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***EUROPEAN ENVIRONMENTAL ECONOMIC ACCOUNTS:
MODULE FOR ENVIRONMENTAL GOODS AND SERVICES SECTOR
(EEEA-EGSS)***

Warsaw, December 2015

"This document has been produced with the financial assistance of the European Community. The views expressed herein are those of the author and can therefore in no way be taken to reflect the official opinion of the European Commission."

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1. Introduction

Environmental goods and services sector accounts (EGSS) along with environmental protection expenditure accounts (EPEA) and physical energy flows accounts (PEFA) were introduced as new modules of environmental economic accounts as stated in Regulation of the European Parliament and the Council (EU) No. 538/2014 of 16 April 2014 amending Regulation (EU) No. 691/2011 on European environmental economic accounts.

The primary purpose of environmental goods and services sector accounts (EGSS) is to record and present data concerning production operations of national economies the result of which is a product associated with environmental protection, in a manner consistent with data reported under ESA. EGSS Accounts should make use of the already existing information from the national accounts, structural business statistics, business register and other sources. Environmental goods and services sector has the same system boundaries as ESA and consists of all environmental goods and services that are created within output boundary. ESA defines output 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.

Statistics on the environmental goods and services sector according to the following characteristics:

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

The above data are reported according to the following classification:

- classification of economic activities, NACE Rev.2 (A*21 aggregation level as set out in ESA),
- CEPA classes,
- classification of resource management activities (CReMA).

2. Pilot project

Pilot project "European Environmental Economic Accounts module for environmental goods and services sector accounts (EEEEA EGSS)" was made in Central Statistical Office under Grant Agreement no. 05121.2013.003-2013.344. The purpose of the project was to identify the possibility to fulfil any obligations resulting from *Regulation of the European Parliament and the Council (EU) No. 538/2014* on environmental goods and services sector accounts.

Detailed objectives of the project were, among others:

- Identification of sources of data necessary to fill in EGSS questionnaire,
- Preparation of research methodology for environmental goods and services sector accounts,
- Preparation of a questionnaire and a manual in order to collect data via reporting portal,
- Execution of the survey study for 2014, including verification of the collected data;
- Creation of a database.

Achievement of the above objectives will enable the introduction of a module for environmental goods and services sector accounts to statistical practice.

3. Methodology of study concerning environmental goods and services sector accounts

3.1. Literature review

Review of literature related to the subject covered by the pilot project included items, among which there are Eurostat studies and methodological manuals concerning environmental goods and services sector accounts. The analysis covered also reports of other Member States published as the results of pilot projects related to environmental goods and services sector accounts. Works were supported also by materials and presentations of ESTP 2014 and ESTP 2015 training in Vienna concerning EGSS. List of the most important literature includes:

- Regulation (EU) No 691/2011 of the European Parliament and of the Council of 6 July 2011 on European environmental economic accounts,
- Regulation (EU) No 538/2014 of the European Parliament and of the Council of 16 April 2014 amending Regulation (EU) No 691/2011 on European environmental economic accounts,
- *OECD/Eurostat Environmental Protection Expenditure and Revenue Joint Questionnaire/SERIEE Environmental Protection Expenditure Account - Conversion Guidelines*, Luxembourg: Office for Official Publications of the European Communities, 2005,
- *Environmental Accounts 2003. Present state and future developments*, Eurostat, 2003,
- *Environmental expenditure statistics. General Government and Specialised Producers*. Data collection handbook, Eurostat 2007,
- S. H. Moe, H. Karlsen, N. Fedoryshyn, *Environmental Protection Expenditure Accounts. New reporting requirements and basic data needed*. Statistics Norway, 8/2014,
- Eurostat database, http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database
- Central Statistical Office of Poland database, <http://stat.gov.pl>,

- Economic indicators for the Dutch Environmental Goods and Services Sector, 1995-2009, <http://www.cbs.nl/NR/rdonlyres/6048B589-C79F-416E-A5E2-BD93E3DCA29C/0/2012EGSSCBSbackground.pdf>,
- *EGSS list of environmental products based on CPA and CN - 2015* (v. 25/08/2015), Eurostat, August 2015, <http://ec.europa.eu/eurostat/web/environment/methodology>, access date: 17.10.2015,
- *Energia ze źródeł odnawialnych w 2013 r.*, GUS, Warszawa 2015,
- *Energy Statistics 2011, 2012, CSO, Warsaw 2013*,
- *Energy Statistics in 2013 and 2014, CSO, Warsaw 2015*,
- *Handbook on Environmental Goods and Services Sector, Eurostat, 2009*, <http://ec.europa.eu/eurostat/web/environment/methodology>.
- Info on the Statistics Austria website on EGSS, http://www.statistik.at/web_en/statistics/energy_environment/environment/eco_industries_environmentally_goods_and_services/index.html,
- K. E. Kolshus, T. H. Braathu, F. Brunvoll, *Environmental Goods and Services Sector. New reporting requirements and basic data needed*, Statistics Norway, 4/2104,
- Eurostat Questionnaire *Environmental Goods and Services Sector (EGSS)*, <http://ec.europa.eu/eurostat/web/environment/methodology>,
- Working materials for the training Eurostat Environmental Goods and Services Sector, Vienna, October 2014, June 2015,
- *Practical guide towards compiling Environmental Goods and Services Sector (EGSS) statistics*, Eurostat, 2014, <http://ec.europa.eu/eurostat/web/environment/methodology>,
- *Supply and Use Tables in 2010*, CSO, Warsaw 2014,
- *Rachunki kwartalne PKB. Zasady metodologiczne, Zeszyty metodyczne i klasyfikacje GUS*, Warszawa 2010;
- *Statystyka sektora instytucji rządowych i samorządowych*, GUS, Warszawa 2010,
- *National Accounts by Institutional Sectors and Sub-sectors 2010—2013*, CSO, Warsaw 2015,
- *Statistical Yearbook of Agriculture 2014*, CSO, Warsaw 2015,
- *Agriculture in 2014*, CSO, Warsaw 2015,
- Regulation of the European Parliament and European Commission on European national and regional accounts system in the European Union, ANNEX A, COM (2010) 774, Brussels 2010,
- Implementing Regulation of the Commission (EU) No. 1001/2013 of 4 October 2013 amending Annex I to Regulation of the Council (EEC) No. 2658/87 on tariff and statistical nomenclature and on Common Custom Tariff, Journal of Laws EU L 290,
- System of Environmental-Economic Accounting 2012. Central Framework, <http://unstats.un.org/unsd/envaccounting/pubs.asp>.

3.2. Definitions

Environmental goods and services sector means the production activities of a national economy that generate environmental products (goods and services). Environmental products are products that have been produced for the purpose of environmental protection and resource management.

Environmental protection includes all activities and actions which have as their main purpose the prevention, reduction and elimination of pollution and of any other degradation of the environment. These activities and actions include all measures taken in order to restore the environment after it has been degraded. Activities which, while beneficial to the environment, primarily satisfy the technical needs or the internal requirements for hygiene or safety and security of an enterprise or other institution are excluded from this definition.

Resource management includes protection, maintenance and improvement the condition of natural resources, and hence preventing their exhaustion.

Production means 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:

- 1) specific services related to environmental protection or conservation of resources - typically associated with the activities in environmental protection and resource management. For instance: sewerage treatment, waste management, ecological agriculture, production of energy from renewable resources, monitoring, measurements, education, trainings, etc.,
- 2) connected products (environmental sole purpose products) – these can be services or goods used directly and applicable solely for environmental protection and resource management,
- 3) adjusted products – alternative to the traditional ones. Products that are more environmentally-friendly, generate less pollution and are more resource efficient,
- 4) technologies related to environmental protection – with breakdown into end-of-pipe and integrated technologies:
 - end-of-pipe technologies: technical installations and devices produced for environmental measurements, control, reduction of pollutant emissions, reduction of degradation of natural environment and expiration of resources. These installations and devices operate independently and are parts possible to identify which are added to production cycles. For instance: devices conducting specific environmental services (sewerage and waste), control and measurements.
 - integrated technologies: technical processes, methods or knowledge in production processes which are less polluting and demanding less outlays than the equivalent of average technology used by national manufacturers. For instance: technologies enabling production of energy from renewable sources, such as wind, water turbines, solar collectors; technologies enabling combined generation of heat and energy; dry furnaces in cement industry, etc.

