Statistics Netherlands

Report

Compiling EPE tables for the Netherlands

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Final report

Explanation of symbols

:	Not applicable
.	Data not available
x	Publication prohibited (confidential figure)
-	Nil
o	(0.0) Less than half of unit concerned
*	Provisional figure
**	Revised provisional figure (but not definite)

Figures are rounded off to the nearest ten million. Consequently, the sum of the detail data can deviate from the total.

Abbreviations

CEPA Classification of Environmental Protection Activities
CPA Statistical Classification of Products by Activity
CPC Central Product Classification
CReMA Classification of Resource Management Activities
EGSS Environmental Goods and Services Sector
EP environmental protection
EPE Envrionmental Protection Expenditures
EPEA environmental protection expenditure accounts
EPER environmental protection expenditure and revenues
FTS Foreign Trade Statistics
GDP Gross Domestic Product
NA National Accounts
RM Resource Management
SEEA System of Economic Environmental Accounts
SERIEE European System for the Collection of Economic Information on the Environment
SIC Standard Industrial Classification
UN United Nations

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1. Introduction

Environmental protection expenditure accounts present data, in a way that is fully compatible with the data reported under ESA, on the expenditure for environmental protection, i.e. the economic resources devoted by resident units to environmental protection. The accounts allow compiling the national expenditure for environmental protection (EP) which is defined as the sum of uses of EP services by resident units, gross capital formation for EP activities, and transfers for EP which are not a counterpart of previous items, less financing by the rest of the world.

Environmental protection expenditure accounts are part of the SEEA Central Framework (UN et al., 2012), which was recently adopted as international statistical standard. A module on environmental protection expenditure (EPE) is one of the three modules that has been proposed to be included in Legislation 691/2011 for environmental accounting. According to the set-up of this legal base, data are required for a number of economic variables and environmental domains (CEPA).

At present, Statistics Netherlands compiles data on environmental protection expenditure and revenues (EPER) for several economic sectors, including, government, specialist producers, manufacturing, agriculture and transport. For the 'missing' sectors of the economy (construction, services, households) new projects have been carried out in the last few years to provide a complete picture of the whole economy. In 2010, a full EPEA for the Netherlands was compiled for one year (financed by Eurostat). One of the conclusions of the EPEA project was that there are some substantial differences between the EPER approach and the NA approach, both with respect to concepts, methodology and data sources.

The aim of the current project is to compile data for the EPE module for the Netherlands for one year (2011). An important challenge here is to bring data from the National accounts together with the data from the EPER statistics. The EPER of the Netherlands focuses on the compilation an publication of net environmental costs, i.e. not gross fixed capital but consumption of fixed capital (depreciation) plus current costs. One of the results of this project will be an analysis of the differences of these two concepts (Chapter 2). It will be investigated if the EPE tables can be filled with existing data sources. All tables will be considered, except table 6 (transfers) which will be investigated next year. This will be described in chapters 3-7. Special attention will be given to several scope issues, which are important with regard to international comparability of the data. Chapter 8 rounds up with the main conclusions and recommendations.

The outcome of this project will result in a new compilation process that will enable Statistics Netherlands to annually compile the EPE module as is being proposed for the legal base. Remaining issues will be identified which will be dealt with in a follow up project done next year (2014).

2. Theoretical framework of the EPEA

2.1 Short description of the EPEA framework

The EPEA provide a conceptual framework closely linked the National accounts that describes environmental protection expenditure (Eurostat, 2002). The purpose of the EPEA is to identify and measure society's response to environmental concerns through the supply and demand for environmental protection services and through the adoption of production and consumption behaviour aimed at preventing environmental degradation. To this end, EPEA provide information on the output of environmental protection specific services produced across the economy and on the expenditure of resident units on all goods and services for environmental protection purposes (SEEA-CF 4.45). In addition, it also can also be assessed how the expenditure for the environment is financed.

The EPEA framework consists of five interrelated tables (Eurostat, 2002; Figure 3.1). SEEA-CF describes only the first four tables. Table B presents information on the production of characteristic environmental services, i.e. environmental specific services produced by resident units in the form of a combined production and income account. Table B1 presents a supply and use table for these specific services. Table A shows the expenditure of all environmental goods and services by different sectors, i.e. the expenditure for the uses (consumption) of environmental services and of connected and adapted products, for gross fixed capital formation and some other related transactions. Table C provides information of the financing of the environmental expenditure. Finally, Table C1 shows the net cost burden of environment expenditure / resource management for various sectors of the economy.

The tables for the EPEA (figure 2.1) are compiled for certain sectors that are producing or using environmental specific services or environmental products (connected and adapted products). These sectors include producers of environmental specific services (specialist producers, non-specialist producers, government producers and own account producers), other producers, general government, and households. In principle, these sectors could be further disaggregated to NACE classes.

In addition the EPEA can also to disaggregated to environmental domains using the CEPA classification for environmental protection activities. The EPEA framework can also be applied to resource management activities (ReMEA compilation guide, in preparation). This is currently tested by the ReMEA taskforce.

The key indicator that can be derived from Table A is the **total national expenditure on environmental protection**, which is defined as (SEEA-CF 4.85):

- Final consumption, intermediate consumption, and gross fixed capital formation on all environmental protection goods and services (specific services, connected products and adapted goods), except intermediate consumption and gross fixed capital formation for characteristic activities;

- *plus* Gross fixed capital formation (and acquisition less disposal of non-produced non-financial assets) for environmental protection characteristic activities;
- *plus* Environmental protection transfers by resident units not captured in the items above;
- *plus* Environmental protection transfers paid to the rest of the world;
- *less* Environmental protection transfers received from the rest of the world.

2.1 The full set of EPEA tables

Table B Production table	**Table B1** supply–use table	**Table A** Uses (expenditure) table	**Table C** Financing of expenditure	**Table C1** Net cost of environmental protection
OUTPUT of EP services	FROM OUTPUT TO USES: introduction of imports/exports and taxes/subsidies on products	USES: of EP services by resident units	FINANCING of: uses of EP services	FINANCING of CURRENT: uses of EP services
Gross capital formation plus land acquisition		Gross capital formation plus land acquisition	Gross capital formation plus land acquisition	Costs of capital (interest)
		uses of adapted & connected products	uses of adapted & connected products	uses of ad. & con. products
		specific transfers	specific transfers	specific transfers less EP benefits
				environmental taxes

2.2 EPE module of Eurostat

Since 2009, the DIMESA has been discussing the possible inclusion of an EPE module in the regulation on European environmental accounts. A first proposal, which included the first three EPEA tables, was at that stage considered too ambitious. In 2011, Eurostat made a first proposal for a simplified module on environmental protection expenditure (EPE) for possible future inclusion into Regulation 691/2011 on European environmental economic accounts. Following the input from the working groups, this proposal was adapted in 2011 and 2012 and a new version was presented in the DIMESA meeting in November 2012. The main conclusion was that this simplified module for EPE was acceptable to the majority of countries for inclusion in the legal base. In 2013 this proposal was discussed and amended in several Council meetings. It is expected that the extension of the environmental accounting Regulation will be signed in 2014. According to the legal text, the first data transmission from EU countries will take place in 2017.

The principle aim of the simplified module for EPE is to calculate the total national expenditures for EP. Accordingly, the focus is on the environmental output by different sectors. Next, using the supply use identity, the total output available for national uses can be determined:

Environmental output + taxes less subsidies + imports – exports =

intermediate consumption + final consumption households + final consumption government =

Total EP output available for national uses

Adding gross fixed capital formation for characteristic environmental activities and correcting for transfers with the rest of the world provides the **total national expenditures for EP**. Finally, adding information on transfers allows the calculation of the financing to the environmental protection expenditure.

