocated by economic activity.

4.6. KOSTRA (Municipality-State-Reporting)

4.6.1. Why is KOSTRA statistics a potential data source?

KOSTRA (Municipality-State-Reporting) is a national information system that provides information on municipal and county municipal activities.

The financial reports in KOSTRA have a detailed breakdown in cost/income *purpose* categories and cost/income *type* categories. These accounts are a potential data source for identification of parts of the EGS related output and value added in General government. As COFOG covers the central government, KOSTRA covers the local government.

The key figures in KOSTRA provide information on most of the municipal and county municipal activities, including economy, schools, health, culture, the environment, social services, public housing, technical services and transport and communication.

The cost and income categories are classified following ESA. Because of this structure it is transferable to national account definitions of output and value added in non-marked activities.

The different purpose categories are also given a COFOG classification and are allocated by industry.

4.6.2. What data from KOSTRA can directly be used in the EGS-statistics?

The data from KOSTRA statistics can be used in the EGSS statistics as non-market output, value added and employment for local government. The relevant categories has been evaluated and given a first environmental classification of either a CEPA or CReMA category. Table 4.1 summarizes the purpose categories identified as EGS related.

Table 4.1. EGS-related purpose categories in KOSTRA

Cost/income purpose categories	Name of category	Relevant CEPA/CRReMA categories	100 % EGSS related or less than 100 %	Notes
Municipalities				
350	Waste water treatment	CEPA 2	100 % EGSS related	
353	Sewerage system, collection of waste water	CEPA 2	100 % EGSS related	
354	Emptying of interceptors for sludge, septic tanks etc.	CEPA 2	100 % EGSS related	
355	Collection, recycling and final treatment of household waste	CEPA 3	100 % EGSS related	
320	Municipal business activity	CEPA 3	Less than 100 % EGSS related	Collection and treatment of industrial waste included here
329	Agriculture and forestry management and agriculture and forestry based industrial development	CEPA 1,6,9 CRReMA 11,16	Less than 100 % EGSS related	Elements of ecological agriculture and environment and climate related work connected to agriculture and forestry included here
340	Production of water	CRReMA 10	Less than 100 % EGSS related	If expenses connected to purification, filtration, water samples are included
345	Distribution of water	CRReMA 10	Less than 100 % EGSS related	If expenses connected to leakages/loss of water are included
360	Nature management and outdoor life	CEPA 6, CRReMA 12	Less than 100 % EGSS related	Management of freshwater fish and game species, mapping of biological diversity, and measures to maintain nature values included here
County authorities				
716	Outdoor life, water region authority and management of game species and freshwater fish. Collection of environmental data	CRReMA 10, 12	Less than 100 % EGSS related	

4.7. Statistics for Primary industries

4.7.1. Why is primary industries statistics a potential data source

For the primary industries there are several sources of data that can be used in the production of EGSS related statistics. The main area for of concern for EGSS is organic farming. Such data are relevant for CEPA 4. The national accounts have data on agriculture in total, but not specifically on organic agriculture.

The Division for primary industry statistics in Statistics Norway produces statistics on agriculture, forestry, fisheries, aquaculture and hunting.

The Division for primary industries statistics also has more trade knowledge concerning external potential data sources with regard to possible input data to several CEPA and CRReMA categories. This applies to for example biodiversity, forest, fish and fisheries, management of game species, etc. This can be of value concerning further development of EGSS statistics.

Debio, the institution that certify all providers of organic products in Norway, and The Norwegian Agricultural Authority are important external data sources concerning organic farming (see chapter 5).

4.7.2. What data from the primary industries statistics can directly be used in the EGS-statistics?

Official primary industries statistics from Statistics Norway relevant for EGSS mainly include data on the number and area of organic farms. Data on employment in organic agriculture is not published, but some information may be derived from the Agricultural censuses and from sample surveys.

Another area where primary industries statistics may be relevant is forestry with data on i.a. lumbering, forest planting and silviculture, reforestation and forest areas reckoned as economically profitable.

Statistics on pesticide use that i.a. include data on the use of biological control agents may also be EGSS relevant.

4.8. Employment statistics

4.8.1. Why is employment statistics a potential data source

Within the statistics covering labour markets and earning, there are several statistics covering employment.

There are particularly two statistics that could be of interest as possible sources for the employment figures in the EGS-sector. These are the “Labour force statistics” and the “Labour market and employment statistics”.

The total number of employed persons is the same in these two statistics, but due to different sources of data, differences occur when the figures are distributed by sex, age, industrial code, working hours and region.

The labour force statistics is survey-based and conducted using interviews, while the labour market and employments statistics are based on several registers. The most important ones are The Register of Employers and Employees, The Register of End of the Year Certificates (Register of Wage Sums), The Register for Personal Tax Payers, The Register of Unemployed and The Central Coordinating Register for Legal Entities (business register).

Both statistics are in accordance with the revised Standard Industrial Classification (NOS D 383), which is based on the EU-standard of NACE Rev. 2 and the occupational classification is in accordance with Standard Classification of Occupations (NOS C 521), which is based on ISCO 88 (COM).

4.8.2. What data from the labour statistics can directly be used in the EGS-statistics?

It is only employment in the NACE-industries defined as 100 per cent environmental at a 2-digit level that directly can be identified in the “Labour force statistics” and the “Labour market and employment statistics”.

4.9. R&D statistics

4.9.1. Why is R&D statistics a potential data source?

The research and development statistics include figures for the business enterprise sector based on an annual survey. The statistics covers the variables R&D personnel, intramural R&D expenditure and extramural R&D expenditure. The classifications used are the NACE Rev. 2 and different size classes by number of employees.

Included in the R&D-statistics are also statistics covering research in environmental and resource management issues. This kind of information is not identified in the R&D-statistics in Statistics Norway.

4.9.2. What data from the R&D statistics can directly be used in the EGS-statistics?

The R&D statistics cannot be used directly because of the classifications and aggregate figures for R&D expenditure. It can however be used as an indicator if other sources are to be used.

5. Potential external data sources

The review of the existing data sources in Statistics Norway shows that in order to compile the statistics for the EGS-sector requested according to the proposed legal text, additional information is needed. It is particular a need of additional information in order to decide the environmental share in those NA-products or NACE-industries not defined as 100 per cent included in the EGS-sector.

Some potential data sources outside Statistics Norway have been examined in order to see if these sources can be useful in order to give more information. This applies particularly to the identification of the EGS-sector within NACE 01, Agriculture, i.e. what part of the output that could be defined as organic farming.

All providers of organic products in Norway are certified by Debio. This organization ensure that approved farms and fish farms, processing and marketing enterprises, importers and others follow the regulations for organic production, and meet the requirements for marketing organic products under Debio's Ø-label (eco label). An important aspect is that even if an enterprise is approved as an organic farm, it is not given that the entire market output of the farming is organic. Debio annually publishes a statistical report that i.a. includes data on the number and area of farms with organic production and organic husbandry.

In order to either get data on the market output of organic agriculture or to get the share of the total market output, data from The Norwegian Agricultural Authority can be used. The Norwegian Agricultural Authority compiles statistics on organic farming and publishes reports including data on the production and turnover of agricultural products¹.

Other potential external sources will be examined as part of the further work when examined varies environmental and resource management domains. It was also found necessary to find some criteria for deciding what are to be defined as an adapted good before further analysing the external sources. This was outside the scope of this project.

¹ Norwegian Agricultural Authority: Produksjon og omsetning av økologiske landbruksvarer (Production and sales of organic agricultural products). Rapport for 2012 - in Norwegian.

6. Applications of the data from the EGS-sector

In this chapter the statistical products and indicators that theoretically can be developed based on data on the statistics for the EGS-sector will be presented. Also possible national needs that have been identified through the project, i.e. what policy questions could potentially be answered, will be summarized.

6.1. Why statistics for the EGS-sector?

The environmental sector is often referred to as an area where the growth potential is regarded as substantial, especially in relation to sustainable development and green growth. This growth in environmental economic activities may create new jobs. Policymakers therefore ask for information on enterprises and institutions that produce environmental goods and services.

The statistics for the EGS-sector was developed with the intention to be able to shed light on the production of products in the environmental sector and to be relevant for the measuring of a “green” economy (SEEA extensions and applications). The main intentions of establishing statistics for the EGS-sector have been:

- To provide information on the extent to which the economy may become more environmentally friendly and resource efficient
- To assess the extent to which the economy is responding to various public policies and initiatives that have this objective in mind
- To evaluate policy initiatives and the labour market impact of economic activity related to protecting the environment and conserving natural resources
- To identify knowledge gaps, promote policies and measures to achieve
- To permit cross-country comparison and assessment of best practice

6.2. Main indicators to be developed based on statistics for the EGS-sector

The most common indicators and aggregates to calculate based on the statistics for the EGS-sector are developed in order to show the importance of environmentally-related activities in the economy and characterize these activities by revealing their contribution to employment, to the economy as a whole, and to export. Examples are:

- How economic actors react on pressure from environmental and natural resource constraints.
- How much of the economies’ production factors are engaged in producing goods and services that are used for environmental protection and resource management, domestically and abroad.
- EGSS data can be used to analyse the relationship between environmental policies and economic development.
- Economic opportunities related to environmental protection and resource management
- Analysis of the share of the environmental sector compared to the entire economy.
- The employment figures can be used to assess the magnitude of the environmental sector and it can give an idea of the productivity and labour intensity of the sector and in the environmental domains.
- Shift of employment from other sectors are also of interest.
- Analysis of export figures; the percentage of the production that is exported, the competitive disadvantage etc.
- Analysis of the public and private ownership in the environmental sector.

The EGSS includes a broad set of activities, including ‘traditional’ activities like waste and wastewater treatment, but also innovative activities like the development of new environmental friendly technologies. EGSS activities often replace other, environmental harmful activities, for example through the production of renewable energy in place of the burning of fossil fuels. To provide useful indicators for policy for new economic activities it may be useful to look at certain aspects of the EGSS, like the growth of enterprises involved in producing equipment for renewable energy production or research and development activities.

Comparing data on the EGSS by environmental activity domains reveals which are the most important domains of specialization for environmental producers in a country. One area of particular interest is the part of the EGSS belonging to the so-called ‘sustainable energy sector’ which consists of all enterprises that physically produce renewable energy (exploitation phase) as well as enterprises active in pre-exploitation phases. Apart from the production of renewable energy, the sustainable energy sector also includes enterprises that focus on designing and producing energy saving activities and products.

The SEEA Central Framework explains that the output of the EGS-sector statistics may be considered in terms of environmental specific services, sole-purpose products, adapted goods, end-of-pipe technologies and integrated technologies. In comparing the figures for the different types of environmental goods, technologies and services, this analysis can highlight, for example, the importance of cleaner (less polluting) and resource-efficient technologies compared to end-of-pipe technologies. This is very important in the case of raising the awareness on the type of environmental output, in particular adapted goods and integrated technologies for which its development represents one of the most important goals of policies towards sustainable development. Given the challenges of compiling good quality estimates of the production of adapted goods, particular attention should be paid to the analyzing of these data. Adapted goods include goods that have been specifically modified to be more “environmentally friendly” or “cleaner”. In principle, no activity or product has environment as its main purpose. All activities are driven by the incentives of maximizing output/profit at given costs, no matter what is produced. All products change over time typically becoming more energy efficient so again it is not possible to draw principal lines.

Although the production of environmental goods and services and employment in the EGS-sector reflect an important aspect of the transformation to a more sustainable and resource efficient economy, one must remember when analyzing the statistics for the EGS-sector that actions in ‘traditional’ industries can also move an economy towards a low carbon, resource efficient growth path. These changes, while often driven by cost or competitiveness considerations rather than environmental concerns, can have a significant impact.

It is also important to remember that employment in the EGS-sector should thus not necessarily be defined as being “green” jobs. So far there is no internationally agreed upon definition of “green” jobs. “Green” jobs can be found in any sector or industry throughout the economy, independently of whether particular products serve environmental purposes. SEEA states that the advantage of using indicators based on the EGS-sector statistics is that there is an international agreement about the definitions and classifications to be used.

6.3. Sustainable development indicators – are EGS-sector data relevant?

The demand for EGS-sector data has been related to both green growth and to sustainable development. Statistics for the EGS-sector are essential in the OECD green growth indicator set, where the EGS-sector data is mentioned explicitly. But what about the sustainable development indicator sets? An assessment of indicators

in two international indicator sets has been made in order to get an impression of whether EGSS data could be an important data source:

- A. Sustainable development indicators in the EU set of sustainable development indicators (EU SDI).
- B. The SDI set proposed in the report «Framework and suggested indicators to measure sustainable development» (Joint UNECE/Eurostat/OECD Task Force on Measuring Sustainable Development).
- C. The Norwegian SDI set has also been assessed.

6.3.1. The EU SDI

Table 6.1 lists the indicators we have identified, of a total of about 200 indicators, including suggestions for indicators to be developed, that may have relevance to EGS-sector data.