The most important criterion used with regard to the above category is purpose criterion – production of goods and services is made for the purpose of environmental protection and/or protection of natural resources. The activity of environmental goods and services sector may be carried out within basic, secondary or auxiliary activities.

Output¹ equals the total products market output (goods and services) understood as market output (designed for sales), for own, final purposes, non-market output (implemented in government institutions and self-government sector) and auxiliary output.

Market output is constituted by goods and services sold or intended for sale on the market. It includes:

- sold products at economically reasonable prices,
- transferred products by way of barter exchange,
- payment used as payment in kind,
- products supplied by one local kind-of-activity unit (local KAU) to another for intermediate consumption or satisfying final demand,
- products added to inventory of ready-made products and unfinished output meant for use in at least one case mentioned above (including live inventory and vegetable products being in the phase of growth and unfinished buildings the buyer of which remains unknown).

In order to estimate the market output, sales revenue is used.

Output for own, final purposes includes goods and services retained in institutional units which produced them for consumption purposes or for gross outlays on fixed assets. Products retained for own consumption may be manufactured only in households sector. Products used for investment outlays for own purposes may be manufactured in all sectors.

Remaining output non-market output includes goods and services transferred to other institutional units free-of-charge or at prices which are not economically justified. The remaining non-market output includes: payments for the remaining non-market outputs – non-market output sold at economically unjustified prices, covering only some output costs and remaining non-market output covering output which is delivered free-of-charge. Non-market output is evaluated on the basis of incurred costs.

Auxiliary output covers services and goods and their consumption in the parent unit in order to create activities which are more environmentally friendly and more resources efficient. Auxiliary activities are supporting activities. They are undertaken within the company. They are intended to enable execution of basic or secondary business by local KAU. All outlays used in auxiliary activities - materials, workforce, depreciation of fixed assets, etc. - are regarded as outlays for basic or secondary activities which are supported by auxiliary activities. Examples of auxiliary activities are: purchase, sale, marketing, accounting, data processing, transport, warehousing, maintenance,

¹Prepared on the basis of: *Regulation of the European Parliament and Council on European national and regional accounts system in the European Union, ANNEX A, COM (2010) 774, Brussels 2010.*

cleaning and safety services. Enterprises may choose between the execution of auxiliary activities and purchase of the aforementioned services on the market from specialized manufacturers.

Investment outlays for own needs do not constitute auxiliary activities.

Gross value added is the difference between output (at base prices) and indirect consumption (at purchase prices).

Indirect consumption includes value of goods and services used as outlays in the output process except for fixed assets the consumption of which is registered as depreciation of fixed assets. It includes the value of used materials, raw materials, fuels, energy, technical gases, external services (external treatment, transport services, rent equipment, telecommunication services, computing services, paid commissions for bank services), expenses for business travels and other costs.

Market output and gross value added are valued at **base prices** (defined as amount of money obtained by the manufacturer from the buyer for product unit, reduced by payroll taxes of the product as well as any possible rebates and discounts, increased by grants received by the product).

Indirect consumption is evaluated in **purchase prices** (defined as amount of cash due to the seller – without VAT tax. In the case of the payer of this tax – increased by any transport fees incurred additionally by the purchaser and decreased by any possible rebates and discounts)².

Exports of goods and services consists of transactions in goods and services (sales, barter exchange, donation or subsidies) from residents for the benefit of non-residents.

Employment consists of all working persons (employed or working on own account). Reported as expressed in full jobs.

Each of EGSS elements is reported in separate table of Eurostat EGSS questionnaire. Data are presented in the system of NACE Rev. 2 and with breakdown into environmental protection (CEPA) and resource management (CReMA) – table 1.

² *Rachunki kwartalne PKB. Zasady metodologiczne, Zeszyty metodyczne i klasyfikacje GUS, Warszawa 2010; Statystyka sektora instytucji rządowych i samorządowych, GUS, Warszawa 2010.*

Table 1. Fields of environmental protection and resource management in environmental goods and services sector

CEPA classes	CRema classes
CEPA 1. Protection of ambient and air climate	CRema 10 - Management of water
CEPA 2. Wastewater management	CRema 11 - Management of forest resources
CEPA 3. Waste management	CRema 12 - Management of wild flora and fauna
CEPA 4. Protection and remediation of soil, groundwater and surface water	CRema 13 - Management of energy resources
CEPA 5. Noise and vibrations abatement	CRema 13 A - Production of energy from renewable sources
CEPA 6. Protection of biodiversity and landscapes	CRema 13B - Heat/energy saving and management
CEPA 7. Protection against radiation	CRema 13C - Minimization of the use of fossil energy as raw materials
CEPA 8. Environmental research and development	CRema 14 - Management of minerals
CEPA 9. Other environmental protection activities	CRema 15 - Research and development activities for resource management
	CRema 16 - Other resource management activities

3.3. Methods of setting up of EGSS accounts

There are two approaches of setting up accounts both in national accounts and in EGSS accounts:

- supply approach – on the side of output – preferred in Eurostat manual of 2009,
- demand approach – on the side of use – recommended in Eurostat document of 2014 (*Practical guide ...*, op. cit.).

Supply approach is characterized by collection of data on the side of supply of environmental goods and services using existing statistics and/or additional research. Supply approach is a better solution, however, in some areas the use of demand approach is vital.

On the side of output are calculated categories: market output, indirect consumption, gross value added and taxes from products decreased by subsidies to products.

Demand approach focuses on the use of statistics regarding environmental protection expenditure (environmental protection expenditure accounts EPEA, data from JQ EPER questionnaire). It may be used in cases when manufacturers of environmental goods and services are not classified into activity type typical for environmental protection or resource management type of activity according to NACE (beyond 37-39). The attention is paid to the fact that existing data on the demand side do not take into account data concerning resource management but only data concerning environmental protection. The level of details concerning data in both accounts may be different. In addition the value of expenses in EPEA accounts or JQ EPER is recorded at buyer prices whereas EGSS accounts require data at base prices.

On the part of expenses the following categories are calculated: domestic demand, which is the sum of final consumption expenditure in total (individual and collective consumption) and gross capital formation (gross outlays on fixed assets, growth in tangible current assets, growth in assets with the exceptional values) and balance of foreign trade turnover (exports and import of goods and services).

In Poland combination of both approaches are used – on the output and use side – depending on the presented variables. Combination of EGSS accounts was conducted with the use of existing data sources without special research in units of EGSS sector.

3.4. Market output

3.4.1. Market output of services related to water, sewerage and waste management

In this sector there are those activities which should be classified as environmental goods and services sector. These are:

- NACE 36 Water collection, treatment and supply,
- NACE 37 Sewerage drainage and treatment,
- NACE 38 Activity related to collection, processing and neutralization of wastes; recovery of raw materials,
- NACE 39 Activities related to reclamation and other service activities related to waste management.

In Poland there is a specific situation with regard to entities classified as NACE 36. In most cases these are units which basic output is not only water management, but also treatment and sewerage drainage. Approx. 70% of the surveyed units show revenue due to provision of services in the field of sewerage management (EPEA research). For this reason units which belong to section 36 are incorporated into basic environmental sector.

Market activity in EGSS sector is conducted by public and private units conducting operations in areas classified as NACE 36-39.

Assignment of types of activities to particular CEPA and CReMA domains is presented in table 2.

Table 2. Market output of services related to activities classified as NACE 36-39

NACE group	NACE name	CEPA and CReMA domains							
		2	3	4	7	10	11B	13C	14
36	<i>Water collection, treatment and supply</i>	X				X			
37	<i>Sewerage drainage and treatment</i>	X				X			
38. 1	<i>Collection of wastes</i>		X						
38.2	<i>Processing and neutralization of wastes</i>		X		X				
38.3	<i>Recovery of raw materials</i>						X	X	X
39	<i>Activities related to reclamation and other service activities connected with waste management</i>			X					

Revenues for services acquired by manufacturers specialized in other fields (within the secondary activities) than described above classified also as market output.