2.2.1 Schematic overview of the EPE module. Only white cells may contain data items.

mln euro			General governmen	Private specialised producers	Own account producers	Households	Rest of the world	Total
EP output in basic prices	**O1**	EP output						
	O11	EP Market output						
	O12	EP Non market output						
	O13	EP secondary output						
Interm. consumption of EP by spec prod.	**IC**							
Imports, exports	**I**	imports						
	E	Exports						
	V	BTW, taxes less subsidies						
TOTAL EP output available for national uses	**O2**							
Gross capital formation for EP	**G**							
Final consumption	**F**							
EP transfers	**T1**	Current/capital transfers paid						
	T2	Current transfers recieved						
	T3	Capital transfers received						

Eurostat has prepared seven tables for the EPE module that will have to be filled in by EU member states:

1. General government
2. Corporations: ancillary activities (total)

2a Mining and quarrying

2b Total manufacturing

2b add Detailed manufacturing industries

2c Electricity, gas and steam supply

2d Water supply

2e Other NACE divisions (voluntary)

3. Corporations as secondary and specialist producers of market environmental protection services

4. Total supply of environmental protection services

5. Households

6. Environmental protection transfers

7. Total economy

Each table consist of an obligatory part (legal base) and a voluntary part. The obligatory part is very reduced in scope with regard to environmental domains (CEPA), the economic activities and accounting items that have to be reported. For each sector only some (or a combination of) CEPA classes have to be reported. With regard to ancillary activities, only NACE B, C and D have to be reported, i.e. not for the other economic activities. Finally, expenditure with regard to adapted and connected products is excluded from the expenditure calculation. In the voluntary tables, data for all CEPA classes and all economic activities can be provided.

2.3 Current status of the Dutch EPER statistics

The current Dutch EPER statistics were developed in the 1980s and 1990s. They describe different subsectors of the economy, such as mining, manufacturing en electricity and water supply, agriculture and transport, but also provide an overall view of all sectors, including government and specialist producers. Recently, pilot projects have been done to look at sectors not yet included, such as construction, other services and the rest of the world. Data are at the moment published either annually or biannually.

In the EPER statistics three key variables are calculated: 1) environmental costs for own activities, 2) the net environmental costs, which is calculated as the environmental costs plus paid levies and payments for environmental services minus received environmental subsidies, and 3) environmental investments.

1. Environmental costs for own activities

Environmental costs for own activities are defined as "all annual costs of activities aiming to protect, restore or improve the environment". These costs consist of the following components:

a) Labor costs (wages, social contributions)

b) Costs for energy, materials and services

c) Depreciation costs related environmental investments

d) Calculated interest related environmental investments

e) Benefits (minus)

Items a and b make up 'current expenditure', items c and d 'capital expenditure'.

2. Net environmental costs

The net environmental costs reflects the actual environmental burden that sector have to pay for environmental protection. It is calculated as the environmental costs plus related transfers.

Environmental costs for own activities

Plus a) Payments for environmental services

b) levies paid (i.e. earmarked taxes paid for certain environmental services)

c) environmental subsidies paid

Minus d) Payments received for environmental services

f) levies received (i.e. revenues from earmarked taxes)

g) environmental subsidies paid

3. Environmental investments

In the Netherlands, environmental investments are currently defined as 'investments in production facilities that are less damaging to the environment'.

Environmental investments are not part of 'net environmental costs'. Time series of the environmental investments are used to calculate the capital stock. From this capital stock depreciation and interest are calculated which are items of the environmental costs for own activities.

4. Other scope differences

The current scope of the Dutch EPER is larger than EPE module for the legal base.

- The Dutch EPER includes all CEPA categories.
- Also ancillary activities from other NACE categories are considered, namely agriculture and traffic / transport related activities.
- Expenditure on some adapted products is included in the EPER statistics (cleaner motor fuels etc.).

2.4 Differences between the EPE accounts and the EPER statistics

There are some clear differences between EPEA / the Eurostat EPE module and the current Dutch EPER statistics. The first focuses on the production and expenditure of environmental protection services while the latter focuses on the net costs and the related financial burden of environmental protection measures. Below we will discuss these differences and make them explicit using a bridge table.

The Environmental costs for own activities is closely linked to the upper part of Table B of EPEA, which describes the inputs for the production of environmental specific services (i.e. the cost structure).

2.4.1 Differences and similarities between the EPEA (Table B) and the Dutch EPER

Dutch EPER	EPEA
Costs for energy, materials and services	Intermediate consumption
Labour costs	Compensation of employees
Depreciation	Consumption of fixed capital
Interest	
	Taxes on producution
	less subsidies on production
	Net operating surplus
	Output (basic prices)
Other benefits (minus)	Non environmental output (minus)
Environmental costs for own activites	**Environmental protection output**

Table 2.4.1 shows how environmental costs for own activities relates to the production of environmental services (environmental protection output). Common elements are intermediate consumption, compensation of employees and consumption of fixed capital. Differences relate to 1) the inclusion of interest in the EPER and 2) the inclusion of taxes less subsidies and net operating surplus in the EPEA.

Accordingly, a bridge table can be compiled, which shows how environmental costs for own activities relate to the production of environmental services (environmental output):

2.4.2 Bridge table environmental costs for own activities and environmental output

	Public spec.prod	Private spec prod	Secondary production	Own account production	Government	TOTAL
+ Compensation of employees	X	X		X	X	X
+ Intermediate consumption	X	X		X	X	X
+ Consumption of fixed capital	X	X		X	X	X
+ Interest	X	X		X	X	X
- Benefits (non envrionemntal output)	X	X			X	X
Environmental costs own activites	**X**	**X**	**X**	**X**	**X**	**X**
- Interest	X	X		X	X	X
+ Taxes / subsidies on production	X	X				X
+ Net operating surplus		X				X
Environmental output	**X**	**X**	**X**	**X**	**X**	**X**
- intermediate consumption EP services spec. prod.						X
+ Imports EP services						X
+ Exports EP services						X
+ VAT and other taxes less subsidies						X
EP services for national uses						X
+ Gross fixed capital formation	X	X	X	X	X	X
Total domestic uses						X
+/- Transfers with ROW						X
National EP expenditure						**X**

As can be seen in the upper part of this bridge table, not all items that make up environmental protection output are relevant for all sectors. For example, net operating surplus is only relevant for specialist producers.

The lower part of the bridge table relates environmental output to national environmental expenditure by correcting for the intermediate consumption of EP services by specialised producers, adding imports and subtracting exports of EP services and adding VAT and other taxes on production. Finally, Gross fixed capital and transfers with the rest of the world are added.

Summarizing, the main differences between environmental costs for own activities and the National expenditure for EP relate to:

1) Costs for interest are included in the environmental costs for own activities but not in total environmental output .
2) The inclusion of net operating surplus for specialist producers
3) In the calculation of total environmental costs for own activities, all costs are summed and no correction is made for environmental services used by other specialist producers, thus creating double counting.

4) Transactions with ROW are at this moment not included in the EPER [1]

5) National environmental protection expenditure includes gross fixed capital formation, which is excluded from the environmental costs for own activities.

[1] In 2011 a pilot study was done to determine these flows, but they are not yet implemented in the published EPER statistics.

3. Compiling Table 1: Government

Table 1 allows for reporting data on the production of EP services, gross capital formation and acquisition less disposals of non-financial, non-produced assets (such as land) for the production of EP services and final consumption of EP services by general government. When compiling this table, it is useful to distinguish between central government and local government. In the Netherlands, local government, particularly municipalities and the water boards, is responsible for providing many environmental protection services, including waste water management, waste management and the upkeep of the sewer system. Central government, on the other hand primarily provides organisational and regulatory environmental services.

3.1 Central Government

Central government provides all kind of organisational and regulatory environmental services. In addition, they provide all kinds of environmental transfers (including environmental subsidies). In the production accounts, these regulatory environmental services are not separately identified. They are part of the 'general services' provided by the government. Data for these services thus have to be found in government statistics, i.e. the general government expenditure by function (COFOG) and in particular items classified in COFOG 5. Table 3.1.1 provides an overview the COFOG data for central government that have been inserted in Table 1.