Table 6.1. Indicators from the EU SDI set that might have relevance to EGS-sector data

Issue	Theme	Indicator	Sources/comments
Socioeconomic development ...	Innovation, competitiveness and eco-efficiency	tsdec320: Total R&D expenditure	Data from «CEPA 8 Research and development» may be relevant as supplementary information. Data from «CReMA 15 Research and development activities for natural resource management» also relevant. For this issue R&D expenditure relevant to SD is proposed as an indicator in the EU set (but under «indicators to be developed»). EGSS data might be especially relevant for such an indicator. EGSS data for several CEPA/CReMA categories may be relevant for another indicator listed under «indicators to be developed»; Eco-innovations.
Sustainable consumption and production	Resource use and waste	tsdpc240: Municipal waste treatment, by type of treatment method	Recycled and composted municipal waste: This indicator concerns amounts of waste. Selected data from «CEPA 3 Waste management» may be relevant as supplementary information. Selected data from CEPA 3 also relevant for the indicator «Generation of hazardous waste by economic activity» (to be developed).
	Production patterns	tsdpc420: Ecolabel licences	EGSS data may be relevant as supplementary information. For the issue «Sustainable consumption and production», the indicators - Share of industrial production from enterprises with a formal environmental management system - Share of production of products with an ecolabel - Employment in the environmental goods and services sector are listed under «Indicators to be developed». For the first two indicators data for several CEPA/CReMA categories may be relevant at least as supplementary information. The third indicator must be based on EGSS-data.
Climate change and energy	Energy	tsdcc330: Electricity generated from renewable sources	Selected data from «CReMA 13a Production of energy from renewable resources» may be relevant as supplementary information.
Natural resources	Fresh water resources	tsdnr310: Surface and groundwater abstraction as a share of available resources	Selected data from «CReMA 10 Management of water» may be relevant as supplementary information.

6.3.2. Framework and suggested indicators to measure sustainable development

Table 6.2 lists the indicators we have identified, of a total of 90 indicators (large set – thematic categorization), that we found that may have relevance to EGS-sector data.

Table 6.2. Indicators from the Joint UNECE/Eurostat/OECD-report on measuring SD

Theme	Indicator	Sources/comments
TH14 Energy resources	62. Renewable energy	Selected data from «CReMA 13a Production of energy from renewable resources» may be relevant as supplementary information
TH19 Knowledge capital	83. R&D expenditure	Data from «CEPA 8 Research and development» may be relevant as supplementary information. Data from «CReMA 15 Research and development activities for natural resource management» may also be relevant.

6.3.3. The Norwegian SDI set

EGS-sector data have not been found to be of direct relevance for any of the 17 indicators currently included in the Norwegian set of indicators of sustainable development (see table 6.3). However, selected EGS-sector data may be of relevance as supplementary information in a broader description of some of the priority areas of the Norwegian strategy for sustainable development.

Table 6.3. Norway's national set of sustainable development indicators

Priority areas	Indicators
International cooperation for sustainable development and combating poverty	1. Norwegian official development assistance, in NOK and as percentage of gross national income 2. Imports from least developed countries and from all developing countries as percentage of total imports to Norway
Climate, ozone and long-range air pollution	3. Norwegian emissions of greenhouse gases compared with the Kyoto Protocol target 4. Emissions of NO _x , NH ₃ , SO ₂ and NMVOCs compared with the Gothenburg Protocol target
Biodiversity and cultural heritage	5. Nature index. Ocean and coastal ecosystems 6. Nature index. Inland waters and terrestrial ecosystems 7. Trend in standard of maintenance of protected buildings
Natural resources	8. Energy use per unit of GDP 9. Size of spawning stock of Northeast Arctic cod, Norwegian spring-spawning herring, Northeast Arctic saithe and North Sea cod compared with the precautionary reference points 10. Irreversible losses of biologically productive areas
Hazardous substances	11. Potential exposure to hazardous substances
Sustainable economic and social development	12. Net national income per capita by sources of income 13. Trends in income distribution 14. Generational accounts: Need to tighten public sector finances as a share of GDP 15. Population by highest level of educational attainment 16. Disability pensioners and persons receiving work assessment allowance as a percentage of the population 17. Life expectancy at birth

6.3.4. Statistics for the EGS-sector – basis for developing new SD indicators?

Statistics for the EGS-sector seem to have a direct relevance for only one of the indicators in the three sets. The indicator «Employment in the environmental goods and services sector», listed as an indicator to be developed in the EU SDI, can only be implemented by using EGS-sector data.

For most of the indicators, EGS-sector data seem only relevant as supplementary data for a more in depth analysis or description of indicators or issues/themes. Furthermore, EGS-sector data may be important as a data source for developing new indicators.

6.4. National user needs for statistics covering the EGS-sector

Green growth, resource efficiency, follow up of Rio+20 as well as the EU 7th environmental action program “Living well, within the limits of our planet” are in government documents referred to as important aspects of the development of the future social and economic development in Norway. However, in these government documents, very few concrete user needs for statistics in these areas are mentioned.

In order to assess national needs for EGSS data, Statistics Norway invited expert users of environmental statistics to an expert meeting. Among the participants were representatives from Norwegian ministries, directorates and special interest organization. The goal of this meeting was to inform and advocate the implementation of the new module to potential users, and to get input on national needs for EGS-sector data. The meeting was held in cooperation with the EPEA-team. This subchapter sums up the feedback and the output from the meeting.

The main part of the meeting was devoted to inform the expert group on the new modules in the EU-regulation 691/2011. Since statistics on EGS-sector have not yet been published by Statistics Norway, a basic presentation of the subject was given. Different indicators were also presented in addition to possible analyses by linking EGS-sector data to other data sources to advocate for possible uses of data.

Feedback from the expert meeting was:

- The expert group was in general positive to the fact that the statistics for the EGS-sector are to be compiled using the same framework as other accounts such as the national account, energy account, air emission account and environmentally related taxes.
- In general EGS-sector data on CEPA 1 (emissions to air) and CRema 13 (energy) were of interests, although questions were raised regarding measuring these figures.
- Could be interesting to see the statistics for the EGS-sector in relation to cost efficiency and energy efficiency data.
- A concern was raised on the area of comparability between countries when different methods may be used.
- A concern was raised in regard to measure positive and negative effects of the products on the environment related to that one product may have a positive effect on one domain of the environment, but a negative on another.

In general the expert group was a bit expectant to the use of the data and thought it depended on the data quality and presentation of the material.

In total the national user needs are at the current situation limited. We therefore concluded that we have a job to do in order to both compile good quality figures for the EGS-sector as well as having a job to do in order to advertise for possible uses of these data.

7. EGSS and EPEA

The Environmental Protection Expenditure Account (EPEA) is together with the Environmental Goods and Services Sector in the proposed new module in the EU-regulation 691/2011 on environmental accounting.

Environmental protection expenditure are related to environmental protection activities which in turn are defined as *an activity* (involving the use of equipment, labour, manufacturing techniques and practices, information networks or products) where the main purpose is to collect, treat, reduce, prevent or eliminate pollutants and pollution or any other degradation of the environment resulting from the activity of the business.

One can see from the definition that there for the environmental protection domains (CEPA) are some potential overlapping between areas covered by EPEA and EGSS. EPEA does not cover resource management domains (CReMA). An attempt to look closer at the relation between these two modules is made in table 7.1. The table compares requirements for reporting on variables relevant for in the EPEA and EGSS framework. As EPEA should only include activities aimed at environmental protection, the comparison between EPEA and EGSS disregard Resource Management.

Table 7.1. EPEA in relation to EGSS

Characteristic	Module	Requirements for reporting
Market output	EPEA	Obligatory. Includes market output of EP <i>services</i> by general government and specialist producers (NACE rev.2 div.37 - 39)
	EGSS (CEPA)	Obligatory. Includes market output of EP <i>products</i> for general government and corporations (all NACE rev.2 divisions)
Non - market output	EPEA	Obligatory. Includes non-market output of EP <i>services</i> by general government and output of ancillary activities by corporations (NACE B -D and div.36)
	EGSS (CEPA)	Voluntary. Includes ancillary output of EP <i>products</i> by general government and corporations (all NACE rev.2 divisions)
Employment	EPEA	Voluntary. Includes labour input into the production of EP <i>services</i> in full time equivalents for general government, corporations (NACE B - D and div.36) and specialist producers (NACE rev.2 div.37 - 39)
	EGSS (CEPA)	Obligatory. Includes labour input into the production of EP <i>products</i> in full time equivalents for general government and corporations (all NACE rev.2 divisions)
Exports	EPEA	Obligatory. Includes total exports of EP <i>services</i>
	EGSS (CEPA)	Obligatory. Includes exports of EP <i>products</i> for general government and corporations (all NACE rev.2 divisions)

As EP products (environmental protection products) in the EGSS framework include both goods and services, it is clear that some of the data should be reported both in EPEA and EGSS (for example, market output of general government).

This has both positive and negative sides. The advantage is that one module could be used as a source of the data for the other module. In this case, one has to be sure that same boundaries and definitions are used in the reporting tables for EPEA and EGSS so that there is consistency between them. However, it is not always possible to relate to the same boundaries, for example because of the lack of detailed data. Thus there is the possibility of double counting of values or including values in the wrong module.

One example of this is subdivision 38.3 Material Recovery. Our interpretation of the legal act requirements is that all economic activity by producers of services linked to material recovery should be kept outside EPEA legal module, and instead reported as resource management in EGSS. However, it is not possible to separate data on the intermediate consumption, import, export, VAT and other taxes on service for this subdivision. For now, Statistics Norway will only be able to report waste management (CEPA 3) as the sum of economic activity in NACE 38 in the

EPEA module. The compilation of the EGS-sector will have to follow this treatment of NACE 38 in order to have an integrated framework for the environmental accounts. This integrated framework is also a goal at Eurostat where they work to get the different modules using the same terminology and definitions of terms and variables.

8. Future work plan and development

Based on the findings in this project, a work plan has been developed in order to have a long term plan on how to reach the reporting requirements in 2017 (see table 8.1). Since the success of the work planned for 2015-2017 heavily will depend on the results of the projects planned for 2014, it is difficult to plan in detail for the whole period until 2017 (see table 8.2). However, the working tasks included in the plan are seen as essential steps to be undertaken in order to decide how further work can be undertaken and to identify problem areas. Possible problem areas may also differ among the various environmental and resource management domains.

Table 8.1. Future work plan

Year/ Reporting table	Issues	Further work	Comments
2014	Focus on the output-table. Estimated costs = approximately 450 hours		
Output-table	A. Identification of the part of the output in the EGS-sector that can be identified directly in the National Accounts B. Connected goods and services: Identification of the part of the output in the EGS-sector that cannot be identified directly in the National Accounts C. Adapted goods: Identification of the part of the EGS-sector that cannot be identified directly in the National Accounts	OK, with the exception of NACE 38 Further work in prioritized steps: 1. CEPA 1 and CReMA 13 2. Government sector Further work in prioritized steps: 1. Criteria for identifying adapted goods within the different CEPA and CReMA dimensions must be decided upon 2. CEPA 1 and CReMA 13	Partly financed by Eurostat-grants Partly financed by Eurostat-grants
2015	Focus on finalising the output-table and the export table. Start looking into methodology issues for employment and value added. Estimated costs: expected to be similar or more than in 2014		
Output-table	A. Connected goods and services + adapted goods: Identification of the part of the output in the EGS-sector that cannot be identified directly in the national accounts and CEPA 1 and CReMA 13	1. Focus on other CEPA and CReMA than 1, 2, 3 and 13.	
Output-table and export table	B. Input files for the national accounts (output) and the foreign trade statistics (export)	Further work in prioritized steps: 1. List of environmental CPA-products 2. List of environmental CN-products	
Employment and value added table	C. Identification of the part of the employment and value added in the EGS-sector that cannot be identified directly in the National Accounts	Further work in prioritized steps: 1. Analyzing the Eurostat recommended method. For what NACE-codes is it suitable to be used, for what areas is it not suitable? 2. Find a solution for those areas where the Eurostat recommended method cannot be used.	Costs depend upon the results from 2015 B. If the EU recommended method is suitable for many areas, less work is needed in order to find other sources and methods.
2016	Focus on establishing routines for transferring output and export data from the various sources to the EGS-sector tables + finding solutions on how to handle the employment data and the value added data. Dissemination in Statistics Norway must be discussed. Test reporting for output-figures and export? Estimated costs: Very difficult. Depends a lot on the results from work in 2014 and in 2015.		
Output-tables and export-tables	A. Transferring data from the national accounts and the foreign trade statistics to the EGSS-tables	Automatic routines for transferring data from the Trade Statistics to the EGSS-tables must be established	
Employment and value added table	B. Input files ? C. Transferring data from the employment statistics or the national accounts to the EGSS-tables	Depending on the results from the 2015-work with employment and value added Automatic routines for transferring data to the EGSS-tables must be established	
All areas where basic data exists	D. Discussing possible dissemination solution in Statistics Norway E. Test-reporting of some of the tables?		
2017	Focus on establishing a resource efficient automatic solution for collecting the necessary information + establishing the decided upon dissemination solution in Statistics Norway. Estimated costs: Very difficult. Depends a lot on the results from work in 2014, 2015 and in 2016.		
All areas where basic data exists	A. Establish a resource efficient IT solution for transferring of data. B. Establish a dissemination solution in Statistics Norway C. Still developing work to be done? In which areas will depend on results from work in 2014-2016. D. First reporting of data		
Uncertainty costs	There are huge uncertainties related to the establishment of the statistics for the EGS-sector.		