The main source of information are national accounts (market output at base prices). In Poland national accounts are carried out for NACE36, NACE38 and jointly for NACE 37 and 39. As a result better source of information is Business Structural Statistics, data are available on Eurostat

website (access mode: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database) in the tab: Industry, trade and services → Structural business statistics (sbs) → *Annual enterprise statistics for special aggregates of activities (NACE Rev. 2)*. In relation with the fact that in the period of the execution of the pilot project program concerning EGSS, last available data were data for 2012, were used data for 2014 from EPEA. In EPEA accounts domestic output of environmental protection services is reported at base prices. It was necessary to reach to source data, because in EPEA, information on NACE 36-39 is given together. To fill the questionnaire, source data from Central Statistical Office surveys were used, concerning costs of current environmental protection.

3.4.2. EGSS market output of environmental goods and services in other CEPA and CReMA domains

In this sector only the part of output is linked with activities for environmental protection and resource management. Three groups may be distinguished here:

1. **Relatively homogeneous activities**, classified as NACE under more general category – e.g. ecological agriculture as NACE01 *agricultural cultivations, breeding, hunting including service activities* or production of energy from renewable sources which is classified as NACE35 *Production and supply of electric energy, gas, steam, hot water and air for conditioning systems*.

Sources of information are statistics concerning the size of output in natural units (physical). With regard to production of energy from renewable sources data of Central Statistical Office were used. Data are included in publication: *Energia ze źródeł odnawialnych, Energy Statistics*. Data relating to ecological agriculture are available in agriculture statistics. It is necessary to estimate the share of output under EGSS in relation to total output and refer proportions to the value of market output

$$\text{Value of output EGSS}_{\text{nace, cepa/crema}} = \text{Value of output}_{\text{nace, cepa/crema}} \times \frac{\text{Size of output EGSS}_{\text{nace, cepa/crema}}}{\text{Size of output}_{\text{nace, cepa/crema}}}$$

where: value of the output is expressed in pecuniary units and the size of output in physical units.

1a: Organic farming

The main source of data concerning market output of organic farming were published in Eurostat database in the tab: *Agriculture → Economic accounts for agriculture → Economic accounts for agriculture – values at current prices* and *Agriculture → Organic farming → Organic crop area production*. Data from publications of Central Statistical Office were also used: *Agriculture in 2014*, CSO, Warsaw 2015 and *Statistical Yearbook of Agriculture 2014*, CSO, Warsaw 2015.

Value of output of organic farming in 2014 was calculated according to the formula:

*Organic farming output value*_{naceA, cepa4} =

$$= \text{Agricultural output value}_{naceA, cepa4} \times \frac{\text{Organic crop area [ha]}}{\text{Good culture crop area [ha]}} =$$

$$= 105973,6^3 \text{ mln zł} \times \frac{14409870 \text{ ha}}{657902 \text{ ha}} = 4838,4 \text{ mln zł} .$$

1b: Energy from renewable sources

Used studies: *Energia ze źródeł odnawialnych w 2013 r.*, *Energy Statistics 2011, 2012 and Energy Statistics in 2013 and 2014*. Acquisition of energy in total from renewable sources in 2013 was 357 537 TJ and constituted 11.9% of primary energy in total. Energy output from renewable sources exists in **professional power sector** namely in entities for which main type of activities are activities mentioned in Section NACE35 and in **power engineering**. Power engineering includes entities for which additional type of activities are activities mentioned in NACE35. Usually energy generated in these facilities is used for own needs of entities. Energy output from renewable sources in the professional power sector is market output, while in power engineering – market output for final purposes.

The variable available in types of activities according to NACE was consumption of energy from non-renewable sources – as consumption per charge in Section D, including professional power plants and as final consumption – in other activities. Table 3 presents the size of total primary energy consumption, including share of non-renewable sources with division into particular types of sources of energy.

³ Amount taken from: *Agriculture in 2014*, CSO, Warsaw 2015.

Table 3. The size of consumption of renewable energy according to type of activities and sources of energy in 2013

Sections/ NACE groups	Consumption of primary energy											
	total	including consumption of renewable energy			of which:							
		consumption per charge	final consumption		fixed biofuels	solar energy	water	wind	bio-gas	liquid bio-fuels	geothermal energy and heat pumps	municipal wastes
	[TJ]	[TJ]	[TJ]	% of primary energy consumption	[TJ]							
Agriculture	66143		21443	32.4%	20937				506			
Section B	14121		45	0.3%	45							
group 10	48867		866	1.8%	664				202			
group 13	1469											
group 14	358											
group 16	27259		21012	77.1%	21012							
group 17	63585		27243	42.8%	27152				91			
group 19	1483978		3706	0.2%	3706							
group 23	86083		1889	2.2%	498							1391
group 24	61823		1	0.0%	1							
group 28	2248		56	2.5%	56							
group 30	1183		3	0.3%	3							
Section D	1643547	153793	77	9.4%	87672		8781	21614	5821	29884		99
Section E	118110		9986	8.5%	7433	179			972		1401	
Section F	2367		115	4.9%	115							
Section H	18846		1061	5.6%						1061		
Households	544999		117871	21.6%	116850	460					561	

Source: prepared by the author on the basis of: *Energy Statistics 2011, 2012*, CSO, Warsaw 2013, *Energy Statistics in 2013 and 2014*, CSO, Warsaw 2015 and *Energia ze źródeł odnawialnych w 2013 r.*, GUS, Warszawa 2015.

Value of the overall energy output in particular types of activities is available in supply and use tables published by Central Statistical Office and Eurostat. During the execution of this report, there were available tables for 2010⁴. Owing to the fact data contained in tables were converted to prices for 2014, using index of change in price in the period of 2010-2014. Value of energy output from renewable sources in particular activities was calculated using the formula:

*Renewable energy output value*_{nace/crema13A} =

$$= \text{Primary energy output value}_{nace, cepe/crema} \times \frac{\text{Value of renewable energy consumption}_{nace, crema13A}}{\text{Value of primary energy consumption}_{nace, crema13A}}$$

Table 4 presents value of energy output from renewable sources in particular activities. Energy output in households was omitted.

⁴ In the case of section A supply and use accounts were used for the year 2005 due to the lack of the output value for 2010.

Table 4. Primary energy output and renewable sources in 2014

NACE sections/groups	Energy output		Share of consumption of renewable energy in the consumption of primary energy
	primary in total	from renewable sources	
	in PLN million		in %
Section A	13.86	4.5	32.2
Section B	166.71	0.5	0.3
group 10	926.45	16.4	1.8
group 16	46.85	36.1	77.1
group 17	34.53	14.8	42.8
group 19	259.10	0.6	0.2
group 23	44.28	1.0	2.2
group 24	636.22	0.0	0.0
group 28	101.25	2.5	2.5
group 30	65.70	0.2	0.3
Section D - market output	109241.27	10221.7	9.4
Section D - output for own final purposes	109241.27	5.1	0.0
Section E	305.62	25.8	8.5
Section F	68.50	3.3	4.9
Section H	1.16	0.1	5.6

Source: prepared by the author on the basis of: *Supply and Use Tables in 2010*, CSO, Warsaw 2014, Table 1.

2. Professional, scientific and technical activities. On the basis of analysis conducted by Eurostat, it was stated that the main manufacturer of services in other environmental protection domains are entities classified in M NACE Section: Professional, scientific and technical activities.

The source of data information is JQ EPER questionnaire, and the value of market output in NACE69-75 is equal to the value of fees and purchases of environmental services in CEPA1 and CEPA4-9 domains. Data on fees and purchases of environmental services in JQ EPER questionnaire are however stated at purchase (acquisition) prices. In order to correct them to base prices it is necessary to reduce them by the amount of taxes on output and increase by grants on output. Correction coefficient was used and was calculated as:

$$f = \frac{\text{Value of output in base prices}}{\text{Value of output in purchase prices}}$$

In 2013 value of this coefficient for the whole Section M was 0.9973⁵. In the case of different groups of Section M information for 2010 was obtained⁶. Value of f coefficient was as follows:

⁵ *National Accounts by Institutional Sectors and Sub-sectors 2010–2013*, CSO, Warsaw 2015, Table167, p. 256.

⁶ *Supply and Use Tables in 2010*, CSO, Warsaw 2014, Table 1.