3.1.1 Table 1 for Central government (2011)

	CEPA 1	CEPA 2	CEPA 3	CEPA 4	CEPA 5	CEPA 6	CEPA 7	CEPA 8	CEPA 9	TOTAL
(GCF.1) Gross capital formation	0	1	0	0	0	-7	0	-2	-15	-23
(Pnep.1) Intermediate consumption (excludi	0	15	4	0	0	90	0	71	152	332
(D.1) Compensation of employees [D1]	0	3	0	0	0	68	0	50	85	206
(P2ext) Intermediate consumption of EP serv	0	0	0	0	0	0	0	0	0	0
(S.1) Other taxes less subsidies on productio	0	0	0	0	0	6	0	0	0	6
(K.1) Consumption of fixed capital [K1]	0	2	0	0	0	13	0	7	38	60
(O.1) EP output [P1]	0	20	4	0	0	177	0	128	275	604
(Omk.1) Market output [P11]	0	0	0	0	0	0	0	0	0	0
(Onmk.1) Non-market output [P13]	0	20	4	0	0	177	0	128	275	604
(F.1) Final consumption of EP services [P3]	0	20	4	0	0	177	0	128	275	604

COFOG only provides directly corresponding data for CEPA2 (water), CEPA3 (waste), CEPA 6 (biodiversity) and CEPA8 (research). All other CEPA categories, including air and soil, are included in COFOG 5.3. For this moment, COFOG 5.3 has been allocated

to CEPA 9 (other). Allocation to all CEPA categories requires more detailed analyses of the government budgets. This is the subject of an Eurostat Grant project that will be executed next year (2014). Also, it will be investigated whether recourse management activities can be identified and if there are any problems between the classification of CEPA and CReMA.

COFOG data from government statistics provide all the important accounting identities to calculate total environmental output. Intermediate consumption of EP services (P2ext) is assumed to be zero for central government. However, it is probable that central government purchases environmental consultancy as intermediate consumption to provide organisational and regulatory environmental services. However, as no data on this is available this is not taken into account.

3.2 Local government

For local government the situation is more complex. Local government plays an important role in providing characteristic environmental services like waste collection and waste water treatment. In this sense they are specialist producers. In addition they provide (like central government) organisational and regulatory environmental services.

There are two ways to determine the total environmental output for local government. First of all, total environmental output can be derived from the total supply of environmental protection services as is reported in the monetary supply table of the national accounts. In the Dutch NA this product group includes all environmental services that are related to waste collection and treatment, wastewater collection and treatment and soil sanitation. Other environmental services (related to air, biodiversity, landscape, etc.) are not included in this product group. This figure for total environmental output was revised recently (together with the overall SNA2008 revision) based on the source data from the government statistics. This was necessary because form 2014 onwards, public environmental protection services will no longer be recorded as produced by NACE 37-39, but by NACE 84 (government). An important reason to do this was that the environmental activities of municipalities and water boards are difficult to determine. Their income and expenses in government financial reporting are not (properly) separated from other own activities and outsourced tasks. Accordingly, from 2014 onwards no separate production account is included in the Dutch NA for public specialist producers, but only the total environmental output is recorded as produced by government. This is an disadvantage for compiling the EPE tables, as several data items can no longer be directly obtained from the production accounts. On the other hand, this revision provided the opportunity to improve the data quality for the numbers of total environmental output and also provided direct insight (from the government statistics) on the allocation to different CEPA categories. Below the data sources and the estimation of environmental output will be discussed in more detail for the different local government bodies.

The second way to determine total environmental output for local government is data obtained from COFOG statistics. For local government, important accounting

identities are reported for CEPA 2 and CEPA 3. Ideally, these data items should be the identical as both are determined directly from the government statistics . However, we observe some important differences which will be discussed at the end of this section.

3.2.1 Waterboards

In the Netherlands, waterboards (in Dutch waterschappen) have two important tasks. First, they are responsible for managing water barriers, waterways, and water levels. Second, they are responsible for maintenance of surface water quality through wastewater treatment. They manage wastewater treatment plants where all municipal waste water is treated and cleaned. Only the second task is related to the production of environmental services[2].

Government statistics provide information about the total production of water boards. In addition, also a distinction is made in the source material between the two main tasks of the water boards, and thus separate information is directly available for the production of environmental services. For 2011, the total production of environmental services was equivalent to 1376 million Euro (including output for own use, including market production). Because market output (64 million euro) probably for the most part consists of cleansing services supplied to third parties, it was decided to include this as the production of environmental services.

Government statistics also provide information on the important accounting identities that make up the total environmental output (intermediate consumption, compensation of employees, consumption of fixed capital, other taxes less subsidies on production) and gross fixed capital formation. No information is available on their use of specialist environmental services. This is thus assumed to be zero.

[2] The first task may be considered as services related to climate change adaptation, but according to the definition this is not part of environmental protection or resource management.

3.2.1 Total environmental output by local government bodies (2011)

	Total output	Market output	Non market ourput
Municipalities			
waste services	1756	1756	0
waste collection/ treatment	338	338	0
sewarage and waste water treatment	1081	23	1058
soil treatment	110	0	110
Total	3285	2117	1168
Intermunicipal corporations			
waste services	19	19	0
waste collection/ treatment	145	145	0
Total	164	164	0
Water boards			
Waste water treatment	1376	64	1312
Provinces			
soil treatment	84	1	83
Total local government			
waste services	1775	1775	0
waste collection/ treatment	483	483	0
sewarage and waste water treatment	1081	23	1058
soil treatment	194	1	193
waste water treatment	1376	64	1312
total	4909	2346	2563

3.2.2 Municipalities

Municipalities in the Netherlands are responsible for several environmental tasks. First, they are responsible for waste collection and waste treatment. This task is financed by households through the mandatory waste disposal fee (in Dutch afvalstoffenheffing) and to a lesser extent by cleaning duties (in Dutch reinigingsrechten), such as for bulk waste. Companies can choose whether to pay a waste disposal fee to municipalities or that they purchase environmental services from private companies. In the NA the waste disposal fee is not recorded as a tax but as a service that is supplied by government.

To fulfil this task municipalities can choose to hire private specialist producers (i.e. outsourcing) or perform this activity themselves. Particularly waste collection is often operated by units that directly belong to the municipalities and are thus part of the government sector. Waste treatment activities are usually outsourced, with the exception of one major city (Amsterdam) which operates its own waste treatment plant.

In the source data for the finances of municipalities (the so-called Iv3-matrix) the expenses and incomes are recorded according to different functions, including 'waste collection and treatment'. The gross costs of waste collection and treatment (which equals the output of providing this services) equal total expenses for this function minus transfers paid, minus investments and minus interest payments. For 2011 this is

equal to 1904 million euro. However, the function 'waste collection and treatment' does not include all costs related to waste. A portion (including cleaning of streets) is probably recorded among other functions. This is also reflected in the total income for the function 'waste collection and treatment' as recorded in the Iv3-matrix : total revenues from the waste disposal fee plus additional incomes (2312 million euro) are higher than the total expenses. We can assume that the benefits (incomes) cover for costs of producing these environmental services. This is testified in several government reports on this issue. The benefits are therefore the best estimator for total output of environmental services related to waste management.

In the Dutch NA the output of these waste related services is recorded in two product groups, namely as 1) 'reinigingsrechten' (which equals to the total income of these fees) and 2) environmental protection services (the remainder, i.e. total output-'reiniginsrechten'). All these waste related services are recorded as market output. The Iv3-matrix also provides information on other accounting identities, such as intermediate consumption, consumption of fixed capital and compensation of employees. However, these data items can probable not be used, as (for example) a lot of loans are not recorded by specific function but are recorded under a more general function. Also the data recorded for gross fixed capital formation is probably not directly usable. This will be further investigated in the continuation project next year.