Table 8.2. Summary of development costs and running costs

Type of work	Explanation	When	Estimated costs	Uncertainty
Development	Costs of establishing a system for reporting of EGSS-data in 2017 (incl. possible test-reporting in 2016)	2014-2017	?	huge
Operating costs	Annually operating costs of running an statistical system for EGGS-data in order to report data annually to Eurostat	2018	6-8 weeks	huge

9. Conclusions

The main objective of this pilot study was to look at the proposed EGSS module in detail and try to identify possible data sources, costs and changes that would be necessary before Statistics Norway can comply with the requirements in the proposed reporting from 2017. We have based our studies on the draft regulation of the EGSS module amending Regulation 691/2011 on European environmental economic accounts and the draft questionnaire for EGSS legal module.

This project has proved very useful in order to understand the scope of the reporting obligations that Statistics Norway will meet in 2017 regarding statistics for the EGS-sector and to get an overview of the existing data and the data gaps.

Conclusions and main findings:

- The starting point for this work is that the compilation of statistics for the EGS-sector is to be carried out using already existing statistical sources and to avoid establishing new surveys.
- Very few existing data sources could serve as a direct source for statistics for the EGS-sector
- The National Accounts can, only for some few NACE-industries, be used as a source. This means that other possible data sources than the national accounts has to be looked into.
- Using so-called “CPA-product-lists” for directly identifying environmental goods and services has been tried out and does not seem to be a useful approach, since the product-categorisation in the national accounts is too aggregated for the purpose of environmental goods and services.
- Using other existing statistics (indirect sources) in order to identify a proportion of the CPA-products that can be defined as an environmental good or service is the approach that seems most applicable and will be tested out when taking this work a step further (e.g. Prodcom-statistics).
- Establishing the figures for the output table of environmental goods and services seems to be essential in order to compile the other requested data for value added, export and employment in the EGS-sector. Further work will therefore primarily be focused on the compilation of the output table and in particular the market output and the non-market output. Then focus will be on identifying the adapted goods.
- Although not obligatory, we will look into the possibilities of splitting the reporting of the market output and the export figures between the connected products and the adapted products. The reason for this is that we expect the uncertainty to be bigger in the figures for the adapted products than for the connected products.
- Statistics for the EGS-sector cover several environmental and resource management domains. We will first focus on the total output of the EGS-sector, then we will focus on the split between the different CEPA and CReMA categories where this is a challenge. We therefore miss a possibility to report the total of the EGS-sector for those instances where we know the total but not the split between the different categories of CEPA and CReMA.
- There are no plans for establishing a register of all enterprises included in the EGS-sector.
- We also see a need of clarifying the classifications and definitions of the various environmental goods and services (and technologies).

Future work will be in parts undertaken in cooperation with the EPEA-team in order to follow up Eurostat work on establishing the EGSS, EPEA (and ReMEA) as an integrated framework.

Annex A. Analysis of the EGSS product list

The EGSS-list of environmental products is given from Eurostat together with the questionnaire. According to Eurostat the list is not exhaustive and is based on the experiences from the pilot EGSS data collection conducted in 2009 and the first data collection in 2011. It contains the most important and most easily identifiable environmental goods and services. For comparability purposes it is recommended to use this list both for countries starting to develop EGSS as well as the ones with experience in the field.

The list is meant as a guide to the countries that are now starting the work on EGSS.

This annex utilizes the EGSS-list and identifies the products in the Norwegian national accounts. In the cases where the national account CPA code is too aggregate, the PRODCOM is used to see if it can give a more detailed and accurate figure for the manufacturing industries.

There is one CPA code that is 100 % environmental and where all CEPA classifications are included and the classification depends on the subject of the service (CPA 39.00.23 - Other specialised pollution control services). This CPA code is in need of further work in order to be able to separate the product into the different CEPA domains.

The CPA code 74.90.13 – Environmental consulting services - is included under every CEPA and CReMA classification. Further work is needed to separate into the environmental and resource management activities.

There are four CPA codes that are included in all CEPA and CReMA that are only partly EGS products and are either environmental specific or connected services. These are the first four in the table below. The last CPA in the table is included in all CEPA.

CPA 2008 CODE	Short description of the EGS which are included in the code	Type of product ²	Notes
33.1 - Repair services of fabricated metal products, machinery and equipment	Maintenance and repair services of connected goods, end of pipe technologies and integrated technologies (e.g. filters for purifications, incinerators, purifying machinery for abating pollution, etc.)	Env.	The env. domain depends on the type of good/technology installed
33.2 - Installation services of industrial machinery and equipment	Installation services of connected goods, end of pipe technologies and integrated technologies (e.g. filters for purifications, incinerators, purifying machinery for abating pollution, etc.)	Env.	The env. domain depends on the type of good/technology installed
84.1 - Administration services of the State and the economic and social policy of the community	Administration for environmental protection and resource management purposes	Env.	CEPA 9 and 16 whenever environmental protection or resource management activities are not divisible
94.99 - Services furnished by other membership organisations n.e.c.	Organisation with an environmental / resource management aim	Env.	It depends on the main aim / field of the organisation
39.00.2 - Other remediation and specialised pollution control services	Not including remediation services primarily aimed at health protection	Env	It depends on the subject of the service

All the CPA codes mentioned above are *not* included in the tables that are included below for each CEPA and CReMA.

How to read the tables presented in this annex:

This annex presents each CEPA and CReMA separately.

The definition of the environmental classification is given introductorily. These definitions are taken from the EGSS-manual.

Then the 100 % products are matched with the Norwegian CPA and/or PRODCOM codes before the products only partly environmental are given. At the end of each environmental classification a summary is given with emphasis on the recommended data source with focus on production.

² **Type of product:** A = Adapted goods, C = Connected goods, E = End-of-pipe technologies, Env = Environmental specific and connected services, Int = Integrated technologies.

If the rows for the CPA code are colored in **light green** it means that there are several CEPA or CReMA classifications for the same product.

In addition, the CPA codes are given colours to illustrate if the products can be collected from either the national accounts or PRODCOM:

- **Green** if it can be collected directly,
- **Yellow** if the product exists but the environmental part must be identified and
- **Red** if the environmental products were not identified in the suggested data (Norwegian accounts).

CEPA 1 - Protection of ambient air and climate

From the EGSS manual:

Protection of ambient air and climate comprises measures and activities aimed at the reduction of emissions into the ambient air or ambient concentrations of air pollutants in addition to measures and activities aimed at the control of emissions of greenhouse gases and gases that adversely affect the stratospheric ozone layer. Standard tables ask for which part of the protection of ambient air and climate is for the protection of climate and ozone layer.

Examples:

Environmental specific services: Any activity that designs, manages systems or provides other services for the treatment and/or removal of exhaust gases and particulate matter from both stationary (electric power fuel combustion, industrial boilers and processes, etc.) and mobile sources (motor vehicles etc.), measurement services of exhaust gases of vehicles as well as measurement services of exhaust gases of heating systems. It includes emission monitoring, assessment/evaluation/planning, regulation, administration, management, training, information and education on air emissions, etc.

Connected services: Installation and maintenance of equipment/facilities for air pollution control.

Connected goods: Production of equipment or specific materials for facilities and equipment for air pollution control. In general, all the measures to adapt vehicles (e.g. trucks, buses and aeroplanes) are included.

End-of-pipe technologies: Facilities and equipment for air pollution control (e.g. facilities for the treatment of exhaust gases and ventilation air) as emission monitoring equipment, air-handling equipment, dust collectors, separators, precipitators, filters, catalytic converters, chemical treatment and recovery systems, specialised stacks, incinerators, scrubbers, cyclones, centrifuges, coolers and condensers to treat process gases, odour control equipment, equipment for thermal and catalytic combustion of process gases.

Integrated technologies: Equipment or part thereof that generates less exhaust gas to be treated or released into the atmosphere. These are technologies replacing an existing production process or a part of it by a new one designed to reduce the generation of air pollutants during production, storage or transportation. It includes, for example, equipment for fuel combustion improvement (e.g. fluidised beds), prevention of spills and leaks through improving air-tightness of equipment.

Adapted goods: Non-(or less-)air polluting goods such as de-sulphurised diesel, less air polluting transport facilities (low emissions and electric cars), substitutes of CFC.

Recommendation:

Excluded are activities for the prevention or minimisation of emissions of greenhouse gases which are related to the preservation of natural resources (e.g. renewable energy, energy-saving equipment), which are included in the resource management group (management of energy sources).

Activities aimed at fighting climate change should be recorded separately from the rest of CEPA 1 activities. The CEPA sub-classes allow for this operation. The relevant CEPA sub-classes for the protection of climate and the ozone layer are: CEPA 1.1.2 (prevention of pollution through in-process modifications for the protection of climate and the ozone layer), 1.2.2 (treatment of exhaust gases and ventilation air for the protection of climate and the ozone layer) and part 1.3 (measurement, control, laboratories and the like for the protection of climate and the ozone layer) and 1.4 (other activities) which are related to the protection of climate and the ozone layer.

100% environmental products:

Suggested data			Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	National accounts
39.00.13	Remediation and clean-up services, air	Env.	39 - Remediation activities and other waste management services

% to be determined:

Suggested data					Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS	Type of product	Notes	National accounts	PRODCOM
19.20.2	Fuel oil and gas; lubricating oils	Motor fuels with lower content of lead and sulphur, GPL	A		1922XX.	19.20.21.50 (unleaded petrol), 19.20.28.50 (fuel oil with low content of sulphur)
20.59.59	Miscellaneous other chemical products n.e.c.	Biocarburants	A		205930 (includes CPA 20593x + 20595x) - Miscellaneous chemical products	20.59.59.90 (Biofuels)
26.51.53	Instruments and apparatus for physical or chemical analysis n.e.c.	For environmental purposes (e.g. analysis of pollutants)	C	It depends on the pollution (of water or air)		
28.25.14	Machinery and apparatus for filtering or purifying gases n.e.c.	For environmental purposes (e.g. abating pollution)	E		282500 - Cooling and ventilation equipment except household. % need to be determined.	28.25.14.10 (Devices for filtering or purifying air)
28.29.82	Parts of centrifuges; parts of filtering or purifying machinery and apparatus for liquids or gases	Parts of filtering or purifying machinery and apparatus for environmental purposes (e.g. abating pollution)	C		282900 - Machinery and equipment for general use nec.	28.29.82.50 Parts for apparatus for filtering or cleaning of liquids or gases
29	Motor vehicles, trailers and semi-trailers	Electric vehicles and more resources efficient vehicles	A		29 - Motor vehicles, trailers and semi-trailers	
29.32.30	Parts and accessories n.e.c., for motor vehicles	Silencers, exhaust pipes and their parts (also particles filters)	C		2932 - Parts and accessories for motor vehicles	29.32.30.90 Parts and other accessories for motor vehicles and tractors n.e.c.
30	Other transport equipment	Electric transport equipment and more resources efficient transport equipment	A		30 - Other transport equipment	
35.2	Manufactured gas; distribution services of gaseous fuels through mains	LNG for vehicles	A		352 - Gas through pipelines.	

Preliminary conclusions for CEPA 1:

Data for market output in CEPA 1 Protection of ambient air and climate cannot be collected by using the national accounts and PRODCOM. Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code).

CEPA 2 – Wastewater management

From the EGSS manual: Wastewater management comprises activities and measures aimed at preventing the pollution of surface water by reducing the release of wastewater into inland surface water and seawater. It includes the collection and treatment of wastewater including monitoring and regulation activities. Septic tanks and cooling water systems are also included.

Examples:

Environmental specific services: Services to render wastewater fit to meet applicable environmental standards or other quality norms; any activity that designs, operates systems or provides other services for sewage treatment, wastewater reuse and water handling or for the collection, treatment and transport of wastewater and cooling water. It also includes the operation of sewerage networks, i.e. the collection and transport of wastewater from one or several users, and also rainwater, by means of sewerage networks, collectors, tanks and other means of transport (sewage vehicles, etc.), all other services aimed at wastewater management. It includes regulation, administration, management, training, information and education activities specific to wastewater.

Connected services: Collection of septic tanks sludge, maintenance and repair services of septic tanks.

Connected goods: Equipment aimed at monitoring and controlling the concentration of pollutants in wastewater and the quality of inland surface water and marine water at the place where wastewater is discharged (analysis and measurement of pollutants etc.) as well as equipment or specific materials for the collection, treatment and transport of wastewater and cooling water. Equipment includes screens for large solids, biological plants, equipment for filtration, flocculation, sedimentation; separators of oils and hydrocarbons; separators using inertia or gravity, including hydraulic and centrifugal cyclones, diaphragm floats, chemicals for coagulation, flocculation and precipitation; breakpoint chlorinating; stripping equipment; mixed media filtration; micro-screening; selective ion exchange; activated carbon; reverse osmosis; ultra-filtration; elector flotation, biological activators for septic tanks, cooling towers, cooling circuits for processing water from work sites and for condensing released vapour, equipment for enhancing the dispersion of cooling water on release (to the extent they are required to reduce pollution and not to reduce the use of water, and to the extent they are distinct from technical needs), etc. It includes pipes, pumps, valves, aeration equipment, gravity sedimentation equipment, oil separators, sedimentation basins, neutralisation basins, equipment for handling and treating sludge, chemical treatment and recovery equipment, biological recovery systems, oil/water separation systems, screens/strainers, sewage treatment equipment, water pollution control equipment, wastewater reuse equipment and other wastewater handling systems. It also includes collectors, pipelines, conduits and pumps to evacuate any wastewater (rainwater, domestic and other wastewater) from the points of generation to either a sewage treatment plant or to a point where wastewater is discharged into surface water. Septic tanks and other goods for septic tanks are included.