NACE	f (2010)
69-70	0.9722
71	0.9523
72	0.9834
73-75	0.9688

In view of this the value of market output obtained from JQ EPER data was calculated according to the formula:

$$\text{Value of market output}_{NACE\ 69-75, CEPA1.4-9} = \text{Fees/Purchase}^7_{CEPA1.4-9} \times f_{NACE69-75, CEPA1.4-9}$$

Division into NACE groups as required by EGSS questionnaire: 60-70, 71, 72, 73-75, formula was used (on the example NACE71):

$$\text{Output value EGSS}_{naceM71, cepa} = \text{Fees, Purchases JQ}_{cepa} \times \frac{\text{Output value}_{naceM71}}{\text{Output value}_{naceM}}$$

The results of calculations are presented in table 5.

Table 5. Market output of professional activities in environmental protection and water management

Groups of section M	Coefficient f	Share of section M in market output	Market output of professional activities in domains [PLN million]							
			CEPA 1	CEPA 4	CEPA 5	CEPA 6	CEPA 7	CEPA 8	CEPA 9	CREMA 10 ⁸
group 69-70	0.9722	0.354	204	117	12	37	4	48	385	668
group 71	0.9523	0.203	114	66	7	21	2	27	216	375
group 72	0.9834	0.074	43	25	3	8	1	10	81	141
group 73-75	0.9688	0.369	212	122	13	39	4	50	400	694
Total	-	1	573	330	35	105	12	136	1083	1880

Share of different groups of output od section M was also used for division of the size of auxiliary output.

3. Other types of activities associated with environmental protection and resources management that are carried out by single units or group of organizational units under all types of NACE activities. They can, for instance provide environmental technologies, be involved in output or installation of devices used for environmental protection or conduct organic construction.

In order to determine types of NACE activities which may be assigned to environmental goods and services sector under pilot project EPEA conducted in Poland in 2014 and fulfilment of surveys from Research Program of Public Statistics (investment outlays, current expenditures) examined units were asked whether in 2013 they obtained revenues from sale of environmental goods or services. The question was sent to more than 40 000 units from

⁷Fees/Purchase field in EPER questionnaire includes the value of purchased environmental services – for instance: service fees for sewerage treatment, wastes utilization, purchase of expert studies and studies, purchase of conservation services for environmental devices, etc.

⁸ In Poland surveys of current expenditures of environmental protection include water management domain.

industry and construction sector. As it is shown in table 6 almost all NACE groups include units which may be classified as EGSS.

Table 6. Economic units receiving revenues from sale of environmental goods and services in 2013

NACE sections/groups		Number of units		Share of units achieving revenues EGSS as compared to examined units in %
		covered by the survey	achieving EGSS revenues	
B	05	28	7	25
	08	375	13	3
	09	74	4	5
C	10	5935	48	1
	11	187	12	6
	12	15	1	7
	13	718	16	2
	14	2285	12	1
	15	519	2	0
	16	2106	19	1
	17	699	52	7
	18	724	26	4
	19	59	6	10
	20	656	32	5
	21	135	8	6
	22	2267	51	2
	23	1615	23	1
	24	442	21	5
	25	4706	80	2
	26	465	22	5
	27	664	32	5
	28	1466	61	4
	29	602	37	6
	30	272	13	5
31	1781	8	0	
32	697	12	2	
33	1454	32	2	
D	35	546	66	12
F	41-43	9513	307	3
Total		41005	1023	2

The source of information were the data available in national accounts, business structural statistics, output statistics of goods and services and statistics concerning foreign trade. Owing to the fact that only part of output may be classified as environmental goods and services sector it is necessary to conduct additional estimates.

The list of products being the effect of environmental goods and services sector proposed by Eurostat⁹ was adopted. This list consists of three elements:

⁹ EGSS list of environmental products based on CPA and CN - 2015 (v. 25/08/2015), Eurostat, August 2015, <http://ec.europa.eu/eurostat/web/environment/methodology>, 17.10.2015.

1. Minimum set of EGSS products.
2. List of products whose output in 100% is classified as EGSS.
3. List of products having importance for EGSS sector, but which share in output should be specified individually.

Analysis of the possibility to use national accounts (supply and use tables of products and services) and the size of statements under PRODPOL classification to obtain information on EGSS products is presented in annex 1. Data more concurrent with variables of environmental goods and services sector are included in national accounts. However greater compliance of products – EGSS goods was obtained in the case of PRODPOL classification. For all levels of this classification data on the size of output sold at base prices are available.

3a: Value of market output of goods EGSS

Table 7 presents data obtained from PRODPOL classification for 2014. Owing to the possibility (in some cases) of more detailed classification of goods it is possible to estimate 100% of output value as output of EGSS sector.

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Table 7. Market output of EGSS goods – information available in PRODPOL classification (gray colour indicates investment products)

PKWiU/PRODPOL symbol ¹⁰	Name of grouping	Comments	Value of output in PLN million	Data confidentiality (C)	CEPA/CREMA domain	% included as EGSS	Method of determination of % of EGSS	Minimum set of products*
100% of EGSS								
08.12.12-30	Broken stone used as aggregate for concrete, broken road stone or for other construction purposes, excluding gravel, boulders, thick gravel and flint		1319		14	100		
22.11.20	Retreaded pneumatic tyres, of rubber		125		13C	100		M
22.19.10-00	Reclaimed rubber in primary forms or in plates, sheets or tapes		7	C	13C	100		M
23.65.11-00	Panes, slabs, plates, blocks and similar goods made of natural fibres, straw, chips, sawdust, dust or other waste wood, integrated with concrete, gypsum or other mineral binder		77	C	3	100		
26.51.41-00	Instruments and apparatus to measure or detect ionizing radiation		5	C	7	100		
28.11.22-00	Hydraulic turbines and water wheels		0		13A	100		M
28.11.24-00	Power generating units propelled by wind		0		13A	100		M
28.11.32-00	Parts of hydraulic turbines, water wheels, including regulators		1		13A	100		M
Diverse % of EGSS								
02	Firewood		411		13A	100	Value of sale of fuel wood in State Forests table 66 and 73 (Forestry Yearbook of CSO),	M
08.99.10-00	Bitumen and asphalt, natural; asphalts and asphalt rocks	Bitumen, asphalt reducing noise	77	C	5	No possibility to determine the share		
13.92.21-30	Sacks and bags, in type used for packing goods, of cotton	replacing plastic bags	1	C	4	100		
13.92.21-50	Sacks and bags, in type used for packing goods, knitted polyethylene or polypropylene tape	replacing plastic bags	29	C	4	100		
13.92.21-70	Sacks and bags made of polyethylene or polypropylene tape, in type used for packing goods, excluding knitted	replacing plastic bags	0		4	100		
13.92.21-90	Sacks and bags, in type used for packing goods, excluding of cotton and polyethylene or polypropylene tape	replacing plastic bags	43		4	100		
13.96.11-00	Metallic yard including core metallic yard	installations used for	0		13A	No possibility to determine the share		

¹⁰ First two digits of PKWiU symbol/PRODPOL are simultaneously the indication of NACE2007 group.