The second important environmental task of municipalities is the upkeep of the sewer system. Activities include the replacement and maintenance of the sewers. The main expenses are thus investments and maintenance costs. From a report on the Dutch sewer system it appears that the employees responsible for the maintenance of sewage was largely employed by the municipalities themselves (2180 FTE in 2009). Only a small portion (450 FTE) was hired from specialized companies (17 percent total). Accordingly, sewer services are mainly an in-house activity by municipalities. The sewer services are financed by a sewerage tax (in Dutch rioolrechten) that is paid by households and businesses that are connected to the sewer system. This ear marked tax is part of the environmental taxes.

The total expenses for upkeep of the sewer system can again be derived from the Iv3-matrix: 1318 million euro for 2011. This figure must be adjusted to determine the total output of 'sewer services': total expenses minus transfers paid, minus interest payments and purchases minus investments. For 2011, this amount is equal to 1041 million euros. The item capital expenditure is adjusted for interest payments on the basis of a key for total capital costs of the municipalities. A small portion (20 million euros) of the output is sold to third parties (market output).

The Iv3-matrix provides some information on other accounting identities, but not all these data items can be used. No (good) data is available in the government source statistics on total investments in sewers. This important item is reported by RIONED, a foundation for sewerage and water management in cities. These reports are however not frequent (i.e. not annually) and it must be investigated whether other data sources are available.

Finally, municipalities are also active in the area of soil sanitation. Municipalities do not have operational costs for remediation but hire consultancy and specialized companies for this task. The gross cost to municipalities cannot be determined directly from data from the Iv3 matrix because the protection and remediation of soil are part of the overall environmental management function. Data are however available from a special biennial survey to municipalities, where different environmental cost items are reported according to CEPA category. This shows that the gross costs for 2011 were equivalent to 110 million euros. This total environmental output is 110 million euro, which is equal to Intermediate consumption of EP services(P2ext).

3.2.3 Intermunicipal corporations

Intermunicipal corporations are associations of municipalities that collaborate in certain areas to perform certain tasks more efficiently. Providing environmental services, particularly waste collection, is one of the areas where certain municipalities operate together. When the main activity is environmental protection services, these corporations are classified as private specialised producers (NACE 38). Their output (environmental protection services) is used by the government, where it recorded as intermediate consumption. However when environmental protection is not the main activity of the corporation, they are classified as government and the output is recorded in that sector / NACE85.

Data on intermunicipal corporations is available from our government statistics, both the part that has to be allocated to NACE 38 as the part that is allocated to government.

3.2.4 Provinces

Like municipalities, the Dutch provinces are active in the area of soil sanitation. Similarly, they do not have operational costs for soil remediation but hire consultancy and specialized companies for this task.

For provinces also an Iv3-matrix can be used, which summarizes all source data for the finances of the Provinces. Total expenses on the "Quality management of groundwater and soil" function minus investments and transfers equals 84 million euro. The data compilation in table 1 is the same as for municipalities.

3.2.5 COFOG data for local government

Statistics National annually compiles and publishes COFOG data for local government (total expenses by function). These data can be used to determine total environmental output: Total intermediate consumption plus compensation of employees, plus depreciation plus taxes on production. COFOG only provides direly corresponding data for CEPA2 (water), CEPA3 (waste), CEPA 6 (biodiversity) and CEPA8 (research). All other CEPA categories, including air and soil are included in COFOG 5.3.

In principle the data for CEPA2 and CEPA3 should correspond to total environmental outputs as calculated from the individual local government bodies. However, there are significant differences (see table 3.2.2).

3.2.2 Comparison between direct source data and COFOG data

	Source data		COFOG data		Differences	
	CEPA 2	CEPA 3	CEPA 2	CEPA 3	CEPA 2	CEPA 3
(GCF.1) Gross capital formation	1.120	17	338	80	-782	63
(Pnep.1) Intermediate consumption[P2]	802	1.678	1268	2275	466	597
(D.1) Compensation of employees [D1]	776	545	528	593	-248	48
(S.1) Other taxes less subsidies on production [D29-D39]	33	9	36	18	3	9
(K.1) Consumption of fixed capital [K1]	874	26	1247	397	374	371
(O.1) EP output [P1]	2.482	2.258	3079	3283	597	1.025

Overall, output from COFOG data is significantly higher (in total 1,5 billion euro). Investments for water (sewers), however, are lower. Next year we will look in detail what is the origin of these difference and what is the best data to be used for the EPE tables.

3.2.6 Data for total local government

As discussed above, there are some differences between the source data and the COFOG data for local government that have to be sorted out in the future. For the moment we have inserted the source data in Table 1 (see below) for CEPA 2 and CEPA 3, supplemented by data from the COFOG for other environmental domains (CEPA 6, CEPA 8 and CEPA9.

3.2.3 Table 1 for local government (2011)

	CEPA 1	CEPA 2	CEPA 3	CEPA 4	CEPA 5	CEPA 6	CEPA 7	CEPA 8	CEPA 9	TOTAL
(GCF.1) Gross capital formation	0	1.120	17	0	0	127	0	0	36	1.300
(Pnep.1) Intermediate consumption (excludi	0	748	382	0	0	79	0	0	890	2.099
(D.1) Compensation of employees [D1]	0	773	545	0	0	59	0	0	674	2.052
(P2ext) Intermediate consumption of EP serv	0	54	1.296	194	0	0	0	0	145	1.689
(S.1) Other taxes less subsidies on productio	0	33	9	0	0	1	0	0	13	56
(K.1) Consumption of fixed capital [K1]	0	874	26	0	0	84	0	1	173	1.157
(O.1) EP output [P1]	**0**	**2.482**	**2.258**	**194**	**0**	**223**	**0**	**1**	**1.895**	**7.053**
(Omk.1) Market output [P11]	0	87	2.258	1	0	0	0	0	0	2.346
(Onmk.1) Non-market output [P13]	0	2.395	0	193	0	223	0	1	1.895	4.707
(F.1) Final consumption of EP services [P3]	0	2.395	0	193	0	223	0	1	1.895	4.707

3.2.7 End result: table 1 government

Finally, the data for central and local government can be summed, which results in table 1 for total government.

3.2.4 Table 1 for Total government (2011)

	CEPA 1	CEPA 2	CEPA 3	CEPA 4	CEPA 5	CEPA 6	CEPA 7	CEPA 8	CEPA 9	TOTAL
(GCF.1) Gross capital formation	0	1.121	17	0	0	120	0	-2	21	1.277
(Pnep.1) Intermediate consumption (excludin	0	763	386	0	0	169	0	71	1.042	2.431
(D.1) Compensation of employees [D1]	0	776	545	0	0	127	0	50	759	2.258
(P2ext) Intermediate consumption of EP servic	0	54	1.296	194	0	0	0	0	145	1.689
(S.1) Other taxes less subsidies on production	0	33	9	0	0	7	0	0	13	62
(K.1) Consumption of fixed capital [K1]	0	876	26	0	0	97	0	8	211	1.217
(O.1) EP output [P1]	**0**	**2.502**	**2.262**	**194**	**0**	**400**	**0**	**129**	**2.170**	**7.657**
(Omk.1) Market output [P11]	0	87	2.258	1	0	0	0	0	0	2.346
(Onmk.1) Non-market output [P13]	0	2.415	4	193	0	400	0	129	2.170	5.311
(F.1) Final consumption of EP services [P3]	0	2.415	4	193	0	400	0	129	2.170	5.311

Finally, the above data for total government has also been compared to the EPER statistics. The result is shown in table 3.2.5.