End-of-pipe technologies: Sewerage network systems and wastewater treatment plants.

Adapted goods: Non-(or less-) water polluting goods as biodegradable soap and detergents.

Integrated technologies: Equipment or part thereof that reduces the volume of wastewater to be treated or released into the environment. These are technologies replacing an existing production process or a part of it by a new one designed to bring about a reduction of water pollutants or wastewater generated during production. It includes the separation of networks, the treatment and reuse of water used in the production process, etc.

Recommendation:

Excluded are activities aimed at the protection of groundwater from pollutant infiltration and the cleaning up of water bodies after pollution, which are included in CEPA 4. Restoration of water bodies activities are included in CEPA 6. Water recirculation systems, to the extent they are required to reduce the use of water, are included in CReMA 10.

Distribution, collection and potabilisation of water are not included in the EGSS, while de-salinisation is included in CReMA 10.

100% environmental products:

Suggested data			Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	National accounts
37	Sewerage services; sewage sludge	Env.	37 – Sewage.
39.00.12	Remediation and clean-up services, surface water	Env.	39 - Remediation activities and other waste management services. % to be determined.

% to be determined:

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
20.59.54	Activated carbon	For filtering purposes	C	NA-code 205930 (includes CPA 20593x + 20595x) - Miscellaneous chemical products. <i>Specified environmental product cannot be identified.</i>	
22.21.2	Tubes, pipes and hoses and fittings thereof, of plastics	Tubes and pipes for wastewater treatment plants as well as for water management (maintenance and repairing water networks)	C	222100 (includes 2221x) – Plastic, tubes and pipes. <i>Specified environmental product cannot be identified.</i>	22.21.21.xx – several items. <i>Specified environmental product cannot be identified.</i>
22.23.13	Reservoirs, tanks, vats and similar containers, capacity > 300 l, of plastics	Reservoir for septic tanks	C	222300 (includes 2223x) – Building materials of plastic. <i>Specified environmental product cannot be identified.</i>	22.23.13.00 - Tanks, cisterns, vats, and similar reservoirs with volume over 300 l, of plastic <i>Specified EGS product cannot be identified</i>
22.29.26	Fittings for furniture, coachwork or the like, of plastics; statuettes and other ornamental articles, of plastics	Plastic perforated buckets and similar articles used to filter water at the entrance to drains (PRODCOM 22292630)	C	222990 (includes 2229x) – Other articles of plastic. <i>Specified environmental product cannot be identified.</i>	22.29.26.10 - Fittings for furniture, coachwork or the like, of plastics. <i>Specified environmental product cannot be identified.</i>
23.61	Concrete products for construction purposes	Tubes and pipes for wastewater treatment plants as well as for water management	C	236120 – Prefabricated elements for construction and building, 236900 – Pipes (Other concrete, cement and gypsum products). <i>Specified environmental product cannot be identified.</i>	23.61.12.00 - Prefabricated elements for construction and building, of cement, concrete, or artificial stone, also reinforced. <i>Specified environmental product cannot be identified.</i>
24.52.2	Tubes and pipes of centrifugally cast-steel	Tubes and pipes for wastewater treatment plants as well as for water management	C	245000 – Pipes and hollow profiles of cast-iron and Tube or pipe fittings of cast-iron and steel <i>Specified environmental product cannot be identified.</i>	
24.52.3	Tube or pipe fittings, of cast-steel	Tubes and pipes for wastewater treatment plants as well as for water management	C	245000 - Tube or pipe fittings of cast-iron and steel <i>Specified environmental product cannot be identified.</i>	
25.99.29	Other articles of base metal n.e.c.	Iron or steel sheet perforated buckets and similar articles used to filter water at the entrance to drains (PRODCOM 25992941)	C		25.99.29.22 Forged or stamped articles of iron or steel, nec. <i>Specified environmental product cannot be identified.</i>
26.51.53	Instruments and apparatus for physical or chemical analysis n.e.c.	For environmental purposes (e.g. analysis of pollutants)	C (It depends on the pollution (of water or air))	26515 - Instruments for measuring weather, flow, pressure, physical or chemical analysis	26.51.53.83 Other electronic instruments and apparatus for physical or chemical analysis, for measurement or control of viscosity etc., not elsewhere mentioned
28.13	Other pumps and compressors	Pumps for use in wastewater treatment	C	281310 - Pumps for liquids, centrifugal pumps, etc.	28.13.14.13 Submersible motor-, single-stage centrifugal pumps, for drainage and sewer
28.29.12	Filtering or purifying machinery and	For environmental purposes (e.g. abating pollution)	C		28.29.12.30 Apparatus for filtering or purifying water 28.29.12.70 Apparatus for

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcum
	apparatus, for liquid				filtering or purifying liquids, not elsewhere mentioned
42.21.23	Construction works for irrigation systems (canals), water mains and lines, water treatment plants, sewage disposal plants and pumping stations	Water treatment plants, sewage disposal plants, sewage systems	E	420000. Other specialized building and construction. <i>Specified environmental product cannot be identified.</i>	
42.21.24	Water well drilling and septic system installation works	Septic system installation works	C	420000. Other specialized building and construction. <i>Specified environmental product cannot be identified.</i>	
71.12.16	Engineering services for water, sewerage and drainage projects	Engineering services for reducing water losses and sewerage and drainage	Env.	711210 - Technical consulting services (includes CPA 71121x+71122x) <i>Specified environmental product cannot be identified.</i>	

Preliminary conclusions for CEPA 2:

Data for market output in CEPA 2 Wastewater management is mainly NACE 37 which can be directly collected in the national accounts. Most of the other products cannot be collected by only using the national accounts and PRODCOM. Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code).

CEPA 3 – Waste management

From the EGSS-manual: Waste management refers to activities and measures aimed at the prevention of the generation of waste and the reduction of its harmful effect on the environment. It includes the collection and treatment of waste, including monitoring and regulation activities. It also includes recycling and composting, the collection and treatment of low-level radioactive waste, street cleaning and the collection of public litter.

Examples:

Environmental specific services: Any activity that designs, operates systems or provides other services for waste handling and for the separation, sorting, treatment, disposal, management, storage and recovery of hazardous and non-hazardous waste. It includes the collection and transport of waste, either by municipal services or similar institutions or by public or private corporations, and its transport to the place of treatment or disposal. It includes the separate collection and transport of waste fractions so as to facilitate recycling and the collection and transport of hazardous waste. Street cleaning is included for the part referring to public litter and collection of garbage from the streets. Excluded are winter services. It includes recycling (including collection of waste and scrap and sorting, baling, cleaning). Services for the treatment of low-level nuclear waste are included. It includes administration, management, training, information and education activities specific to waste.

Connected services: Installation of facilities and equipment for waste management.

Connected goods: Equipment aimed at controlling and measuring the generation and storage of waste, its toxicity, etc. Equipment or specific materials for the collection, treatment, transport, disposal and recovery of hazardous and non-hazardous waste. It includes compressors, containers, waste storage equipment, waste collection equipment, waste disposal equipment, waste handling equipment, waste separation and sorting equipment, recovery equipment (e.g. rotary kilns, liquid injectors, incinerator grates, multiple chamber incinerators, fluidised bed incinerators, etc). Bin bags, bins, rubbish containers, compost containers are included. It includes equipment or specific materials for the treatment of low-level nuclear waste.

End-of-pipe technologies: Facilities for waste management, such as waste treatment, storage and disposal facilities (e.g. landfills, incinerators, etc.), hazardous waste management facilities or recycling facilities.

Adapted goods: New goods which produce less waste or less hazardous waste. All the goods designed to produce less waste or less harmful waste, such as biodegradable plastic bags, and end-of-life-goods more easily recyclable (e.g. packaging, cars, electric and electronic equipment, etc.).

Integrated technologies: Equipment that minimises waste generation. This includes recycling processes and technologies replacing an existing production process with a new one designed to reduce toxicity or the volume of waste produced during the production process, including by separation and re-processing.

Recommendation:

Excluded are activities and measures for the treatment of high-level nuclear waste (see CEPA 7) as well as the manufacture of new materials or products from waste or scrap and the subsequent use of these materials or products (see management of minerals (CReMA 14) in the resource management group, as well as management of natural forests (CReMA 11) as far as the production of recycled paper is concerned).

100% environmental products:

Suggested data			Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	National accounts	Prodcom
23.65.11	Boards, blocks and similar articles of vegetable fibre, straw or wood waste, agglomerated with mineral binders	A	236500 – Cement Articles of asbestos-cement, cellulose fiber-cement	23.65.11.00 - Boards, blocks and similar articles of vegetable fibre, straw or wood waste, agglomerated with mineral binders
38.1	Waste; waste collection services	Env.	381000 – Waste collection	
38.21	Treatment and disposal services of non-hazardous waste	Env.	382000 - Waste treatment and disposal	
38.22	Treatment and disposal services of hazardous waste	Env.	382000 - Waste treatment and disposal	
71.12.15	Engineering services for waste management projects (hazardous and non-hazardous)	Env.	71121 - Civil engineering activities	

% to be determined:

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
09	Mining support services	Overburden removal service from mines	Env.		
13.92.21	Sacks and bags, of a kind used for the packing of goods	Sacks and bags for replacing plastic bags	A	13922 – sacks and bags. <i>Specified environmental product cannot be identified.</i>	13.92.21.90 ??
22.22.11	Sacs and bags (including cones), of polymers and ethylene	Waste bags	C	22221 - Sacks and bags of plastic. <i>Specified environmental product cannot be identified.</i>	22.22.11.00 - <i>Specified environmental product cannot be identified.</i>
22.22.19	Other plastic packing goods	Any specific container for transporting of waste	C		22.22.19.50 - <i>Specified environmental product cannot be identified.</i>
22.29.29	Other articles of plastic	Containers for waste	C		22.29.29.90 - <i>Specified environmental product cannot be identified.</i>
25.29	Other tanks, reservoirs and containers of metal	Waste containers	C	252900 - Cargo containers of iron, steel or aluminium. <i>Specified environmental product cannot be identified.</i>	25.29.11.50 - Other tanks, reservoirs and containers of metal. <i>Specified environmental product cannot be identified.</i>
25.92	Light metal packaging	Waste containers	C	2592 – light metal packaging	25.92.XX - <i>Specified environmental product cannot be identified.</i>
25.99	Other fabricated metal products n.e.c.	Lead containers for radioactive waste	C		25.99.29.74 - <i>Specified environmental product cannot be identified.</i>
28.21.12	Industrial or laboratory furnaces and ovens, non-electric, including incinerators, but excluding bakery ovens	Incinerators (PRODCOM 28211270)	E	2821 - Fire burners, industrial and laboratory furnaces and parts. <i>Specified environmental product cannot be identified.</i>	28.21.12.70 - <i>Specified environmental product cannot be identified.</i>
28.92	Machinery for mining, quarrying and construction	Machinery for waste treatment (e.g. used at landfilling sites)	C		
43.99	Other specialised construction works n.e.c.	Incinerators	E		
81.29.12	Sweeping and snow removal services	Public litter and collection of garbage from the street	Env.	812 –cleaning services. <i>Specified environmental product cannot be identified.</i>	

Preliminary conclusions for CEPA 3:

Data for market output in CEPA 3 Waste management is mainly NACE 38.1 and 38.2 which can be directly collected in the national accounts. Most of the other products cannot be collected by only using the national accounts and PRODCOM. Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code).

CEPA 4 - Protection and remediation of soil, groundwater and surface water

From the EGSS-manual:

Protection and remediation of soil, groundwater and surface water refers to measures and activities aimed at the prevention of pollutant infiltration, cleaning up of soils and water bodies and the protection of soil from erosion and other physical degradation and also from salinisation. Monitoring, control of soil and groundwater pollution are included.

Examples:

Environmental specific services: Any activity that designs, manages systems or provides other services to reduce the quantity of polluting materials in soil and water, including surface water, groundwater and seawater. It includes the cleaning up of pollutants in soil and water bodies either in situ or in appropriate installations, emergency response and spills clean-up systems, the operation of water treatment facilities (treatment of water and dredging residues are included), transportation of pollutant products, soil decontamination at former industrial sites, landfills and other black spots, dredging of pollutants from water bodies (rivers, lakes, estuaries, etc.), the decontamination and cleaning up of surface water following accidental pollution, e.g. through the collection of pollutants or through the application of chemicals, and also the cleaning-up of oil spills on land, inland surface waters and seas — including coastal areas, separating, containing and recovering deposits, extraction

of buried casks and containers, decanting and re-storage, installation of off-gas and liquid effluent drainage networks, soil washing by means of degasification, pumping of pollutants, removal and treatment of polluted soil, biotechnological methods capable of intervening without affecting the site (use of enzymes, bacteria etc.), physical chemistry techniques such as pervaporation and extraction using supercritical fluids, injection of neutral gases or bases to stifle internal fermentation, administration, management, training, information and education activities related to the protection and remediation of soil, groundwater and surface water, etc.