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Table 7. Market output of EGSS goods – information available in PRODPOL classification (gray colour indicates investment products)

PKWIU/PRODPOL symbol ¹⁰	Name of grouping	Comments	Value of output in PLN million	Data confidentiality (C)	CEPA/CREMA domain	% included as EGSS	Method of determination of % of EGSS	Minimum set of products*
13.96.12-00	Fabrics with metallic thread and fabrics of metallic yarn n.e.c.	biogas warehousing made of technologically advanced fabrics	0		13A			
13.96.13-00	Threads and strings from rubber covered with textile material; yarn and textile tape, impregnated, covered with rubber or plastics		10		13A			
16.10.22-00	Wood wool; wood flour	for thermal insulation	0	C	13B	50%	expert – as packing or insulating material	
16.10.23-03	Wood in the form of chips or pieces, coniferous	for thermal insulation	336		13A	0%	expert – in Poland used mainly as biomass	
16.10.23-05	Wood in the form of chips or pieces, deciduous		44		13A	0%		
16.23.11	Windows, doors and their frames and thresholds, of wood	energy-efficient wood	4069		13B	20%	Industry Analysis Centre Windows market in Poland 2012-2014. Forecast 2015-2016	
16.23.20-00	Prefabricated wooden buildings		148	C	13B	100%		
16.24.11-33	Flat pallets and wooden tops for flat pallets	reclaimed wood packaging	1488		11B	16%	Required recycling level of wood packaging pursuant to the Act of 13 June 2013. on packaging and packaging waste management	
16.24.11-35	Box pallets and other loading platforms excluding flat pallets, of wood		93		11B			
16.24.12-00	Barrels and other cooper's goods, wood (together with staves)		0	C	11B			
16.24.13-20	Boxes, cages and similar packaging, of wood		253		11B			
16.29.14-91	Other goods made of wood, excluding pallet tops	fuel wood	2030		11B	No possibility to determine the share		
16.29.21-30	Cork wastes; crushed cork, granulated or ground, excluding natural raw cork or initially processed	for thermal insulation	0		13A	-		
16.29.21-50	Natural cork, cleaned or roughly levelled or in the form of rectangular (and square) blocks, plates, sheets or lanes		0		13B	-		
17.12.34-00	Paper from waste paper to be used as corrugated layer and other paper to be used as corrugated layer	from waste paper	949		13B	100%		
17.12.35	Testliner' - paper from waste paper to cover corrugated paperboard		655		13B			
17.12.42-80.01	Waste paper card board of paper density equal or greater than 225 g/m ²		54	C	13B			
17.12.43	Filter paper and paperboard; felt paper; tar paper	for thermal insulation	0		13B	-		
17.12.77-10	Paper and cardboard, lubricated, bituminized or asphalted in coils or sheets	for thermal insulation	0	C	13B	-		

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Table 7. Market output of EGSS goods – information available in PRODPOL classification (gray colour indicates investment products)

PKWIU/PRODPOL symbol ¹⁰	Name of grouping	Comments	Value of output in PLN million	Data confidentiality (C)	CEPA/CREMA domain	% included as EGSS	Method of determination of % of EGSS	Minimum set of products*
19.20.22	Spirit type (gasoline type) jet fuel	with lower content of lead and sulphur	0		1	-		
19.20.24	Kerosene other than for aviation use		2		1	0%		
19.20.25	Kerosene-type jet fuel		3423	C	1	0%	content of sulphur according to ASTM D 4294 standard	
20.14.72-00	Charcoal (including coal from shells or nuts) even agglomerated	with certificates of conformity FSC/PEFC	260		13A	33%	share of the area of certified forests in the overall forests area – Forestry 2014, Forestry CSO	M
20.14.75-00	Contaminated ethyl alcohol and other contaminated alcoholic goods of any proof	bio-fuel	124		13A	100%		M
20.16.20	Polymers of styrene, in primary forms	for thermal insulation	746	C	13B	100%	as polystyrene	
20.16.56-30	Amine resins (other than urea resins, thiourea resins and melamine resins), in primary forms	for thermal insulation	23	C	13B	No possibility to determine the share		
20.16.56-50	Phenol resins, in primary forms		325	C	13B			
20.16.56-70	Polyurethane in primary forms	for thermal insulation	211		13B	100%	Polish Association of Producers and Processors of PUR and PIR Polyurethane Insulation "SIPUR"	
20.30.11-50	Paints and varnishes (together with enamels and varnishes) on the basis of acrylic or vinyl polymers dispersed or dissolved in aquatic environment	water-soluble paints	1507		13C	100%		
20.30.11-70	Paints and varnishes (together with enamels and varnishes) on the basis of synthetic or natural polymers chemically modified, dispersed or dissolved in aquatic environment, other		113		13C	100%		
20.41.31-20	Soap and organic products and surface active agents, in pieces, etc. n.e.c.	biodegradable in 100%	36	C	13C	less than 5%	website "Chemistry and business"	
20.41.31-50	Soap in the form of flakes, granules or powder		3	C	13C	0%		
20.41.31-80	Soap other than in the form of blocks or shaped pieces, paper, wadding, felt and fabric, impregnated, coated or covered with soap or detergent		140		13C	0%		
20.59.54-00	Active carbon	for filtration purposes	10	C	2	100%		
20.59.59-97	Bio-fuels (fuel substitutes for diesel engines)		2187		13A	100%		M
22.21.21-53	Pipes, ducts and hoses, stiff made of ethylene polymers	for water and sewerage treatment	966		2.10	No possibility to determine the share		
22.21.21-55	Pipes, ducts and hoses, stiff made of propylene polymers		449		2.10			
22.21.21-57	Pipes, ducts and hoses, stiff made of polymers, vinyl chloride		675		2.10			

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Table 7. Market output of EGSS goods – information available in PRODPOL classification (gray colour indicates investment products)

PKWIU/PRODPOL symbol ¹⁰	Name of grouping	Comments	Value of output in PLN million	Data confidentiality (C)	CEPA/CREMA domain	% included as EGSS	Method of determination of % of EGSS	Minimum set of products*
22.21.21-70	Pipes, ducts and hoses, stiff, plastic (other than ethylene polymers, propylene or vinyl chloride)		656		2.10			
22.21.29-20	Flexible pipes, ducts and hoses, plastic, minimum tear pressure 27.6 MPa		61	C	2.10			
22.21.29-35	Pipes, ducts and hoses, plastic, unreinforced or not connected with other materials, without equipment		76		2.10			
22.21.29-37	Pipes, ducts and hoses, plastic, unreinforced or not connected with other materials, with fastened equipment		23	C	2.10			
22.21.29-50	Pipes, ducts and hoses, plastic, excluding artificial intestines (sausages covers), stiff and flexible pipes and ducts with minimal tear pressure of 27.6 MPa		428		2.10			
22.21.29-70	Plastic equipment of pipes, ducts and hoses, including joints, knees, flanges		540		2.10			
22.22.11-00	Sacks and bags, including cones made of ethylene polymers	for waste	2071		3		No possibility to determine the share	
22.22.12-00	Sacks and bags, including cones made of plastics other than ethylene polymers	bio-plastics on the basis of starch, (PLA) plastics of Polilaktyd acids, poly-3-hydroksybutyrate (PHB), polyamide (PA 11 11)	590		13B		No possibility to determine the share	
22.22.19-50	Accessories for transport or packing of goods made of plastics (excluding boxes, cages and similar accessories, sacks, bags (together with cones), balloons, bottles, flasks and similar accessories, reels, coils and similar carriers, plugs, covers, caps and other closures)	for waste transportation	2928		3		No possibility to determine the share	
22.23.13-00	Tanks, tankers, vats and similar containers with the capacity exceeding 300 l made of plastics	septic tank	194		2		No possibility to determine the share	
22.23.14-50.01	Windows made of plastics for construction	highly efficient	4096		13B	20%	Industry Analysis Centre Windows market in Poland 2012-2014. Forecast 2015-2016	
22.23.14-50.02	Doors made of plastics for construction		323		13B	20%		
22.23.14-70	Window shutters, roller blinds and similar accessories and parts thereof made of plastics		506		13B	100%		
22.29.26-30	Perforated buckets and similar accessories for water filtration at the entry to sewerage made of plastics		0		2	-		

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Table 7. Market output of EGSS goods – information available in PRODPOL classification (gray colour indicates investment products)