3.2.5 Table 1 compared to Total government (2011) of EPER

Expenditure	Year	CEPA 2	CEPA 3	CEPA 6	Sum of CEPA 1+4+5+7	Sum of CEPA 8+9	TOTAL	
(O.1) EP output [P1]	2011	2502	2262	400	194	2299	7657	
(Onmk.1) + (Omk.1)	**2011**	**2388**	**2257**	**643**	**636**	**1307**	**7231**	**EPER**
(Omk.1) Market output [P11]	2011	87	2258	0	1	0	2346	
Includes P.11 (market output) of governm	2011							
(Onmk.1) Non-market output [P13]	2011	2415	4	400	193	2299	5311	
Includes P.131 (payments for non-market	2011							
(GCF.1) Gross capital formation and acqu	2011	1121	17	120	0	19	1277	
(A) Investment expenditure	**2011**	**1230**	**255**	**69**	**23**	**0**	**1578**	**EPER**
(F.1) Final consumption of EP services [P	2011	2415	4	400	193	2299	5311	
(Onmk.1) less P.131 (payments for non-r	2011							

Here the bold printed second line denotes the results from EPER. Looking at EP output [P1] it can be concluded that the total output is in reasonable agreement. However, in the official EPER statistics there is much less contribution to the "other environmental protection expenditures" because the contributions could be attributed to the correct CEPA 1, 4, 5, 6 or 7. For GCF.1 of "investment expenditures" the same conclusion holds, the total investment expenditures are in reasonable agreement, however, all is attributed to a specific CEPA classification and none to CEPA 9. Especially the investments in Waste Management (CEPA 3) are significantly higher in EPER.

3.3 Environmental non-profit organisations

Non-profit institutions serving households (NPISH) make up an institutional sector in the national accounts consisting of non-profit institutions which are not mainly financed and controlled by government and which provide goods or services to households for free or at prices that are not economically significant. NPISH are private, non-market producers which are separate legal entities. Examples include churches and religious societies, sports and other clubs, trade unions and political parties. There are also several non-profit organizations which are involved in all kind of environmental issues. They include environmental organisations focussing on environment, nature conservation and animals in the wild (excluding animal protection organisations for pets and animals in captivity). When compiling EPEA tables, the NPHIS sector is to be included in the government sector (see SERIEE handbook page 67).

Environmental non-profit organizations in the Netherlands are also part of the EGSS. Accordingly, information on total output and value added can be obtained. The data source is detailed information from our labor statistics. Data cannot be allocated to CEPA / CReMA categories, as these organizations usually are active in multiple environmental domains, but a separation in RM and EP is possible.

In 2011 total output for environmental non-profit organizations in the Netherlands 124 million euro. The output data derived from the EGSS can be directly used to fill (Omk.3) Total EP market output of corporations [P11].

The question is whether we should include this data on NPHIS in Table1. Theoretically it should be included, but if only a few countries do have the data, this may be not advisable to include it in order to have a proper comparison between countries.

4. Compiling Table 2: Corporations ancillary activity

4.1 Source data

The current Dutch EPE statistics for businesses provide information on environmental investments and environmental costs (capital costs and current costs) for NACE 06-36. The data are based on an annual survey. The questionnaire comprises questions on the costs incurred by enterprises in the environment domains waste, wastewater, environmental permits, environmental damage, soil decontamination, environmental research, environmental coordination, investments in new environment equipment installed (end-of-pipe and integrated facilities), and plans for environmental provisions coming into operation in the two years following the survey. Data on current expenditure are not surveyed. In the past it was found that companies were not able to report properly on this. Accordingly, current costs have (for the last ten years) been calculated based on a model, which in the near future will be revised. These statistics are the main data source for ancillary activities.

4.2 Compilation of table 2

The following accounting items can be directly obtained from the Dutch EPE statistics for businesses:

- (GCF.1) Gross capital formation
- (Oa.2) Output of ancillary activities: internal current expenditure
- (K.2) Consumption of fixed capital

Items Oa.2 plus K.2 provide (Oaa.2) Output of ancillary activities (ESA-compatible output).

Data is available for CEPA categories 1, 2, 3, 4, 5, 6 and 8. CEPA category 1 includes expenditure related to energy saving and renewable energy production (see also next section). CEPA category 2 includes expenditure related to water saving. However, since recently it is possible to separate these items.

(Pep.2) Intermediate consumption of EP services [P2] should be zero. Companies have of course intermediate consumption of EP services, but these are not used to produce the own account EP services. It is therefore recommended that this item is removed from table 2.

Table 4.2.1 shows the results for Table 2 for the year 2009. Because of confidentially issues this table is not shown for 2011 (see discussion below).

Ancillary production of EP services is also to be compiled on NACE level (EPE Tables 2a-2d), i.e. for mining and quarrying, manufacturing (total and detailed), electricity, gas and steam supply and water supply. All these data are in principle available from the Dutch EPE statistics for businesses. However, confidentiality is an important issue at NACE level, which means not all data can be reported.

4.2.1 Table 2 production of ancillary activities

	CEPA 1	CEPA 2	CEPA 3	CEPA 4	CEPA 5	CEPA 6	CEPA 7	CEPA 8	CEPA 9	TOTAL
(GCF.1) Gross capital formation	397	42	8	35	10	1	0	0	0	493
(Pnep.1) Intermediate consumption (excluding EP services) [P2]										
(D.1) Compensation of employees [D1]										
(Oa.2) Output of ancillary activities	194	136	36	41	10	14	0	0	0	431
(P2ext) Intermediate consumption of EP services										
(S.1) Other taxes less subsidies on production [D29-D39]										
(K.1) Consumption of fixed capital [K1]	314	112	36	54	26	11	0	0	0	553
(Oaa.2) Output of ancillary activities	508	248	72	95	36	25	0	0	0	984

4.3 Issues

Confidentiality

Statistics Netherlands is bound by confidentiality rules in the publication of statistics based on survey results. Publications may not include data from which data of individual enterprises can be derived. As a result, outcomes of different groups of enterprises are sometimes combined, or results are withheld; these cells contain an 'x' (confidential data).

In 2013 new compilation software was used for the first time to compile data for the Dutch EPE statistics for businesses. This resulted in many confidential cells on an aggregated level, i.e. total internal environmental output for individual CEPA categories and also total internal environmental output). Accordingly, this would mean that these items can also not be reported in Table 2. Next year, it will be investigated if this situation can be amended.

Exclusion of consumption of fixed capital

According to the clarification text on Table 2 "It is accepted that the output of ancillary activities is approximated by the amount of in-house current expenditure, i.e. compensation of employees plus intermediate consumption for environmental

protection but excluding intermediate consumption of EP services". This thus excludes consumption of fixed capital, which in the Netherlands makes up a substantial part of total environmental ancillary output (ca. 50 %). This is an important scope issue, as data to be reported to Eurostat will significantly differ from what is published in the Netherlands.

Renewable energy

Production of renewable energy is an characteristic activity of resource management (see most recent version of ReMEA compilation guide). Accordingly, the production of this environmental service should 1) be classified is Table 3 (corporations) and 2) under de CReMA classification (i.e. not as environmental protection). However, currently in the Netherlands the capital and current expenditure related to renewable energy production are recorded as ancillary activities (CEPA 1).

The question thus is:

a) Should the output of this service be recorded in the EPE tables (under CEPA1 or be omitted ?

b) Should this output be recorded in Table 2 (ancillary activities) or in Table 3 (corporations) ?

It is recommended that Eurostat clarifies this issue with regard to de data that has to be reported under the legal base.

Inclusion of other industries

Now, only the own account activities of NACE 06-36 are included in table 2. However it is to be expected that also ancillary activities with relation to environmental protection are taking place in other industries. In the Netherlands, some information is available on this which we will discuss below.

In **agriculture**, many measures have been taken during the last decades to decrease environmental impacts. In livestock breeding, several measures have been taken to reduce emissions from manure to water and soil. In horticulture, significant investments have been made to make greenhouses more energy efficient. In the Netherlands, data is available to make an estimation of total expenditure of own account activities. For 2007 this equals 520 million euro (including expenses related to the administrative burden and consumption of fixed capital). Ca. 160 million euro is related to energy saving and thus should not be included in EPE. Gross fixed capital formation by agriculture for EP is approximately 660 million euro, of which 306 million for energy saving.