Connected services: Services related to the sealing of soil at industrial plants, strengthening of storage facilities, lowering of groundwater tables (when groundwater contains high levels of salts) through long-term re-vegetation programmes, changes in irrigation practices, etc.

Connected goods: Equipment or specific materials to reduce the quantity of pollutants in soil and water, including surface water, groundwater and seawater. It includes absorbents, chemicals and bioremediators for cleaning up, compactors, encrustors, anti-erosion walls, etc.

End-of-pipe technologies: Facilities for the remediation and clean-up of soil, surface water and groundwater, equipment for controlling and measuring the quality and pollution of soil, groundwater and surface water, equipment for measuring the extent of soil erosion and salinisation, as well as clean-up systems either in situ or in appropriate installations, catchment equipment for pollutant runoffs and leaks, etc.

Adapted goods: Organic farming goods.

Integrated technologies: Equipment or practices that allow the prevention of pollutants that may be applied to soil (e.g. organic farming), percolate into groundwater or run-off to surface water and equipment and practices aimed at the protection of soil from erosion and other physical degradation.

Recommendation:

Excluded are wastewater management activities (which are included in CEPA 2) and activities aimed at the protection of biodiversity and landscape (which are included in CEPA 6). Excluded are also the liming of lakes and artificial oxygenation of water bodies (see CEPA 6) as well as civil protection services.

Activities carried out for economic reasons (e.g. agricultural production, protection of settlements against natural hazards such as landslides or reclamation of land from the sea) **are not** included in the scope of the EGSS.

100% environmental products:

Suggested data			Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	National accounts
39.00.11	Remediation and clean-up services, soil and groundwater	Env	39 -

% to be determined:

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
01.XX.XX	Agricultural products	organic agricultural products	A	All products starting with 01xxxx <i>Specified environmental product cannot be identified.</i>	No
01.61	Support services to crop production	Maintenance of agricultural land in good environmental conditions	Env.	Part of 01601 - Support services to crop production. <i>Specified environmental product cannot be identified.</i>	No
71.12.16	Engineering services for water, sewerage and drainage projects	Engineering services for reducing water losses and sewerage and drainage	Env.	71121 – technical support services <i>Specified environmental product cannot be identified.</i>	No

Preliminary conclusions for CEPA 4:

Data for market output in CEPA 4 Protection and remediation of soil, groundwater and surface water is mainly NACE 39 (parts of NACE 39 might be related to other environmental classifications, but if not possible to separate the entire NACE will be put in CEPA 4).

Organic agriculture cannot be identified through the product code, other data sources have been identified (Debio, The Norwegian Agricultural Authority and primary industry statistics).

Most of the other products cannot be collected by only using the national accounts and PRODCOM. Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code).

CEPA 5 – Noise and vibration abatement

From EGSS manual: Noise and vibration abatement refers to measures and activities aimed at the control, reduction and abatement of industrial and transport noise and vibration. Activities for the abatement of neighbourhood noise (e.g. soundproofing of dancing halls, etc.) in addition to activities for the abatement of noise in places frequented by the public (e.g. swimming pools, schools, etc.) are included.

Examples:

Environmental specific services: Include, when separable, traffic management with noise abatement purposes (for example, lowering of speed limits, improvement of traffic flows), introduction of time and geographical restrictions for noisy vehicles, traffic detours at a distance from residential areas, creation of pedestrian areas, creation of construction-free buffer zones, restructuring of modal split, administrative measures for the promotion of quiet driving behaviour, etc. Also include noise and vibration assessment and monitoring and design, management or other services for acoustic and soundproof screens, street covering, covering sections of urban motorways or railways, soundproofing of buildings, etc. Also includes administration, management, training, information and education activities specific to noise/vibration.

Connected services: Installation and management of facilities for noise and vibration abatement (for example, road barriers, screens, embankments or hedges).

Connected goods: Include mufflers/silencers, noise deadening material, noise control equipment and systems, vibration control equipment and systems, road barriers, add-on facilities covering and soundproofing of machines and piping, fuel regulation systems and sound absorption, noise screens, barriers, noise protective windows, etc.

End-of-pipe technologies: Road barriers, screens, embankments or hedges. They thus range from noise barriers produced by construction enterprises, to noise and vibration control equipment produced by engineering and industrial control enterprises.

Adapted goods: Low-noise vehicles and appliances, silent asphalt. The adaptation of vehicles (buses, trucks, or train and power units in the case of rail transport, aircraft and ships) in order to make them less noisy.

Integrated technologies: Technologies aimed at the prevention of noise and vibration from industrial equipment, vehicle engines, aircraft and ship engines, exhaust systems and brakes, or noise levels due to tyre/road or wheel/rail surface contact, plant modifications, specially conceived foundations to absorb vibrations, equipment and machines conceived or constructed for low noise or vibrations, low noise level flares and burners, etc.

Recommendation:

The abatement of noise and vibration for purposes of protection at the workplace is not included in the scope of the EGSS.

100% environmental products:

Suggested data			Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	National accounts
43.29.11	Insulation works	Env.	4329 – other installation work. <i>Specified environmental product cannot be identified.</i>

% to be determined:

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
08.99.1	Bitumen and asphalt, natural; asphaltites and asphaltic rock	Bitumen and asphalt to reduce noise	A		
16.29.2	Articles of cork, straw or other plaiting materials; basket ware and wickerwork	Cork for soundproofing	C	16292 + 162991 products of cork, basework	Several products, but no production in Norway in 2011
22.23.14	Doors, windows and frames and thresholds for doors; shutters, blinds and similar articles and parts thereof, of plastics	High efficient windows	A	2223x building materials of plastic	22.23.14.50 Doors, windows, door-casings, window frames, doorsteps of plastics.
23.12.13	Glass mirrors; multiple walled insulating units of glass	Multiple walled insulating units of glass	A		23.12.13.30 Insulating glass consisting of several layers
43.99	Other specialised construction works n.e.c.	Soundproofing barriers	C	43.99x Other building completion.	

Preliminary conclusions for CEPA 5:

A challenge is to separate the products that are produced to reduce noise and the products that has the main purpose of heat or energy saving (CReMA 13B).

Most of the other products cannot be collected by only using the national accounts and PRODCOM. Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code).

An alternative data source for soundproofing barriers is the Norwegian Public Road Administration (Vegvesenet).

CEPA 6 - Protection of biodiversity and landscapes

From the EGSS-manual: Protection of biodiversity and landscape refers to measures and activities aimed at the protection and rehabilitation of fauna and flora species, ecosystems and habitats in addition to the protection and rehabilitation of natural and semi-natural landscapes. Maintaining or establishing certain landscape types, biotopes, eco-zones and related issues (hedgerows, lines of trees to re-establish 'natural corridors') have a clear link to biodiversity preservation.

Examples:

Environmental specific services: Services aimed at the protection of natural and semi-natural landscapes to maintain and increase their aesthetic value and their role in biodiversity preservation. Included are the preservation of legally protected natural objects, conserving the genetic heritage, protection of forests against forest fires for landscape protection purposes, etc. Services aimed at the conservation, reintroduction or recovery of fauna and flora species, in addition to the restoring, rehabilitation and reshaping of damaged habitats for the purpose of strengthening their natural functions. Includes the rehabilitation of abandoned mining and quarrying sites, renaturalisation of river banks, burying of electric lines, maintenance of landscapes that are the result of traditional agricultural practices threatened by prevailing economic conditions, re-colonising destroyed ecosystems, placing bans on exploitation, trade, etc. in specific animal and plant species for protection purposes. Also includes censuses, inventories, databases, creation of gene reserves or banks, improvement of linear infrastructures (e.g., underground passages or bridges for animals at roads or railways, etc.), feeding of the young, management of special natural reserves (botany conservation areas, etc.). Also include the control of fauna and flora to maintain natural balances, including re-introduction of predator species and control of exotic fauna and flora that pose a threat to native fauna, flora and habitats. Main services are the management and development of protected areas, whatever the denomination they receive, i.e. areas protected from any economic exploitation or in which the latter is subject to restrictive regulations, the explicit goal of which is the conservation and protection of habitats. Also included are services for the restoration of water bodies as aquatic habitats (artificial oxygenation and lime-neutralisation actions). It includes administration, training, information and education activities specific to the domain.

Connected goods: No example available for connected goods.

End-of-pipe technologies: No example available for end-of-pipe technologies.

Adapted goods: No example available for adapted goods.

Integrated technologies: No example available for integrated technologies.

Recommendation:

The protection and rehabilitation of historic monuments or predominantly built-up landscapes, the control of weeds for agricultural purposes, measures to increase aesthetic values for economic purposes (e.g., re-landscaping to increase the value of real estate) are **not included** in the scope of the EGSS. The protection of forests against forest fires when this is predominantly for economic reasons is **not included** (it is to be included within CReMA 11 management of natural forests, if it concerns natural forests mainly relevant as a resource). **Also excluded** are the establishment and maintenance of green spaces along roads and recreational structures (e.g. golf courses, other sports facilities). Actions related to urban parks and gardens would not normally be included but may relate in some cases to biodiversity – in such cases the activities should be included in CEPA 6.

% to be determined:

Suggested data				Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts
03.00.71	Support services to fishing	Restoration activities, education, training, information, sensibilisation and general administration activities linked to fishing	Env.	031700 –Services connected to fishing and hunting
03.00.72	Support services to aquaculture	Restoration activities, education, training, information, sensibilisation and general administration activities linked to aquaculture	Env.	

Preliminary conclusions for CEPA 6:

An assumption is that most output for CEPA 6 Protection of biodiversity and landscape are done by general government (i.e. non-market output).

A challenge is to separate the products related to protection of biodiversity and landscape from CReMA 12 Management of wild flora and fauna.

Most of the other products cannot be collected by only using the national accounts and PRODCOM. Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code).

CEPA 7 – Protection against radiation

From EGSS-manual: Protection against radiation refers to activities and measures aimed at the reduction or elimination of the negative consequences of radiation emitted from any source. Included is the handling, transportation and treatment of high-level radioactive waste, i.e. waste that, because of its high radionuclide content, requires shielding during normal handling and transportation.

Radioactive waste consists of any material that contains or is contaminated with radio nuclides at concentrations or radioactivity levels greater than the 'exempt quantities' established by the competent authorities, and for which no use is foreseen. Radioactive wastes are produced at nuclear power plants and at associated nuclear fuel cycle facilities and also through other uses of radioactive material, for example, the use of radionuclides in hospitals and research establishments. Other important wastes are those from mining and the processing of uranium and from the reprocessing of spent fuel.

Examples:

Environmental specific services: Services for the collection, transport⁶⁵, conditioning⁶⁶, containment⁶⁷ or underground disposal⁶⁸ of high-level radioactive waste. It includes the creation of buffer zones and administration, training, information and education activities specific to the domain.

Connected services: Installation of specific equipment and instruments (see connected goods below).

Connected goods: Specific equipment and instruments aimed at measuring, controlling and monitoring ambient radioactivity and radioactivity due to high-level radioactive waste, screens etc.

End-of-pipe technologies: Facilities for the containment and disposal of high-level radioactive waste.

Adapted goods: No example available for adapted goods.

Integrated technologies: No example available for integrated technologies.

Recommendation:

Activities and measures related to the prevention of technological hazards (e.g. external safety of nuclear power plants and military installations), in addition to protection measures taken at workplaces are excluded. Also excluded are activities relating to the collection and treatment of low-level radioactive waste (see CEPA 3).

⁶⁵ Collection and transport of high-level radioactive waste consists of the collection of high-level radioactive waste, generally by specialist firms and its transport to the place of treatment, conditioning storage and disposal.

⁶⁶ Conditioning of high-level radioactive waste consists of activities that transform high-level radioactive waste into a proper and fit condition for transport and/or storage and/or disposal.

⁶⁷ Containment of high-level radioactive waste designates the retention of radioactive waste in such a way that it is effectively prevented from dispersing into the environment, or is released only at an acceptable level. Containment may occur in specially built containment spaces.

⁶⁸ Underground disposal of high-level radioactive waste is the temporary storage or final disposal of high-level radioactive waste in underground sites that meet specific geological and technical criteria.

100 % environmental products:

Suggested data			Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	National accounts	Prodcom
26.51.41	Instruments and apparatus for measuring or detecting ionising radiations	C	265140 - Instruments for measuring electrical quantities of electricity. Ionizing radiation.	26.51.41 Instruments and apparatus for measuring or detecting ionizing radiations
38.22.11	Nuclear waste treatment services	Env.	382000 treatment and disposal of waste. <i>Specified environmental product cannot be identified.</i>	

% to be determined:

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
25.99	Other fabricated metal products n.e.c.	Lead containers for radioactive waste	C (Low radioactive waste in CEPA 3)	2599 - Other fabricated metal products n.e.c.	2599 – <i>Specified environmental product cannot be identified.</i>
38.22.2	Nuclear and other hazardous waste disposal services	Nuclear waste	Env.		
38.22.21	Nuclear waste disposal services	Nuclear waste	Env.		