PKWIU/PRODPOL symbol ¹⁰	Name of grouping	Comments	Value of output in PLN million	Data confidentiality (C)	CEPA/CREMA domain	% included as EGSS	Method of determination of % of EGSS	Minimum set of products*
22.29.29-90	Accessories made of plastics, other	waste containers	4857		3		No possibility to determine the share	
23.12.13-30.01	Combined, one-chamber shafts		1300		5	100%		M
23.12.13-30.02	Combined, multi-chamber shafts		424		5	100%		M
23.14	FIBREGLASS	for insulation purposes	548		13B		No possibility to determine the share	M
23.51.12	Portland cement, aluminous cement, slag cement and similar hydraulic cements	manufactured on the basis of and wastes	4001		14	61%	Report of the Institute of Construction Engineering	
23.61.11-30.01.01	Cellular autoclaved concrete	for thermal insulation	632		13B	100%		
23.61.12-00	Prefabricated construction elements for construction or civil or water engineering made of cement, concrete or artificial stone	cellular autoclaved concrete for insulation	2293		5.13B		No possibility to determine the share	
23.62.10-50	Boards, sheets, panes and similar goods made of gypsum or mixes on the basis of gypsum strengthened with paper or cardboard (except for gypsum goods, covered with ornaments)	boards made of gypsum involving wastes from desulfurization processes	126	C	13B	72%	Institute of Mineral Raw Materials and Energy Management of Polish Academy of Sciences	
23.62.10-90	Boards, sheets, panes and similar goods made of gypsum or mixes on the basis of gypsum, unreinforced with paper or cardboard, excluding gypsum goods and those covered with ornaments		414	C	13B	72%		
23.99.19-10	Slag wool, rock wool and similar mineral wools and their mixes in bulk in sheets or rolls	for thermal insulation	11	C	13B	100%	Association of Producers of Mineral Wool Glass and Rock	M
23.99.19-20	Exfoliated vermiculite, foamed slag, expanded clays and similar mineral materials (together with their mixtures)	for thermal insulation	26		13B	100%		M
23.99.19-30	Mixtures and goods made of natural mineral materials isolating, heat and acoustic which are not classified elsewhere		1640		13B	100%		
24.33.30-00	Multi-layer panels made of thin steel sheet	with insulation	1451		5	100%		
24.51.20-00	Cast-iron pipes, ducts and profiles	for water and sewerage management	7	C	2.10	100%	per 50% in CEPA2 and CREMA10 domains	M
25.12	STEEL ELEMENTS OF WOODWORK CONSTRUCTION	with thermal insulation	1990		13B		No possibility to determine the share	
25.21.12-00	Central heating boilers producing hot water or low-pressure steam (other than central heating boilers included in 25.30.11-10; 25.30.11-50; 25.30.11-70)	condensation boilers	1078		13B		No possibility to determine the share	
25.21.13-00	Parts of central heating boilers	condensers	483		13B		No possibility to determine the share	
25.29	TANKERS, TANKS, CAST-IRON, STEEL OR ALUMINUM CONTAINERS	for waste	2254		3		No possibility to determine the share	
25.92.12	Aluminium casks, drums, cans, boxes and similar containers, for any material (excluding gas), of a capacity ≤ 300 l	waste containers	1326	C	3		No possibility to determine the share	

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Table 7. Market output of EGSS goods – information available in PRODPOL classification (gray colour indicates investment products)

PKWIU/PRODPOL symbol ¹⁰	Name of grouping	Comments	Value of output in PLN million	Data confidentiality (C)	CEPA/CREMA domain	% included as EGSS	Method of determination of % of EGSS	Minimum set of products*
25.99.29-45	Accessories made of cast-iron or steel which are not classified elsewhere	waste radioactive containers, sieves for water and sewerage filtering	3629		3		No possibility to determine the share	
26.11.22-20	LEDs including laser LEDs	Solar panels or components thereof	0		11A		No possibility to determine the share	M
26.11.22-40	Photosensitive semiconductive elements including photounits even in the form of modules or panels		47		11A			M
26.51.53-13	Electronic gas or smoke analysers		76		1	100%		M
26.51.53-19	Non-electronic gas or smoke analysers		0	C	1	100%		M
26.51.70	Thermostats, manostats and other instruments and apparatus for automatic adjustment or control		492		13B	100%		
27.40.15	Gas-discharge lamps; ultraviolet lamps and lamp infrared radiators and arch lamps		1484	C	13B	100%		M
27.5	DOMESTIC APPLIANCES	energy-efficient wood	18203		13B		No possibility to determine the share	M
27.52.12-70	Domestic appliances for solid fuel made of cast-iron or steel including heaters, grates, furnaces and heaters (except for cooking devices and panel heaters)	for wood	111	C	13A		No possibility to determine the share	M
27.52.14-00	Flow water or capacitive heaters, non-electric	solar	163		13A	80%	Value of subsidized purchase and assembly of solar collectors for natural persons and housing communities in residential buildings – National Fund for Environmental Protection and Water Management – purchase 80%	M
28.13	OTHER PUMPS AND COMPRESSORS	for sewerage treatment	2072		2		No possibility to determine the share	
28.14.12-53	Thermostatic valves for central heating heaters		86		13B	100%		
28.21.12-70	Furnaces and industrial or laboratory furnaces, non-electric including incineration furnaces (except for roasting furnaces, melting or other heat treatment of ores, pyrites or metals, bakery furnaces, drying furnaces and cracking furnaces)	wastes incineration	19		3	100%		

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Table 7. Market output of EGSS goods – information available in PRODPOL classification (gray colour indicates investment products)

PKWIU/PRODPOL symbol ¹⁰	Name of grouping	Comments	Value of output in PLN million	Data confidentiality (C)	CEPA/CREMA domain	% included as EGSS	Method of determination of % of EGSS	Minimum set of products*
28.25.13-80	Thermal pumps however, excluding air conditioners containing: motor fans and elements used for temperature and humidity adjustments as well as air conditioners without the possibility of separate humidity regulation		9		13B	100%		M
28.25.14-10	Devices and apparatus for filtering or purification of air, excluding inlet air filters for combustion engines		254		1	100%		M
28.25.14-30	Devices and apparatus for filtering or purification of gases (other than air and excluding those using catalytic processes and isotope separators)		647		1	100%		M
28.25.14-40	Devices and apparatus for filtering or purification of gases using catalytic method, excluding inlet air filters for combustion engines, devices and apparatus for filtering or purification of air		98		1	100%		M
28.25.30-70	Parts of cooling devices, heat pumps, household coolers (evaporators and boilers), excluding evaporators and boilers for non-household coolers	to control temperature in buildings	142		13A	No possibility to determine the share		
28.29.12-70	Devices and apparatus for filtering and purification of solid substances or fluids, excluding water and beverages, centrifuges and rotational dryers, oil filters/fuel for combustion engines	for environmental protection	14		2	100%		M
28.29.82-50	Parts of devices and apparatus for filtering or purification of liquids or gases, excluding centrifuges and rotational dryers	for environmental protection	107		1	100%		
28.41	METAL FORMING MACHINERY	for metal recovery	1172		14	No possibility to determine the share		
28.92	MACHINERY FOR MINING, QUARRYING AND CONSTRUCTION	for storage of wastes	3515		3	No possibility to determine the share		
29.10.24-00.01	Passenger cars equipped with electric engine, excluding vehicles carrying more than 10 people, snow, golf and similar vehicles		0		1	100%		M
29.10.59-90	Other special-purpose motor vehicles which are not classified elsewhere (<i>among others, self-propelled towers, technical emergency services vehicles, concrete pumping vehicles, etc.</i>)	for neutralization of wastes and drainage	383		2.3	No possibility to determine the share		M
29.32.30-63	Dampers and exhaust pipes and parts thereof		1387		1	100%		M
30.20.13-00.01	Rail electrical locomotives supplied from accumulators		0		1	100%		M

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Table 7. Market output of EGSS goods – information available in PRODPOL classification (gray colour indicates investment products)

PKWIU/PRODPOL symbol ¹⁰	Name of grouping	Comments	Value of output in PLN million	Data confidentiality (C)	CEPA/ CReMA domain	% included as EGSS	Method of determination of % of EGSS	Minimum set of products*
30.20.20-00.01	Passenger, freight or transport cars, rail or tram which are electrically-driven supplied from the external source, excluding rail repair or service vehicles		1615	C	1	100%		M
30.91.13-00.01	Motorcycles, motorbikes and motor scooters equipped with electric engine		13	C	1	100%		M
35.2	Gas Services associated with distribution of gas fuels in the network system	LNG for vehicles			13A	PLN 0 million	Eurostat Database: <i>Primary production - all products - annual data – size of output (0 TJ); 1 transport company acting in Poland - omitted value</i>	M
		agriculture and waste biogas			13A	PLN 0.344 million	Eurostat Database: <i>Primary production - all products - annual data – size of output (7593 TJ); Gas prices for domestic consumers - bi-annual data – price (45,335 zł/GJ); calculations in accordance with Practical guide..., p. 60-61.</i>	M
41.00.10	Residential buildings	Passive and energy-efficient buildings	7127**		13B	PLN 32 million	Programs of National Fund for Environmental Protection and Water Management Grants for credits for construction of power-efficient houses and energy-efficient public utility buildings (materials 80%)	M
41.00.2	Non-residential buildings	Passive and energy-efficient buildings	20863**		13B	PLN 56 million		M