There are also several environmental measures that have been taken related with **transport and traffic** (i.e. mobile emission sources). In road transport / traffic, catalytic converters have been implemented to reduce air emissions. For corporations, this

should be recorded as gross fixed capital formation, for households as final consumption of an connected product. Also, fuels have been adjusted so that (for example) their sulphur content is lower. This should be recorded as the intermediate use / final use of an adapted product. In the Netherlands, data is available to make an estimation of total expenditure of own account activities. For 2011 this equals 220 million euro (including expenses related consumption of fixed capital) for corporations, for households the expenditure amounts 174 million euro. In addition gross fixed capital formation for corporation is equal to 293 million euro in 2011.

In the **construction sector** several environmentally related activities are taking place. First of all, activities related to insulation for building and houses are important. Data for this activity are available from our EGSS accounts. However, insulation activities are characteristic activities for resource management (energy saving) and are thus not to be included in the EPE tables. Second, a lot of demolition waste is produced by the construction sector. This waste is nowadays almost completely recycled. Companies that are specialised in this activity should be classified as specialised producers. In addition, large construction companies probably recycle demolition waste as a secondary activity. Results of a study done in 2011 by statistics Netherlands indicators that total expenditure related to the processing of demolition waste was approximately 370 million euro (2007)[3]. Finally, also some in house measures are probably taken within the construction sector to prevent environmental damage. An indication for this can be found by looking ate subsidy grants for environmental investments provided to the construction sector. A first indication shows that these investments were very low (ca. 2 million euro in 2007).

Ancillary activities for environmental protection by **other industries** (mainly service industries) will probably be not significant. Energy saving measures may result in some expenditure, but this will probably not be very high.

We can conclude that significant ancillary activities related to environmental protection can be found outside of NACE 06-36, particularly in agriculture, transport en construction.

[3] Calculated based on kg waste times a price for waste removal.

5. Compilation of Table 3: Corporations specialist producers

5.1 Data sources and compilation

Data for Table 3, Corporations as secondary and specialist producers of market EP services, can be directly obtained from the production accounts of the NA. In the Dutch NA, there is one industry group for NACE 37-39, excluding NACE 38.3 (recycling) for which there is a separate industry group. Accordingly, all relevant accounting items can be obtained for this industry group.

As there is only one industry group for environmental specialist producers, this allows no direct allocation to CEPA categories. Information from the production statistics is used for this allocation. In the production statistics, data is available for NACE 37, 38.1, 38.2, 38.3 and 39 for total output, intermediate consumption, costs for wages, and depreciation. These distributions were used to allocate the total NA accounting items to CEPA.

Secondary production of EP services can be determined from the NA supply use tables by summing the total output of product group 'environmental services by private companies' that is produced outside industry group NACE 37-39 (excluding 38.3). In fact recycling (NACE38.3) is the main producer of environmental services as a secondary activity. In addition some environmental services are produced by 'other manufacturing' (NACE 32), water companies (NACE 36), construction (NACE 41) and wholesale (NACE 46). All secondary production is assumed to be related to CEPA 3 (waste) except for the secondary production of water companies (CEPA 2).

Gross fixed capital formation for specialist producers is obtained from total gross fixed capital formation as recorded in the NA. Again, more detailed information from the investment statistics was used to allocate the investments to CEPA categories. No direct data is available for gross fixed capital formation for secondary production.

5.1.1 Table 3 Corporation specialist producers

	CEPA 1	CEPA 2	CEPA 3	CEPA 4	CEPA 5	CEPA 6	CEPA 7	CEPA 8	CEPA 9	TOTAL
(GCF.1) Gross capital formation	0	114	439	2	0	0	0	0	0	555
(Pnep.1) Intermediate consumption (excluding EP services) [P2]	0	415	2.657	272	0	0	0	0	0	3.344
(D.1) Compensation of employees [D1]	0	213	989	88	0	0	0	0	0	1.290
(P2ext) Intermediate consumption of EP services	0	209	1.338	137	0	0	0	0	0	1.684
(S.1) Other taxes less subsidies on production [D29-D39]	0	-5	-33	-3	0	0	0	0	0	-41
(K.1) Consumption of fixed capital [K1]	0	27	386	11	0	0	0	0	0	424
(NOS.3) Net operating surplus	0	25	404	23	0	0	0	0	0	452
(Omkm.3) EP market output from main activities (specialist producers) [P11]	**0**	**524**	**3.443**	**299**	**0**	**0**	**0**	**0**	**0**	**4.266**
(Omks.3) EP market output from secondary activities [P11]	**0**	**50**	**993**	**0**	**0**	**0**	**0**	**0**	**0**	**1.043**
(Omk.3) Total EP market output of corporations [P11]	**0**	**574**	**4.436**	**299**	**0**	**0**	**0**	**0**	**0**	**5.309**
(C) Receipts from by-products	**0**	**151**	**961**	**92**	**0**	**0**	**0**	**0**	**0**	**1.203**

Gross fixed capital formation for specialist producers is obtained from total gross fixed capital formation as recorded

Again these data can be compared to the results of the current EPER statistics. This is shown in table 5.1.2 where the bold printed line shows the results from EPER.

5.1.2 Table 3 Comparison to Corporation specialist producers of EPER

Expenditure	Year	CEPA 2	CEPA 3	CEPA 4	TOTAL	
(Omk.3) Total EP market output of corpo	2011	574	4436	299	5309	
(E) Revenues (sales of EP products)	**2011**	**596**	**4237**	**127**	**4968**	**EPER**
(Pep.3) Intermediate consumption of EP	2011	209	1338	137	1684	
(B2) Fees and purchases	2011					
(GCF.3) Gross capital formation and acqui	2011	114	439	2	555	
(A) Investment expenditure	**2011**				**594**	**EPER**

For "Total IP market output" a major difference is seen in CEPA 4. This is due to the fact that EPER appoints more own activities related to soil to municipalities and provinces. This is something that should be looked at. Concerning GCF.3 no investment expenditures are assigned to any of the CEPA 2, 3 or 4. The shown total amount is the contribution of CEPA 9 ("other investments"). The table shows that the total contribution is in reasonable agreement and suggests that EPER could attribute the investment expenditures to specific CEPA classifications using other data sources available at Statistic Netherlands than it is currently addressing.

5.2 Other specialist producers

Specialist producers of the corporations sector produce environmental protection services as their main activity. Their output is sold on the market for the use of other

units, mainly financed by the users of these services. As discussed above, the traditional environmental services produced by corporations are related to waste, wastewater and soil treatment and are to be found (primarily) in NACE 37, 38, and 39. Outside the scope of these traditional environmental services, there are however other environmental protection services produced by corporations. In principle these producers fall within the scope of the EPE module as they comply to the definition given above for specialist producers. Data from the EGSS can be used to determine the output if these activities.

Data from the EGSS

In the Netherlands activities for the EGSS are classified according the NACE and according to a more functional classification. This functional classification can be used to identify the producers of 'other environmental services'. For the moment we have concentrated on environmental protection, which also excludes activities related to renewable energy and energy savings. However, it is noted that the Dutch EGSS is also a good source for services related to resource management. environmental education. So we end up with two activities that produce services for environmental protection:

Environmental consultancy, engineering :

> Activities in the field of environmental consultancy, engineering and other services in the field of environmental protection, or management of natural resources. Includes only services activities. Does not include activities in the field of renewable energy systems and energy conservation.

Environmental inspection, certification, These activities include:

- measurement of pollution in water and air;
- analysis of potential sources of contamination, such as smoke and waste water
- testing, determination and reporting with respect to the presence of asbestos;
- certification and inspection regarding soil pollution.