Preliminary conclusions for CEPA 7:

Data for production in CEPA 7 Protection against radiation is mainly found in the EGSS list.

A challenge is to separate the products from CEPA 3 Waste management in NACE/CPA 38. A possible source to identify the nuclear waste is to use the waste accounts; however, we must be aware of differences with the total in the environmental expenditure account (EPEA) if this split is to be used in NACE 38.

Most of the other products cannot be collected by only using the national accounts and PRODCOM. Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code).

CEPA 8 - Research and development (R&D)

From the EGSS-manual:

Research and development (R&D) comprises 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 (see Frascati manual, OECD, 1994) in the field of environmental protection. The class regroupes all R&D activities oriented towards environmental protection: Identification and analysis of sources of pollution, mechanisms for the dispersion of pollutants in the environment in addition to their effects on human beings, species and the biosphere. It covers R&D for the prevention and elimination of all forms of pollution, and also R&D oriented towards equipment and instruments of pollution measurement and analysis. When separable, all R&D activities must be classified under this position even when referring to a specific environmental domain.

Examples:

Environmental specific services: Environmental R&D.

Connected services: No example available for connected services.

Connected goods: No example available for connected goods.

End-of-pipe technologies: No example available for end-of-pipe technologies.

Adapted goods: No example available for adapted goods.

Integrated technologies: No example available for integrated technologies.

% to be determined:

Suggested data				Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts
72.1	Research and experimental development services in natural sciences and engineering	For environmental or resource management purposes	Env.	72 - Research and experimental development services in natural sciences and engineering <i>Specified environmental product cannot be identified.</i>

Preliminary conclusions for CEPA 8:

Data for production in CEPA 8 Research and development are in need of additional information to identify the R&D on environmental protection. Further work is needed.

CEPA 9 - Other

From the EGSS-manual:

Other environmental protection activities refers to all environmental protection activities which take the form of general environmental administration and management activities or training or teaching activities specifically oriented towards environmental protection or which consist of public information, when they are not classified elsewhere in CEPA. It also includes activities leading to indivisible classification, in addition to activities not classified elsewhere.

The activities of the **general educational system** are **not** included in the scope of the EGSS.

Examples:

Environmental specific services: Construction and installation of facilities for environmental monitoring, analysis and assessment; multidisciplinary environmental contracting, consulting, audit and engineering services (which include any activity that investigates feasibility, designs and manages environmental projects, engineering design and specifications, biological and ecosystem studies, environment impact assessment, environmental planning, laboratory and field services, environmental economics, legal services/environmental law, environmental certification processes (ISO 14000, EMAS), monitoring sites, operating both singly and in networks, and covering one or more environmental medium, measuring and monitoring, sampling, process and control, data acquisition, management and analysis, etc.), etc. Also includes the regulation or administration of the environment and the support of decisions taken in the context of environmental protection activities, environmental supervision and analysis, general environmental education or training and disseminating environmental information.

Connected goods: Equipment or specific materials for the sampling, measurement, and subsequent recording, analysis and assessment of various characteristics of environmental media.

Connected services: No example available for connected services.

End-of-pipe technologies: No example available for end-of-pipe technologies.

Adapted goods: No example available for adapted goods.

Integrated technologies: No example available for integrated technologies.

No examples of products other than the products that are included in all or some CEPA or CRMA.

Preliminary conclusions for CEPA 9:

Data for production in CEPA 9 Other - are in need of additional information to be identified. Further work is needed.

CReMA 10 - Management of water

From the EGSS-manual:

Management of water comprises activities aimed at the minimisation of inland waters intake through in-process modifications as well the reduction of water losses and leaks or reduction of the intake by substituting the resource with alternative resources, the installation and construction of facilities for water reuse and savings, shower heads and taps, etc. Restoration activities are included.

Examples:

Environmental specific services: Recharge of groundwater bodies to increase/restore water stocks (not to improve water quality or fight salinity, see 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, see CEPA 4.3). Activities and products concerning measurement, control, laboratories and the like are also included as well as education, training and information and general administration activities linked to the management of inland waters and water saving.

Connected goods: Rainwater storage tanks.

Adapted goods: Tap filters, differentiate systems for flushing toilets, washing machines or dishwashers using less water than the average equivalent product, dry toilets, desalinated water.

End-of-pipe technologies: Water restoration, measuring and monitoring equipment.

Integrated technologies: Reduction of the intake through in-process modification related to the reduction of the water input for the production process: closed-circuit cooling systems, drop irrigation system, de-salinisation of sea water plants, etc.

Recommendation:

Distribution, collection and potabilisation of water are **not** included in the EGSS.

% to be determined:

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
01.61	Support services to crop production	Operation of agricultural irrigation equipment using less water	Env.	016010, which consists of CPA 0161x+0163x+0164x	
22.21.2	Tubes, pipes and hoses and fittings thereof, of plastics	Tubes and pipes for wastewater treatment plants as well as for water management (maintenance and repairing water networks)	C	222100 (includes 2221x) – Plastic, tubes and pipes. <i>Specified environmental product cannot be identified.</i>	22.21.21.xx – several items. <i>Specified environmental product cannot be identified.</i>
23.61	Concrete products for construction purposes	Tubes and pipes for wastewater treatment plants as well as for water management (maintenance and repairing water networks)	C	222990 (includes 2229x) – Other articles of plastic. <i>Specified environmental product cannot be identified.</i>	22.29.26.10 - Fittings for furniture, coachwork or the like, of plastics. <i>Specified environmental product cannot be identified.</i>
24.52.2	Tubes and pipes of centrifugally cast-steel	Tubes and pipes for wastewater treatment plants as well as for water management (maintenance and repairing water networks)	C	245000 – Pipes and hollow profiles of cast-iron and Tube or pipe fittings of cast-iron and steel <i>Specified environmental product cannot be identified.</i>	
24.52.3	Tube or pipe fittings, of cast-steel	Tubes and pipes for wastewater treatment plants as well as for water management (maintenance and repairing water networks)	C	245000 – Pipes and hollow profiles of cast-iron and Tube or pipe fittings of cast-iron and steel <i>Specified environmental product cannot be identified.</i>	
33.12.12	Repair and maintenance services of fluid power equipment, other pumps, compressors, taps and valves	For reducing losses and thus water use	Env.	331200, which consists of cpa 3312x <i>Specified environmental product cannot be identified.</i>	33.12.12.10 + 33.12.12.10 <i>Specified environmental product cannot be identified.</i>
36.00.1	Natural water	Desalted water and collection of rainwater	A	360000, which consists of cpa 36x	
36.00.2	Treatment and distribution services of water through mains	Maintenance of water mains (i.e. activities for reducing water losses)	Env.	360000, which consists of cpa 36x	

42.21.1	Utility constructions for fluids	Maintenance and reduction of losses for water networks	Env.	420000, which consists of cpa 42x	
71.12.16	Engineering services for water, sewerage and drainage projects	Engineering services for reducing water losses and sewerage and drainage	Env.	711210 – Technical consulting services (includes CPA 71121x+71122x) <i>Specified environmental product cannot be identified.</i>	

Preliminary conclusions for CReMA 10:

Data for production in CReMA 10 Management of water is mainly found in the product list and additional information.

Most of the other products cannot be collected by only using the national accounts and PRODCOM. Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code).

CReMA 11 - Management of forest resources

From the EGSS-manual:

The management of forest resources deals with only a part of the wooded land. According to the SERIEE, only those natural resources corresponding to non-produced natural assets, the use of which takes the form of goods, are dealt with in the natural resource use and management account. Hence produced natural resources, i.e. produced wooded resources, are excluded.

The basic classification of forest and other wooded land refers to the availability of wooded land to supply wood (see IEEAF70). Hence, some wooded lands are available for wood supply and others are not. Both categories are defined as follows (IEEAF § 3.07).

- Forest not available for wood supply: "Forest where legal, economic or specific environmental restrictions prevent any significant supply of wood. It includes (a) forest with legal restrictions or restrictions resulting from other political decisions, which totally exclude or severely limit wood supply, inter alia for reasons of environmental or biodiversity conservation, e.g. protection forest, national parks, nature reserves and other protected areas such as those of special environmental, scientific, historical, cultural or spiritual interest; (b) forest where physical productivity or wood quality is too low or harvesting and transport costs are too high to warrant wood harvesting, apart from occasional cuttings for auto-consumption".

- Forest available for wood supply: "Forest and other wooded land where any legal, economic or specific environmental restrictions do not have a significant impact on the supply of wood. It includes areas, where although there are no such restrictions, harvesting is not taking place, for example, areas included in long-term utilisation plans or intentions".

Wooded land available for wood supply can be further split into cultivated and non-cultivated forests.

CReMA 11A - Management of forest areas

From the EGSS-manual:

The focus of the class is on non-cultivated and non-available for wood supply forests and all the activities carried out for their maintenance and management. This includes restoration activities (reforestation and afforestation) as well as the prevention and control of forest fires. Activities and products concerning measurement, control, laboratories and the like are also included as well as education, training and information and general administration activities linked to the management of non-cultivated forest and forests not available for wood supply. For example, reforestation of non-cultivated forests should be included, even if it is carried out for maintaining the function of providing the wood resource for forestry and logging purposes. What is relevant is that the forests concerned are non-cultivated or not available for wood supply and the activities are aimed mainly at maintaining the 'resource functions' of forests. The kind of activity (reforestation) in itself is not enough for including/excluding an activity: It must be cross-classified with the natural resource, i.e. non-cultivated or not available for wood supply forests.

Examples:

Environmental specific services: Restoration activities, education, training, information, sensibilisation and general administration activities linked to non-cultivated forest management.

Connected services: No example available of connected services.

Connected goods: Goods for restoring non-cultivated forests?

Adapted goods: No example available of adapted goods.

End-of-pipe technologies: Forest restoration, measuring and monitoring equipment.

Integrated technologies: Certified management systems applied to non-cultivated forests.

% to be determined:

Suggested data				Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts
02.40	Support services to forestry	Restoration activities, education, training, information, sensibilisation and general administration activities linked to non-cultivated forest management	Env.	024X - Support services to forestry <i>Specified environmental product cannot be identified</i>

Preliminary conclusions for CReMA 11A:

Data for production in CReMA 11A Management of forest areas is mainly found in CPA 02.4. If not possible to separate the specified activities within this product, the entire CPA can be included.

CReMA 11B - Minimisation of the intake of forest resources**From the EGSS-manual:**

Activities aiming at the minimisation of the intake of forest resources through in-process modifications as well as the recycling, reuse or savings of forest products and by-products.

Examples:

Environmental specific services: Education, training, information, sensibilisation to the reduction of the intake of forest resources.

Connected services: No example available of connected services.

Connected goods: No example available of connected goods.

End-of-pipe technologies: No example available of end-of-pipe technologies.

Adapted goods: Recycled paper, products made of recycled wood.

Integrated technologies: Paper and wood recycling equipment.

100% environmental products

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	Notes	National accounts	Prodcom
38.3	Materials recovery services; secondary raw materials	Env.	The classification depends on the type of material (wood and paper : 11B; plastic: 13 C; glass and metals: 14)		

% to be determined:

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
16.24	Wooden containers	Reconditioning of wooden containers	A	162410 - Manufacture of wooden containers	1624XXX- Specified environmental product cannot be identified
17	Paper and paper products	Recycled paper	A	17 - no specific NA code for recycled paper	17XX - Specified environmental product cannot be identified

Preliminary conclusions for CReMA 11B:

Data for production in CReMA 11B Minimisation of the intake of forest resources is mainly found in within recycling and reuse of forest materials/paper.

Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code).

CReMA 12 - Management of wild flora and fauna**From the EGSS-manual:**

Management of wild flora and fauna comprises activities aimed at the minimisation of the intake of wild flora and fauna through in-process modifications as well as withdrawals reduction and regulation measures. Restoration activities are included (replenishment of wild flora and fauna stocks). Activities and products concerning measurement, control, laboratories and the like are also included as well as education, training and information and general administration activities linked to the management of wild flora and fauna.

The focus is on 'wild' flora and fauna and all the activities carried out for their maintenance and management. Often the management of game reserves, e.g. in the case of birds, has the purpose of maintaining the stock of 'wild' fauna, even if for hunting purposes. What is relevant is that the flora and fauna concerned are 'wild' and the activities are aiming mainly at maintaining the 'resource functions' (SEEA concept) of wild flora and fauna.

Examples:

Environmental specific services: General Government activities for preserving stocks through the enforcement of quotas, regulation, monitoring, control for e.g. fishing activities. Repopulation of stocks of wild fauna by introducing new individuals.

Connected services: No example available of connected services.

Connected goods: No example available of connected goods.

End-of-pipe technologies: Flora and fauna restoration, measuring and monitoring equipment.

Adapted goods: No example available of adapted goods.

Integrated technologies: No example available of adapted technologies.

Recommendations:

CEPA 6 relates to the protection of biodiversity which concerns essentially threatened species. In the field of flora and fauna resources (CReMA 12), what is relevant is the stock of e.g. fish and wild animals.