* In column, letter M marks products found in minimum set of products contained in *EGSS list of environmental products based on CPA and CN - 2015* (v 25/08/2015), Eurostat, August 2015,

**data for 2013 - *Construction - results of activities in 2014*, CSO 2015.

3b: Value of market output of EGSS investment goods

Evaluation methodology **market value of market output in investments concerning environmental protection (CEPA)** adopted from publications *Practical guide...*, p. 62-66. The main source of information on the size of market output is JQ EPER questionnaire

$$\text{Market output}_{CEPA, NACE} = \text{JQ investment outlays}_{CEPA} \times s_{NACE} \times m_{NACE} \times f \text{ coefficient}_{NACE},$$

where:

s_{NACE} – share of particular types of investment in NACE section in the overall investment value:

$$s = \frac{\text{Gross investment outlays}_{nace, \text{ type of investment}}}{\sum \text{Gross investment outlays}_{nace, \text{ type of investment}}},$$

[Nakłady inwestycyjne brutto – Gross investment outlays]

where: type of investment is assigned as output:

- *other machinery and equipment* in NACE26, 27 and 28,
- *transport equipment* in NACE29-30,
- *total construction* in Section F,
- *computer software* in Section J,
- *intangible fixed assets* in NACE71.

m_{NACE} – fixed assets coefficient as a part of own activities:

$$m_{nace} = \frac{\text{intermediate consumption}}{\text{output}} + 1,$$

f_{NACE} – adjusting coefficient of purchase price to the base prices.

Value of s coefficient was calculated on the basis of data contained in Eurostat database: *National accounts* → *Annual national accounts* → *Breakdowns of non-financial assets by type, industry and sector* → *Cross-classification of gross fixed capital formation by industry and by assets*. The m and f coefficient was calculated from the tables of supply and use of products and services in 2010 - table 8.

Table 8. Value of s , m and f coefficient for types of fixed assets supply activities

Assignment of different types of fixed assets of total investment outlays to types of activities	s (2012)	m (2010)	f (2010)	$s \times m \times f$
C26	0.0930	1.390	0.823	0.1064
C27	0.0930	1.461	0.782	0.1063
C28 ^{a)}	0.0930	1.344	0.895	0.1119
C29-30	0.0803	1.351	0.801	0.0869
F ^{b)}	0.5745	1.389	0.954	0.7613
J	0	1.552	0.896	0
M71	0.0661	1.427	0.952	0.0898

^{a)} Investment values in air protection CEPA1 were omitted and were decreased by investments of incinerating plants CEPA3 owing to the possibility of occurrence of double counting (compare table 7).

^{b)} Investment value in waste management CEPA3 were omitted owing to the possibility of occurrence of double counting (compare table 11).

Value of **output investment for water management (CREMA10)** was calculated in accordance with guidelines contained in publications *Practical guide...*, p. 66-68. On the basis of data contained in Eurostat database: *National accounts* → *Annual national accounts* → *Breakdowns of non-financial assets by type, industry and sector* → *Cross-classification of gross fixed capital formation by industry and by assets* coefficient i was identified being the share of particular types of fixed assets in investments, section E – table 9.

Table 9. Value of coefficient i for Section E

Assignment of different types of fixed assets of investment outlays of section E to types of activities:	i (2012)
C26 = C27 = C28	0.0238
C29-30	0.0170
F	0.0409
J	0
M71	0.0042

Value of market output in water management was calculated according to the formula:

$$\text{Market output}_{CREMA10, NACE} = \text{Value of output services in water management}_{NACE} \times m_{NACE} \times f_{NACE}$$

m_{NACE} , f_{NACE} - as in previous formulas.

The value of **output of investments involving biofuels (CReMA13A)** was calculated in accordance with guidelines contained in publications *Practical guide...*, p. 71-73. On the basis of data contained in Eurostat database: *National accounts* → *Annual national accounts* → *Breakdowns of non-financial assets by type, industry and sector* → *Cross-classification of gross fixed capital formation by industry and by assets* - coefficient s was determined, being the share of particular types of fixed assets in investments related to biofuels. Delivery of equipment for biofuels is mainly due to output classified as:

- part of investment in section C,
 - *other machinery and equipment* in NACE26, 27 and 28,
 - *transport equipment* in NACE29-30,
 - *total construction* in Section F,
 - *computer software* in Section J,
- part of the investment NACE35 - *intangible fixed assets* in NACE71.

Value of output in investment in the field of biofuels was calculated according to the formula:

$$\text{Output}_{CReMA13A, NACE} = \text{positive change in the amount of biofuels output} \times k_{average} \times s_{NACE} \times m_{NACE} \times f_{NACE}$$

where:

Positive change in the amount of biofuels output - data from publication of Central Statistical Office *Energy from renewable sources 2013* growth in 2013 by 55.375 thous. t.

$k_{average}$ - average investment costs – 1800 PLN/t – adopted from publications *Practical guide...*, p. 72.

s_{NACE} , m_{NACE} , f_{NACE} - as in previous formulas.

Table 10. Values of coefficients used for calculations of investment output related to biofuels in 2013

Assignment of different types of fixed assets of investment outlays of section C and D to types of activities:	<i>s</i> (2012)	<i>m</i> (2010)	<i>f</i> (2010)	<i>s x m x f</i>	Market output of bio-fuels investment [PLN million]
C26	0.19738	1.39	0.823	0.2258	23
C27	0.19738	1.461	0.782	0.2255	23
C28	0.19738	1.344	0.895	0.2374	24
C29-30	0.05243	1.351	0.801	0.0567	6
F	0.27144	1.389	0.954	0.3597	36
J	0	1.552	0.896	0	0
M71	0.04223	1.427	0.952	0.0574	6

Value of **output of investments involving bio-gas (CRema13A)** was calculated in accordance with guidelines contained in publications *Practical guide...*, p. 73-75. On the basis of data contained in Eurostat database: *National accounts* → *Annual national accounts* → *Breakdowns of non-financial assets by type, industry and sector* → *Cross-classification of gross fixed capital formation by industry and by assets* - coefficient *s* was determined, being the share of particular types of fixed assets in investment related to biogas conducted mainly by units classified as NACE35. Investment outlays were assigned, similarly as in the previous cases to NACE26-30, section F and J and NACE71.

Value of market output in the field of investments involving bio-gas output was calculated according to the formula:

$$\text{Output}_{CRema13A, NACE} = \text{positive change in size of energy output from bio-gas} \times k_{average} \times s_{NACE} \times m_{NACE} \times f_{NACE},$$

where:

Positive change in size of energy output from bio-gas - data of Institute for Renewable Energy growth in 2013 by 317.1 GWh (i.e. 36.7 MW),

k_{average} - average investment costs - 18 million PLN/MW - data of Institute for Renewable Energy,

s_{NACE}, m_{NACE}, f_{NACE} - as in previous formulas.

Table 11. Values of coefficients used for calculations of investment output related to bio-gas output in 2013

Assignment of different types of fixed assets of investment outlays of section D up to types of activities:	<i>s</i> (2012)	<i>m</i> (2010)	<i>f</i> (2010)	<i>s x m x f</i>	Market output in bio-gas investment [PLN million]
C26	0.14773	1.39	0.823	0.1690	112
C27	0.14773	1.461	0.782	0.1688	111
C28	0.14773	1.344	0.895	0.1777	117
C29-30	0.01107	1.351	0.801	0.0120	8
F	0.50350	1.389	0.954	0.6672	441
J	0	1.552	0.896	0	0
M71	0.04223	1.427	0.952	0.0574	38

3c: Identification of EGSS services

EGSS services are not unfortunately covered by PRODPOL statistics. Table 12 presents data concerning evaluation of services output under EGSS.