Does not include:

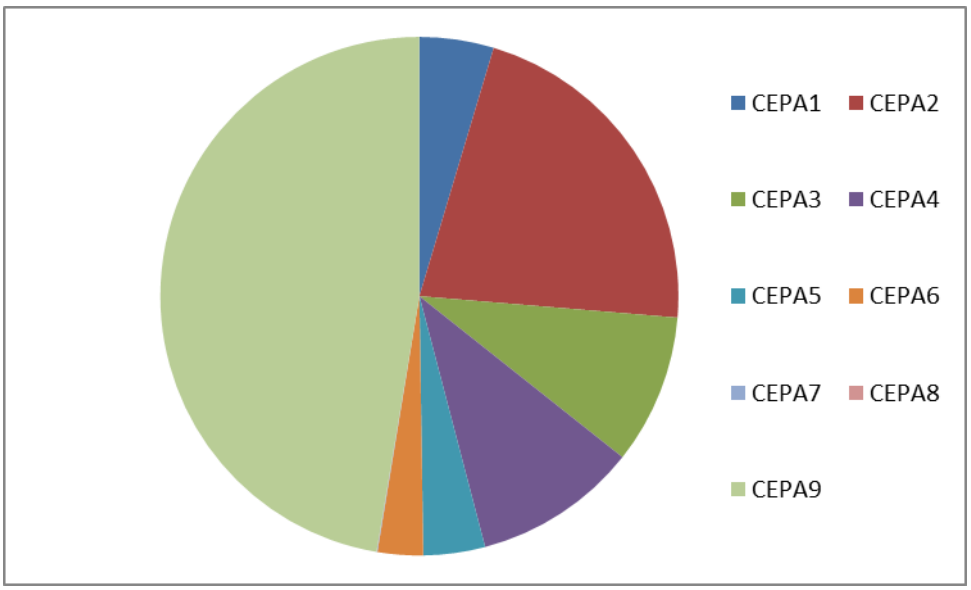
- R&D in the field of the terrestrial environment, cosmic radiation etc.
- medical laboratories.

Data for Environmental consultancy, engineering originates from micro data, i.e. data on business level. Statistics Netherlands has established a population database for companies that produce environmental products and services that lie outside the domain of the traditional producers of environmental services (i.e. NACE 37-38, but also several other specific activities like organic farming, wholesale is waste and scrap etc.). All companies that a) do not belong to agriculture, mining, manufacturing,

energy and water supply and environmental services (i.e. NACE 41 and higher) and b) do not produce services related to include activities in the field of renewable energy systems and energy conservation, are part of Environmental consultancy and engineering. Next, the companies that are part of the EGSS population database have been coupled with the business register and data from the production database to determine employment, output data and value added data. In order to correct for non-environmental output, an environmental share has been assigned to companies. This means that not all companies are specialist producers (i.e. sometimes the environmental share is less than 1), but a good estimation is obtained for total environmental output.

Total output of Environmental consultancy and engineering is 1263 million euro (2011). Little more than half of these activities could be assigned to a specific CEPA code (CEPA 1-8). However, for a lot of companies their work is not associated with a specific environmental domain and thus CEPA 9 has been assigned to them. The activities are concentrated in a few NACE categories, namely NACE 71 Consultancy (51 per cent), NACE 46 Wholesale trade (16 per cent), NACE 85 Education (15 per cent), and NACE 70 Holdings (6 per cent). NACE 85 education needs further investigation as this may include non-market production.

5.2.1 Allocation of output by Environmental consultancy and engineering to CEPA



Environmental inspection and certification is located in a very specific NACE class (71203) Data is obtained from a specific information on employment. Total output is estimated at 207 million euro (2011). No information is available to allocate this activity to CEPA so all is classifies as CEPA 9.

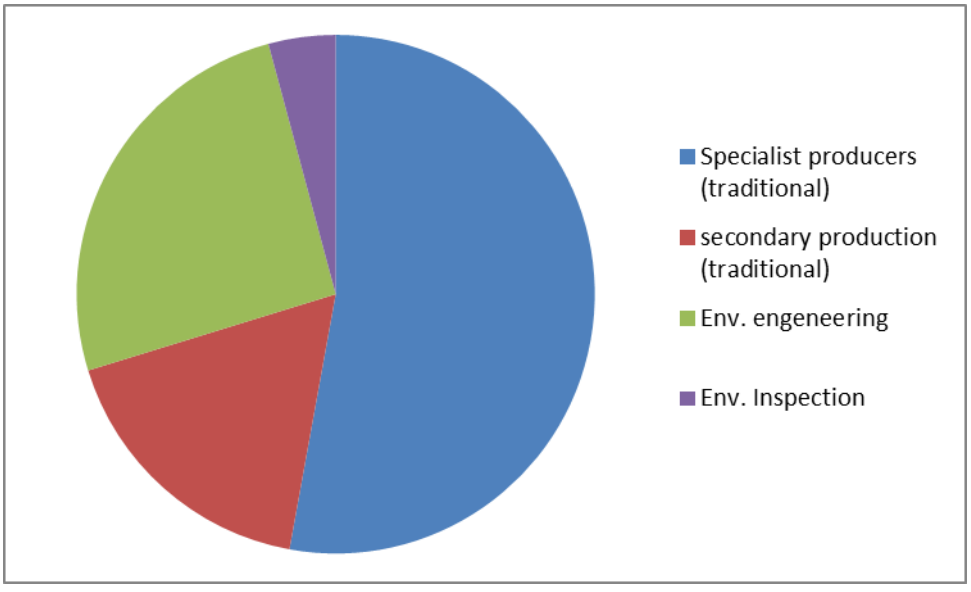
Implementing data in Table 3

The output data derived from the EGSS can be directly used to fill (Omk.3) Total EP market output of corporations [P11]. At this moment no specific analysis has been done to allocate the production of Environmental consultancy, engineering to specialist producers and secondary producers (codes omkm and omks), but in principle this would be possible using the source data. No data is available on the Intermediate consumption of EP services of these activities (Pep.3) Intermediate consumption of EP services by corporations' specialist producers). However, it is to be expected that this is not significant amount. Intermediate consumption is also known from the EGSS. For the value added block only the total is known. The items may be estimated by using distribution keys from the main industries, but this requires some additional work. Labour input is available as well.

Conclusion

If included the net output of environmental services by specialist producers would increase with 42 percent. Ignoring this would thus seriously underestimate the total production of environmental services by corporations.

5.2.2 Total output of specialist producers (2011)



The current text on the EPE module (int_def) is not explicit how to deal with these 'other environmental services'. Following the general definitions of specialist and secondary producers these activities should be included. However, the text also states that 'Specialist producers can be found in NACE Rev. 2 divisions 37, 38 and 39' (but it does not state that they are exclusively are found there). It would be best if some text would be incorporated how to deal with these extra other services and if they are left

out of the obligatory part, it should be possible to report them in the voluntary part of the table.

6. Compilation of table 4 (total supply) and table 5 (households)

6.1 Table 4: total supply of environmental services

Table 4 (Total supply of environmental protection services) for a large part filled in automatically with the input of tables 1,2 and 3. A few more data items have to be added to determine the (Onu.4) EP output at purchasers' prices available for national uses.

Imports and exports of environmental services can be directly obtained from the NA supply and use tables for the product group 'environmental protection services'. In the Netherlands, both imports and exports are low compared to total production. All import and export services are related to waste.

Finally, (V.4) VAT and other taxes less subsidies on EP services [D221] have to be determined. In the Netherlands there is one specific tax on EP services : the waste tax. VAT is levied on all environmental services sold as market output. Accordingly, total market output (7376 million euro) times 19 per cent (VAT percentage) equals 1441 million euro. However, this is (probably) not the correct figure that should be inserted in Table 4, as also EP services are used by specialist producers and this amount is subtracted before the VAT is added. So, only the VAT has to be calculated on environmental services sold to non-specialist producers. In that case VAT equals 741 million euro. It is recommended that Eurostat elaborates on the calculation of VAT in the supplementary text related to table 4.

6.2 Table 5: Households

In table 5 (households) the total final consumption of EP services by households has to be recorded. In the Netherlands, these are mainly waste related services (reingingsrechten). Data can be directly obtained from the National accounts. It should be noted that households also pay for waste related environmental services (for the upkeep of the sewer system and for waste water treatment), but this is financed by earmarked environmental taxes.