% to be determined:

Suggested data					Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	Notes	National accounts	Prodcom
03.00.71	Support services to fishing	Restoration activities, education, training, information, sensibilisation and general administration activities linked to fishing	Env.		No code specifying requested product	No code specifying requested product
03.00.72	Support services to aquaculture	Restoration activities, education, training, information, sensibilisation and general administration activities linked to aquaculture	Env.		No code specifying requested product	No code specifying requested product

Preliminary conclusions for CReMA 12:

The data on market output in CReMA 12 Management of wild flora and fauna is not present in the product list. A challenge is to separate the products from CEPA 6. As with CEPA 6, an assumption can be made that most of the activity is done by general government.

Further work is needed.

CEPA 13 - Management of fossil energy resources

Management of energy resources comprises activities aimed at the minimisation of the intake of fossil resources through the production of energy from renewable sources, heat/energy saving and management and the minimisation of the intake of fossil resources for raw materials for uses other than energy production.

Exploitation, management and maintenance of the stocks of non-renewable energy sources (including exploration and discovery of new reserves) are not included in the scope of the EGSS.

CEPA 13A - Production of energy from renewable sources

From EGSS-manual: Reduction of the exploitation of non-renewable energy sources through the production of energy from renewable sources. The definition of renewable energy adopted in this handbook is the definition of the International Energy Agency (IEA).

Definition of 'renewable energy' used by the International Energy Agency (IEA)

The International Energy Agency includes the following categories into its definition of renewables:

- *Hydropower:* Potential and kinetic energy of water converted into electricity in hydroelectric plants. It includes large as well as small hydro, regardless of the size of the plants.
- *Geothermal energy:* Energy available as heat emitted from within the earth's crust, usually in the form of hot water or steam. It is exploited at suitable sites for electricity generation after transformation, or directly as heat for district heating, agriculture, etc.
- *Solar energy:* Solar radiation exploited for hot water production and electricity generation. Does not account for passive solar energy for direct heating, cooling and lighting of dwellings or other.
- *Wind energy:* Kinetic energy of wind exploited for electricity generation via wind mills.
- *Tide/wave/ocean energy:* Mechanical energy derived from tidal movement, wave motion or ocean current, and exploited for electricity generation.
- *Solid biomass:* Covers organic, non-fossil material of biological origin which may be used as fuel for heat production or electricity generation.
- *Wood, wood waste, other solid waste:* Covers purpose-grown energy crops (poplar, willow etc.), a multitude of woody materials generated by an industrial process (wood/paper industry in particular) or provided directly by forestry and agriculture (firewood, wood chips, bark, sawdust, shavings, chips, black liquor, etc.) as well as waste such as straw, rice husks, nut shells, poultry litter, crushed grape dregs, etc.
- *Charcoal:* Covers the solid residue of the destructive distillation and pyrolysis of wood and other vegetal material.
- *Biogas:* Gases composed principally of methane and carbon dioxide produced by anaerobic digestion of biomass and combusted to produce heat and/or power.
- *Liquid biofuels:* Bio-based liquid fuel from biomass transformation, mainly used in transport applications.
- *Municipal waste (renewables):* Municipal waste energy comprises waste produced by the residential, commercial and public services sectors and incinerated in specific installations to produce heat and/or power. The renewable energy portion is defined by the energy value of combusted biodegradable material.
- *Combustible renewables and waste (CRW):* Some of the waste (the non-biodegradable part of the waste) is not considered renewable as such. However, proper breakdown between renewables and non-renewables is not always available.

Examples:

Environmental specific services: No examples of environmental specific services.

Connected services: Installation of equipment for the production of renewable energy.

Connected goods: Components of solar panels, wind mills, hydropower equipment, etc.

End-of-pipe technologies: Monitoring equipment of renewable energy sources.

Adapted goods: Renewable energy.

Integrated technologies: Equipment for the production of renewable energy such as wind mills, solar panels, etc.

Recommendations:

By adopting the IEA definition of renewable energy sources, CReMA 13A includes the energy produced from burning biomass waste when the purpose is energy recovery. Nevertheless if the main purpose of waste incineration is the thermal treatment of waste in waste treatment facilities then it is included in CEPA 3 (see CEPA 3).

100 % environmental products

Suggested data			Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product NOTES	National accounts	Prodcom
28.11.22	Hydraulic turbines and water wheels	Int.	281120 turbines	28.11.22 Hydraulic turbines and water wheels
28.11.24	Wind turbines	Int.	281120 turbines	28.22.24 Generator driven by wind.
28.11.32	including regulators	Int.	281130 Parts for turbines, parts for ship engines	28.11.32Parts of hydraulic turbines, water wheels

% to be determined

Suggested data				Available data sources	
CPA CODE	CPA 2008 DESCRIPTION	Short description of the EGS	Type of product	National accounts	Prodcom
16.29	Other products of wood; articles of cork, straw and plaiting materials	woods for the production of energy	A	No code specifying requested product	No code specifying requested product
20.14	Other organic basic chemicals	Biofuels	A	2014xx, not specified biofuel	2014xxxx, not specified biofuel
26.11.22	Semiconductor devices; light-emitting diodes; mounted piece-electric crystals; parts thereof	Solar panels and/or their components	Int.	261 - Electronic components and printed circuits	26.11.22.40 solar panels, etc.
26.11.40	Parts of electronic valves and tubes and of other electronic components n.e.c.	Solar panels and/or their components	Int.	261 – Electronic components and printed circuits	26.11.40.90 - various parts. Specified environmental product cannot be identified
27.52.14	Water heaters, instantaneous or storage, non-electric	Solar	Int.	2752 non-electric household appliances	N/A
35.11.10	Electricity	Renewable energy	A	351110 – Electricity Specified environmental product cannot be identified	
35.2	Manufactured gas; distribution services of gaseous fuels through mains	Gas from agricultural by-products and waste	A	352 – Manufactured gas; distribution services of gaseous fuels through mains. Specified environmental product cannot be identified	
35.3	Steam and air conditioning supply services	Renewable energy	A	35.3 Steam and air conditioning supply services. Specified environmental product cannot be identified	
43.21.10	Electrical installation works	Installation of photovoltaic panels	Env.	4321 - Electrical installation work. Specified environmental product cannot be identified	
71.12.13	Engineering services for power projects	for renewable energy projects	Env.	71121X - Technical consulting services. Specified environmental product cannot be identified	

Preliminary conclusions for CReMA 13A: The data on market output in CReMA 13A Production of energy from renewable sources can partly be found in the product list.

Further work is needed in order to identify the production of renewable energy. Alternative sources as the energy accounts can be used.

CEPA 13B - Heat/Energy saving and management**From the EGSS-manual:**

Activities aiming at the minimisation of the intake of non-renewable energy sources through in-process modifications as well as the minimisation of heat and energy losses and through energy savings. Activities and products concerning measurement, control, laboratories and the like are also included as well as education, training and information and general administration activities linked to the management and saving of heat and energy.

Examples:**Environmental specific services:** Insulation, bio-architecture, services, etc.**Connected services:** Installation of equipment for combined heat and power production, etc.**Connected goods:** No example available of connected goods.**End-of-pipe technologies:** Equipment for monitoring and measurement of heat and energy consumption.**Adapted goods:** Double glazed windows, low energy buildings, heat from solar panels and heat pumps, low-energy devices**Integrated technologies:** Equipment for heat/energy saving, heat exchangers for the recycling of heat from air and wastewater, heat pumps for the production of heat, combined heat and power.**100 % environmental products**

Suggested data				Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	NOTES	National accounts
43.29.11	Insulation works	Env.	Also CEPA 5 for acoustic insulation works	432900, insulation work is only a part of the NA product.

% to be determined

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
16.10.22	Wood wool; wood flour	Wood wool used for thermic isolation	C	16102 – wood, timber	<i>Specified environmental product cannot be identified</i>
16.23.11	Windows, French windows and their frames, doors and their frames and thresholds, of wood	low emission/ high energy performance windows	A	16231 – windows, doors and door frames.	<i>Specified environmental product cannot be identified</i>
16.23.2	Prefabricated wooden buildings	low emission/consumption and/or passive buildings	A	16232 - Prefabricated wooden buildings	Prefabricated wooden buildings
16.29.2	Articles of cork, straw or other plaiting materials; basket ware and wickerwork	cork for thermal insulation	C	16292 - Articles of cork, straw or other plaiting materials; basket ware and wickerwork	
17	Paper and paper products	cellulosic materials for thermal insulation	C	17 - Paper and paper products	
20.16.2	Polymers of styrene, in primary forms	Polymers of styrene for insulation purposes (e.g. EPS, XPS)	C	2016XX – polymers	20.16.20.35 - Polymers of styrene, in primary forms
20.16.56	Other amino-resins, phenolic resins and polyurethanes, in primary forms	Polyurethanes for insulation purposes	C	2016XX – polymers	<i>Specified environmental product cannot be identified</i>
22.23.14	Doors, windows and frames and thresholds for doors; shutters, blinds and similar articles and parts thereof, of plastics	High efficient windows	A	2223 - Construction materials made of plastics.	22231450 + 22231470 Doors, windows and frames and thresholds for doors; shutters, blinds and similar articles and parts thereof, of plastics
23.12.13	Glass mirrors; multiple walled insulating units of glass	multiple walled insulating units of glass	A	2312 – mirror and security glass.	23.12.13.30 - multiple walled insulating units of glass
23.14.1	Glass fibres	Glass fibres for insulation purposes	C	2314 – Glass fibres.	2314XX - <i>Specified environmental product cannot be identified</i>
23.61.12	Prefabricated structural components for building or civil engineering, of cement, concrete or artificial stone	Autoclave Cellular Concrete (for isolation)	C	23611 - Tiles, flagstones and bricks of cement or concrete	236112 - Prefabricated structural components for building or civil engineering, of cement, concrete or artificial stone
23.62	Plaster products for construction purposes	Production of plaster made from phosphogypsum or citrogypse (waste of metallurgic processes)	A	2362 - Plasterboard products for construction	236210XX - <i>Specified environmental product cannot be identified</i>
23.99	Other non-metallic mineral products n.e.c.	Isolation materials as rock wool n.e.c.	C	23999 – mineral wool	23.99.19.10 - Slag wool, rock wool and similar mineral wool mixtures thereof, in bulk, sheets or rolls
25.12	Doors and windows of metal	low emission/ high energy performance windows	A	2512 – doors and windows	251210XX – doors and windows made of iron,

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
				made of iron, aluminium and steel.	aluminium and steel. <i>Specified environmental product cannot be identified</i>
25.21.12	Central heating boilers, for producing hot water or low pressure steam	Condensing boilers	A	2521 - Radiators for central heating, central heating boilers	252112 - Central heating boilers, for producing hot water or low pressure steam <i>Specified environmental product cannot be identified</i>
25.21.13	Parts for central heating boilers	Condenser to be added to traditional boiler to improve efficiency and thus reduce consumption	C	2521 - Radiators for central heating, central heating boilers	252113 - Parts for central heating boilers <i>Specified environmental product cannot be identified</i>
26.51.70	Thermostats, manostats and other automatic regulating or controlling instruments and apparatus	Thermostats for heating regulation in buildings	C	265170 – Thermostats.	265170 - Instruments and apparatus for automatic regulating or controlling, nec.
27.40.15	Discharge lamps; ultra-violet or infra-red lamps; arc lamps	Discharge lamps as low pressure lamps (e.g. compact fluorescent lamps)	A	2740 - Lighting Equipment	No
27.5	Domestic appliances	The most efficient domestic appliances	A	275 XX – Various appliances. <i>Specified environmental product cannot be identified</i>	
28.14.11	Pressure-reducing, control, check and safety valves	Thermostatic valves	C		2814118 - Safety and relief valves for pipes, boiler shells, tanks, vats and similar containers
28.14.12	Taps, cocks, valves for sinks, wash basins, bidets, water cisterns bath and similar fixtures; central heating radiator valves	Thermostatic valves	C	28141 - Taps and valves for pipes, boiler shells, tanks, etc	2814123 – valves (fittings for piping) <i>Specified environmental product cannot be identified</i>
28.14.13	Process control valves, gate valves, globe valves and other valves	Thermostatic valves	C	28141 - Taps and valves for pipes, boiler shells, tanks, etc	281413X – various valves <i>Specified environmental product cannot be identified</i>
28.25.13	Refrigeration and freezing equipment and heat pumps, except household type equipment	Heat pumps for heating or cooling buildings	Int.	2825 - Cooling and ventilation equipment except household	28251390 - Cooling and freezing equipment and heat pumps, nec
41.00.10	Residential buildings	Low energy consumption and passive buildings	A	<i>Specified environmental product cannot be identified</i>	
41.00.2	Non-residential buildings	Low energy consumption and passive buildings	A	<i>Specified environmental product cannot be identified</i>	
42.22.23	Construction works for power plants	Renewable power plants	Int.	42 – construction activity	
43.22.12	Heating, ventilation and air conditioning installation works	Installation of solar panels for warming water	Env.	4322 - Plumbing work <i>Specified environmental product cannot be identified</i>	
43.99.7	Assembly and erection works of prefabricated constructions	Assembly and erection works of prefabricated low energy and passive buildings	Env.		
71.12.12	Engineering services for building projects	For more efficient/passive buildings	Env.		