Households also buy all kinds of cleaner and resource efficient products (adapted products and connected products , i.e. solar panels, waste bins etc.). Most of this expenditure probably falls in the domain of resource management as these are energy and water saving equipment, insulation materials, insulation services, solar panels etc.

Currently, only data on household expenditure on connected / adapted products that is related to traffic is available. Total expenditure by households related with cleaner cars (catalytic converters etc.) is equal to 159 million euro. Expenditure related to cleaner petrol an diesel is equal to 40 million euro.

7. Table 7: Total economy

7.1 Table 7.1 and table 7.2

Table 7 sums up the data filled in the obligatory tables. It is filled in automatically with data from the other tables. Table 7 consists of two parts: table 7.1 sums up total economy by CEPA and table 7.2 sums up total economy by sector (for the total of all environmental domains).

7.1.1. Table 7.1 Total economy by CEPA

Expenditure	CEPA 2	CEPA 3	Sum of CEPA 1+4+5+6	TOTAL
(O.7) EP output (Omk.7 + Oa.7 + Onmk.7)	3.200	6.473	4.981	14.654,6
(Omk.7) Market output	649	6.433	294	7.376,0
(Oa.7) Ancillary output	136	36	1.796	1.968,0
(Onmk.7) Non-market output	2.415	4	2.892	5.310,6
(Pep.7) Intermediate consumption of EP services by specialist producers	248	2.535	465	3.248,0
(M.7) Imports of EP services	-	21	-	21,0
(X .7) Exports of EP services	-	87	-	87,0
(V.7) VAT and other taxes less subsidies on EP services	-	781	-	780,6
(Onu.7) EP output at purchasers' prices available for national uses	2.953	4.652	4.516	12.121,1
(GCF.7) Gross capital formation and acquisition	1.277	464	2.552	4.292,0
(F.7) Final consumption of EP services	2.415	1.576	2.892	6.882,6

7.1.2 Table 7.2 Total economy by sector

Expenditure	General Government	Corporations	Households	Rest of the World	TOTAL
(O.7) EP output (Omk.7 + Oa.7 + Onmk.7)	7.657	6.998			14.655
(Omk.7) Market output	2.346	5.030			7.376
(Oa.7) Ancillary output		1.968			1.968
(Onmk.7) Non-market output	5.311				5.311
(Pep.7) Intermediate consumption of EP services by specialist producers					3.248
(M.7) Imports of EP services					21
(X .7) Exports of EP services					87
(V.7) VAT and other taxes less subsidies on EP services					781
(Onu.7) EP output at purchasers' prices available for national uses					12.121
(GCF.7) Gross capital formation	1.277	3.016			4.292
(F.7) Final consumption of EP services	5.311		1.572		6.883

7.2 Scope issues

Total EP output available for national uses equals 12 121 million euro. However, this is according to the 'narrow scope'. As explained in the previous chapters, there are several items that, according to SEEA definitions, are within scope, but are not included. As table 7.1.3 shows if these scope issues were included, environmental output would be 15 992 million euro, which is 32 per cent higher. Some of these scope

issues are already explained in the supplementary text in the questionnaire, but others are not.

7.1.3 overview of the scope issues identified during this project

EP output at purchasers' prices available for national uses (EPE module)		12121
	Other specilaist producers	1470
	NPSIH	124
	Consumption of fixed capital ancillary activities NACE6-36	1537
	Ancillary activities other sectors	740
EP output at purchasers' prices available for national uses (extended scope)		15992

1) Other specialist producers

Outside the scope of the traditional environmental services (NACE37-39), there are other environmental protection services produced by corporations. These are environmental consultancy and engineering, and environmental inspection services. In addition, there are environmental non-profit organisations (which belong to the government sector) that produce environmental services. It was found that together, these other specialist producers produce a significant amount of environmental output.

2) Consumption of fixed capital ancillary activities NACE 06-36

In the supplementary text of the questionnaire it is explained that consumption of fixed capital of ancillary activities is not part of the obligatory data. However, we would to remark that a) this means that quite significant amount of expenditure is left out and b) data for capital expenditure by ancillary activities is of much better quality than our data on current expenditure.

3) Other ancillary activities

Ancillary activities outside NACE 06-36. This is already explained in the supplementary text and a voluntary table is provided to provide this data.

4) Renewable energy, energy saving and water saving

According to the CEPA and ReMEA classification these activities are not part of CEPA and thus these activities are not to be reported under the EPE legal base (?)

8. Conclusions and recommendations

We found that, generally, for the Netherlands it is relatively easy to fill in the obligatory tables of the EPE module using data that is already available from the National accounts, government statistics and the EPE statistics for businesses. However, there are still some issues that have to be solved / investigated before we can adequately fill in all the tables required for the EPE module:

1. **Improving the data for central government**

The COFOG classification is not aligned with CEPA / CReMA. Next year, it will be investigated whether it is possible to add the CEPA / CReMA classification to the database for the central government .

2. **Check COFOG data for local government**

There are some differences between the government source statistics (that are used to determine total environmental output by government in the NA supply use tables) and COFOG statistics. Next year, these differences have to be investigated in order to determine the right data for EPE Table 1.

3. Improve data on accounting identities for local government

The data on the accounting identities that make up total environmental output for local government has to be improved. Also, it has to be investigated if a new data source can be found for gross fixed capital formation for sewers (which is now an external source).

4. **Transfers (Table 6)**

This year we have not yet investigated how to compile data for Table 6 (Transfers). This was mainly because this is best done simultaneously when improving the central government database, which also registers all relevant environmental transfers.

These four issues will be dealt with in two Eurostat grant projects that will be performed in 2014.

Also, we identified several important differences between the 'environmental costs for own activities approach' currently applied by Statistics Netherlands and the 'environmental output approach of the EPE module. These differences, however, can be explained using bridge tables.

Recommendations for Eurostat

We also would like to make the following recommendations to Eurostat for improvement of the tables and accompanying text for the EPE legal base:

- The accounting identities are not always clear from the tables. For example, it is not directly clear what items are to be added up to determine total EP output. These can be restructured in order to show what items are to be

summed to arrive at a certain aggregate. The following 'general' structure for the voluntary tables is much clearer from an accounting point of view and helps the compiler understand what he is doing.

1. Intermediate consumption (1+2)
- 2. Intermediate consumption (excluding EP services) [P2]
- 3. (P2ext) Intermediate consumption of EP services

4. Value added (5+6+7+8)
- 5. Compensation of employees [D1]
- 6. Other taxes less subsidies on production [D29-D39]
- 7. Consumption of fixed capital [K1]
- 8. Net operating surplus

9. EP output [P1] (1+4)
- 9a of which (Omk.1) Market output [P11]
- 9b of which (Onmk.1) Non-market output [P13]

Suppemantary items
- 10. Gross capital formation
- 11. Labour inputs
- 12. Internal current expenditure (2+5)

- The use of various codes in the row labels (specific codes used in the tables and the ESA codes) is confusing. Consider providing only ESA codes and accounting structure presented above.
- Highlight some key aggregates that are obtained from the tables. That can be done either in the current tables, or in an additional data sheet that is automatically filled. This also provides the compilers with the most useful information that can be derived from the accounts (compare table with key aggregates that is in the PEFA tables).
- Overview tables 7.1 and 7.2 only provide the results for the EPE legal module. It would be good to have these tables also for the more disaggregated CEPA categories plus inclusion of the voluntary items.
- It is recommended to remove item (Pep.2) Intermediate consumption of EP services [P2] from table 2 (corporations, ancillary production). With regard to ancillary production this should be zero. Countries that have to fill in this table may wrongly presume that the intermediate use of environmental protection services by companies should be included here.
- It is recommended that Eurostat explains how to deal with the scope issues identified and summarised in chapter 7. Particularly how to deal with expenditures related to climate change and water saving. According to the CEPA and ReMEA classification expenditures related to renewable energy and energy saving are not part of CEPA and thus not part of the EPE legal base (?)
- It is recommended that Eurostat elaborates on the calculation of VAT in the supplementary text related to table 4.