Preliminary conclusions for CReMA 13B:

The data on market output in CReMA 13B Heat/Energy saving and management can partly be found in the product list.

Additional information is needed in the cases where only a part of the product is environmental (yellow or red mark on the CPA code). Further work is needed.

CEPA 13C - Minimisation of the intake of fossil resources as raw material

From the EGSS-manual:

Activities aiming at the minimisation of the intake of fossil resources for raw materials for uses other than energy production (e.g. the production of plastic, chemicals, rubber). Activities and products concerning measurement, control, laboratories and the like are also included as well as education, training and information and general administration activities linked to the management and saving of fossil resources used as input for productions other than energy production.

Examples:

Environmental specific services: No examples of environmental specific services.

Connected services: No example available of connected services.

Connected goods: Components of plastic recycling equipment.

End-of-pipe technologies: No example available of end-of-pipe technologies.

Adapted goods: Bioplastic bags, retreaded tyres, recycled plastic materials.

Integrated technologies: Plastic recycling equipment.

100 % environmental products:

Suggested data				Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	NOTES	National accounts
01.29.10	Natural rubber	A		01.29 - Growing of other perennial crops
22.11.2	Retreaded pneumatic tyres, of rubber	A		221120; Rubber Tires, Used & retreaded
22.19.1	Reclaimed rubber in primary forms or in plates, sheets or strip	A		221900 Other rubber products
38.3	Materials recovery services; secondary raw materials	Env.	The classification depends on the type of material (wood and paper plastic: glass and metals)	

% to be determined

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
20.3	Paints, varnishes and similar coatings, printing ink and mastics	Bio paints (e.g. water based paintings with no chemical, i.e. derived from petrol, solvents)	A	<i>Specified environmental product cannot be identified</i>	
20.41	Soap and detergents, cleaning and polishing preparations	Soap and detergents 100% biodegradable	A		2041202 -Organic surface-active agents, anion active.
22.22.12	Sacks and bags (including cones), of other plastics than polymers of ethylene	Made of bio-plastic (Starch based plastics, Polylactide acid (PLA) plastics, Poly-3-hydroxybutyrate (PHB), Polyamide 11 (PA 11), Bio-derived polyethylene)	A		no

Preliminary conclusions for CReMA 13C: The data on market output in CReMA 13C Minimisation of the intake of fossil resources as raw materials for uses other than energy production is mainly related to production of plastic, rubber etc. and reuse/material recovery of these materials.

Output can partly be found in the product list. However, further work is needed in order to separate the environmental part of the products.

CReMA 14 - Management of minerals

From the EGSS-manual:

Management of minerals comprises activities aimed at the minimisation of the intake of minerals through in-process modifications as well as the reduction of scraps and the production and consumption of recycled materials and products. Activities and products concerning measurement, control, laboratories and the like are also included as well as education, training and information and general administration activities linked to the management of minerals.

Examples:

Environmental specific services: No example available of environmental specific services

Connected services: No example available of connected services.

Connected goods: No example available of connected goods.

End-of-pipe technologies: No example available of end-of-pipe technologies.

Adapted goods: Recycled metals, recycled glass products, recycled ceramic products.

Integrated technologies: Metal recycling ovens (electric arc furnace), recycling glass equipment etc.

Recommendations:

The management of quarries as well as the exploitation, management and maintenance of minerals stocks (including research and exploration activities) are **not included** in the scope of the EGSS. **Excluded** from CReMA 14 are the collection, transportation and sorting of waste which is to be recorded in CEPA 3.

The production of energy from waste incinerators is to be recorded in CReMA 13A. The production of recycled paper and recycled wooden products is also excluded; it is included in CReMA 11.

100% environmental products

Suggested data				Available data sources
CPA 2008 CODE	CPA 2008 DESCRIPTION	Type of product	Notes	National accounts
08.12.13	Mixtures of slag and similar industrial waste products, whether or not incorporating pebbles, gravel, shingle and flint for construction use	A		08.12 - Gravel, sand, clay and kaolin
38.3	Materials recovery services; secondary raw materials	Env.	The classification depends on the type of material (wood and paper : 11B; plastic: 13 C; glass and metals: 14)	

% to be determined:

Suggested data				Available data sources	
CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	National accounts	Prodcom
23.51.12	Portland cement, aluminous cement, slag cement and similar hydraulic cements	Manufacture of metallurgical slag-based cement and other types of cement containing a proportion of waste	A		235112 – Portland cement. <i>Specified environmental product cannot be identified</i>
24.10	Basic iron and steel and ferro-alloys	Basic iron and steel and ferro-alloys produced from iron and steel waste and scraps	A		2410 – Various codes. <i>Specified environmental product cannot be identified</i>
24.4	Basic precious and other non-ferrous metals	Basic precious and other non-ferrous metals from waste and scraps	A	244 - Basic precious and other non-ferrous metals	244 – Various codes. <i>Specified environmental product cannot be identified</i>
28.41	Metal forming machinery	Used for metal recovery	E	284- Metal forming machinery and machine tools	2841XXX - <i>Specified environmental product cannot be identified</i>

CReMA 15 - Research and development (R&D)**From the EGSS-manual:**

Research and development activities for natural resource management comprises 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.

Examples:

Environmental specific services: Resource preservation R&D.

Connected services: No example available for connected services.

Connected goods: No example available for connected goods.

End-of-pipe technologies: No example available for end-of-pipe technologies.

Adapted goods: No example available for adapted goods.

Integrated technologies: No example available for integrated technologies.

Recommendations:

Excluded are R&D activities related mainly to environmental protection (see CEPA 8).

% to be determined:

CPA 2008 CODE	CPA 2008 DESCRIPTION	Short description of the EGS which are included in the code	Type of product	Notes
72.1	Research and experimental development services in natural sciences and engineering	For environmental or resource management purposes	Env.	

Preliminary conclusions for CReMA 15:

Data for production in CReMA 15 Research and development are in need of additional information to identify the R&D on resource management. Further work is needed.

CReMA 16 - Other natural resource management activities

From the EGSS-manual:

Natural resource management activities not classified in the previous classes, i.e. general administration, education, training and information activities that relate to two natural resources or more, as well as other kinds of activities leading to indivisible output.

Examples:

Environmental specific services: Services – construction and installation of facilities for resource monitoring, analysis and assessment; multidisciplinary contracting, consulting, audit and engineering services (which include any activity that investigates feasibility, designs and manages resource preservation projects, engineering design and specifications, studies, depletion assessment, laboratory and field services, legal services/environmental, monitoring sites, operating both singly and in networks, and covering one or more natural resources, measuring and monitoring, sampling, process and control, data acquisition, management and analysis, etc.), etc. Also includes the regulation or administration and support of decisions taken in the context of resource preservation, supervision and analysis, education or training and disseminating information on resource management.

Connected goods: Equipment or specific materials for the sampling, measurement and subsequent recording, analysis and assessment of various characteristics of natural resources.

Adapted goods: No example available for adapted goods.

End-of-pipe technologies: No example available for end-of-pipe technologies.

Integrated technologies: No example available for integrated technologies.

Recommendations:

Excluded are general administration, education, training and information activities related mainly to environmental protection (see CEPA 9).

No examples of products other than the products that are included in all or some CEPA or CReMA.

Preliminary conclusions for CReMA 16:

Data for market output in CReMA 16 Other natural resource management activities are in need of additional information to be identified. Further work is needed.

Further work:

The CPA code 74.90.13 is common for every CEPA and CReMA. A suggestion to get detailed information on this area is to do an analysis of the enterprises included in the business register under the NACE code 74.90X. A first approach might be to do a limited search based on the name of the enterprises, for example energy, environment, climate, resource, etc. Another cut-off is to only look at the enterprises with a turnover over a certain level. When these enterprises have been identified, a more thorough search can be undertaken and by looking at the financial statements to verify the activity conducted in the enterprises.

A similar procedure can be applied to NACE 39.

However, this is time consuming work and the method needs to be evaluated.

Annex B. Proposal amendment of EU regulation 691/2011; Annex V³

MODULE FOR THE ENVIRONMENTAL GOODS AND SERVICES SECTOR

Section 1

OBJECTIVES

Statistics on environmental goods and services record and present data on national economies' production activities that generate environmental products in a way that is fully compatible with the data reported under ESA.

This Annex defines the data to be collected, compiled, transmitted and evaluated for environmental goods and services by the Member States.

Section 2

COVERAGE

The environmental goods and services sector has the same system boundaries as ESA and consists of all environmental goods and services that are created within the production boundary. ESA defines production as the activity carried out under the control and responsibility of an institutional unit that uses inputs of labour, capital and goods and services to produce goods and services.

Environmental goods and services fall within the following categories: environmental specific services, environmental sole purpose products (connected products), adapted goods and environmental technologies.

Section 3

LIST OF CHARACTERISTICS

Member States shall produce statistics on the environmental goods and services sector according to the following characteristics:

- market output, of which:
 - exports
- value added of market activities
- employment of market activities.

All data shall be reported in million national currency, except for the characteristic 'employment' for which the reporting unit should be full time equivalent.

Section 4

FIRST REFERENCE YEAR; FREQUENCY AND TRANSMISSION DEADLINES

1. Statistics shall be compiled and transmitted on a yearly basis.
2. Statistics shall be transmitted within 24 months of the end of the reference year.

³ Proposal of 2.5.2013.

3. In order to meet user needs for complete and timely datasets, the Commission (Eurostat) shall produce, as soon as sufficient country data becomes available, estimates for the EU-27 totals for the main aggregates of this module. The Commission (Eurostat) shall, wherever possible, produce and publish estimates for data that have not been transmitted by Member States within the deadline specified in point 2.
4. The first reference year is the year in which this Regulation enters into force.
5. In the first data transmission, Member States shall include annual data from 2013 to the first reference year.
6. In each subsequent data transmission to the Commission, Member States shall provide annual data for the years $n-3$, $n-2$, $n-1$ and n , where n is the reference year.

Section 5

REPORTING TABLES

1. For the characteristics referred to in Section 3, data shall be reported cross-classified by:
 - classification of economic activities, NACE Rev. 2 (A*21 aggregation level as set out in ESA),
 - classes of the classification of environmental protection activities (CEPA) and the classification of resource management activities (CReMA) grouped as follows:
 - CEPA 1
 - CEPA 2
 - CEPA 3
 - CEPA 4
 - CEPA 5
 - CEPA 6
 - Sum of: CEPA 7, CEPA 8 and CEPA 9
 - CReMA 10
 - CReMA 11
 - CReMA 13
 - CReMA 13A
 - CReMA 13B
 - CReMA 13C
 - CReMA 14
 - Sum of: CReMA 12, CReMA 15 and CReMA 16
2. The CEPA classes referred to in paragraph 1 are as set out in Annex IV. The CReMA classes referred to in paragraph 1 are as follows:
 - CReMA 10 – Management of water
 - CReMA 11 – Management of forest resources
 - CReMA 12 – Management of wild flora and fauna
 - CReMA 13 – Management of energy resources

CReMA 13A – Production of energy from renewable resources

CReMA 13B – Heat/energy saving and management

CReMA 13C – Minimisation of the use of fossil energy as raw materials

CReMA 14 – Management of minerals

CReMA 15 – Research and development activities for resource management

CReMA 16 – Other resource management activities

Section 6

MAXIMUM DURATION OF THE TRANSITIONAL PERIODS

For the implementation of the provisions of this Annex, the maximum duration of the transitional period is 2 years from the first transmission deadline.

Annex C. Illustration of reporting tables⁴

Country:	Year:																		
Mio national currency			A. Environmental Protection (EP)								B. Resource Management (RM)								
Environmental domains			CEPA1	CEPA2	CEPA3	CEPA4	CEPA5	CEPA6	CEPA7 + 8 + 9	Total CEPA	CReMA 10	CReMA 11	CReMA 13	CReMA 13 A	CReMA 13 B	CReMA 14	CReMA 12 + 15 + 16	Total CReMA	
Value added by NACE Rev. 2, A*21 breakdown																			
Value added	Total NACE Rev. 2																		
	A	1-3 Agriculture, forestry and fishing																	
	B	5-9 Mining and quarrying																	
	C	10-33 Manufacturing																	
	D	35 Electricity, gas, steam and air conditioning supply																	
	E	36-39 Water supply, sewerage, waste management and remediation activities																	
	F	41-43 Construction																	
	G	45-47 Wholesale and retail trade; repair of motor vehicles and motorcycles																	
	H	49-53 Transportation and storage																	
	I	55-56 Accommodation and food service activities																	
	J	58-63 Information and communication																	
	K	64-66 Financial and insurance activities																	
	L	68 Real estate activities																	
	M	69-75 Professional, scientific and technical activities																	
	N	77-82 Administrative and support service activities																	
	O	84 Public administration and defence; compulsory social security																	
	P	85 Education																	
	Q	86-88 Human health and social work activities																	
	R	90-93 Arts, entertainment and recreation activities																	
	S	94-96 Other services																	
	T	97-98 Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use																	
	U	99 Activities of extraterritorial organisations and bodies																	

⁴ The table for value added is presented. Tables are similar for the other economic variables output, export and employment.

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