Table 12. Output of EGSS services – manner of value determination

PKWIU/PRODPOL symbol	Name of grouping	Description	CEPA/CREMA domain	Method of determination of EGSS output	Minimum set of products
09.10	Support services to petroleum and natural gas extraction	Removing spoil	3	Value of output PLN 3457 million (PRODPOL) - no possibility to determine the share	
09.90.11	Support services to hard coal extraction				
09.90.19	Support services to other mining and quarrying n.e.c.				
33.11	Repair services of fabricated metal products	concerning devices used for environmental protection	All possible	Value of output PLN 1473 million (PRODPOL) - no possibility to determine the share	
33.12.12	Repair and maintenance services of fluid power equipment, other pumps, compressors, taps and valves		10	Value of output PLN 370 million (PRODPOL) - no possibility to determine the share	
33.20.11	Installation services of steam generators, except central heating hot water boilers, including installation services for metal pipe systems in industrial plants	concerning devices used for environmental protection	All possible	Value of output PLN 236 million (PRODPOL) - no possibility to determine the share	
42.21.1	Utility constructions for fluids	Maintenance and reduction of water networks losses	10	Value of output PLN 1535 million* – "Construction - results of activities in 2014", CSO – 100%	M
42.21.23	Construction works for irrigation systems (canals), water mains and lines, water treatment plants, sewage disposal plants and pumping stations	-	2	Included on the basis of calculations of investment value for water management	
42.21.24	Water well drilling and septic system installation works	-	2	100%	
42.22.23	Construction works for power plants	Construction of power plant from renewable sources	13B	Report wind power engineering in Poland 2014 – value of works 1.95 million PLN/MW, Power Industry Regulation Office – quantity of installed power in 2014 - 444.3 MW	
43.21.10	Electrical installation works	Installation of solar panels	13B	Value of subsidized purchase and assembly of solar collectors for natural persons and housing communities in residential buildings (163 million) – National Fund for Environmental Protection and Water Management – installation of 20%	M
43.22.12	Heating, ventilation and air conditioning installation works				M

Table 12. Market output of EGSS services – manner of value determination (cont.)

PKWIU/PRODPOL symbol	Name of grouping	Description	CEPA/CREMA domain	Method of determination of EGSS output	Minimum set of products
43.99	Other specialised construction works n.e.c.	wastes incineration	3	1/3 of outlays for the construction of incinerating plants in Poland – total cost of six projects implemented in the period of 2013-2015 – PLN 3848 million (devices – 80% decreased by devices from C28, installation 20%)	M
		Noise barriers	5	Included on the basis of calculations of investment value in environmental protection	M
43.99.7	Assembly and erection works of prefabricated constructions	Installation works and installation of prefabricated of power-efficient and passive buildings	13B	Programs of National Fund for Environmental Protection and Water Management <i>Grants for credits for construction of power-efficient houses and energy-efficient public utility buildings (labor 20%) - PLN 22 million</i>	M
81.29.12	Sweeping and snow removal services		3	No information	
94.99	Services furnished by other membership organisations n.e.c.	environmentally-friendly organizations	All possible	No information	

*data for 2013.

3.5. Non-market output of services

Non-market output is supplied by environmental government institutions and self-government sector and non-commercial institutions operating for the benefit of households which provide services and goods natural free of charge or at non-market prices. Non-market output in this sector refers also to products manufactured for own purposes. It is estimated as the sum of salaries for employees, output net taxes, consumption of fixed capital and indirect consumption.

The main source of information on the size of output of government institutions and self-government sector may be COFOG classification. However, from analyses conducted under EPEA accounts it seems that in Poland more useful source of data is JQ EPER questionnaire:

Non-market output = costs of activities conducted for own purposes

For non-market output in the field of biodiversity and landscapes, research and development and remaining activities related to environmental protection include also educational activities classified in section P. Activity of units of section P in other environmental protection domains was qualified as auxiliary activities. The source of data is also JQ EPER questionnaire.

3.6. Output for own final purposes

Output for own final purposes (in enterprises) includes products or services retained in units which manufactured them for the purpose of own consumption or gross capital formation. According to ESA 2010 (3.45) and ESA 95 (3.49) output for own final purposes is evaluated at base prices of

related products sold on the market; it results in operational cash surplus or mixed income for such output. If base prices of related products are not available output for own final purposes should be evaluated according to:

- output costs (ESA 95 3.49),
- output costs increased by profit margin (except for non-market manufacturers) for operational cash surplus or mixed income (ESA 2010 3.45).

Output for own final purposes was identified in the case of energy output from renewable sources for own purposes (compare table 4).

3.7. Auxiliary output

Auxiliary output is output made solely to support major output at the manufacturers. This is output of environmental goods and service manufactured and used in the same unit: e.g. emission monitoring generated and consumed in unit.

Auxiliary output is present in all types of activities however, owing to risk of double counting it is not included in specialized manufacturers units and public sector.

The main source of information in Poland is JQ EPER questionnaire:

Auxiliary output = costs of activities conducted for own purposes.

Therefore it includes only CEPA and CREMA10 domains.

3.8. Export

In the case when 100% of the size of output is classified from environmental goods and services, value of exports can be directly taken from national accounts. In Poland it is possible to use data concerning foreign trade turnover and it is necessary to use merged nomenclature CN¹¹. The Eurostat document *Environmental Goods and Services Sector (EGSS): list of products* provides appropriate CN codes 2013 for all goods classified as EGSS. Values with regard to exports of environmental services are also given in EPEA accounts, however NACE aggregation level is higher in EPEA (less precise).

In the case of products some of which belong to EGSS it is necessary to decide which interest may be attributed to environmental protection and resource management. It is possible to use equal coefficients as in the case of market output, however – if there exist other credible sources of information it is necessary to adjust appropriate coefficients.

Table 13 presents the list of environmental products for which market output is determined. The value of export, in most cases, was received directly from national accounts. Exports include only units registered in REGON system (excludes those having only fiscal representative)¹².

¹¹Implementing Regulation of the Commission (EU) No. 1001/2013 of 4 October 2013 amending Annex I to Regulation of the Council (EEC) No. 2658/87 on tariff and statistical nomenclature and on Common Custom Tariff, Journal of Laws EU L 290

¹²In this study the value of exports was determined as balance of foreign trade, due to the lack of the possibility to obtain the data from REGON system.

For other EGSS products for which there are no information from national accounts, the table presents the way to determine value of exports.

Table 13. Exports of EGSS goods and services – manner of value determination

PKWIU/PRODPOL symbol	Name of grouping	Value of exports in PLN million **	Data confidentiality (C)	CEPA/ CReMA domain	% included as EGSS	Method of calculations/estimation
01	Organic farming			4		share of exports in NACE01 in market output - 9.3%*
02.20	Firewood	411**		13A	100%	value obtained directly from foreign trade statistics
08.12.12-30	Broken stone used as aggregate for concrete, broken road stone or for other construction purposes, excluding gravel, boulders, thick gravel and flint	0		14	100%	as above
08.99.10-00	Bitumen and asphalt, natural; asphaltites and asphaltic rock	0	C	5	100%	as above
13.92.21-30	Sacks and bags, in type used for packing goods, of cotton	0	C	4	100%	as above
13.92.21-50	Sacks and bags, in type used for packing goods, knitted polyethylene or polypropylene tape	0	C	4	100%	as above
13.92.21-70	Sacks and bags made of polyethylene or polypropylene tape, in type used for packing goods, excluding knitted	0		4	100%	as above
13.92.21-90	Sacks and bags, in type used for packing goods, excluding of cotton and polyethylene or polypropylene tape	0		4	100%	as above
16.10.22-00	Wood wool; wood flour	0	C	13B	50%	as above, percentage adopted to the size of output
16.23.11	Windows, doors and their frames and thresholds, of wood	2319		13B	20%	as above, percentage adopted to the size of output
16.23.20-00	Prefabricated wooden buildings	228**	C	13B	100%	value obtained directly from foreign trade statistics
16.24.11-33	Flat pallets and wooden tops for flat pallets	1007		11B	16%	as above, percent adopted to the size of output
16.24.11-35	Box pallets and other loading platforms excluding flat pallets, of wood	93**		11B		
16.24.12-00	Barrels and other cooper's goods, wood (together with staves)	0	C	11B		
16.24.13-20	Boxes, cages and similar packaging, of wood	253**		11B		
17.12.34-00	Paper from waste paper to be used as corrugated layer and other paper to be used as corrugated layer	0		13B	100%	value obtained directly from foreign trade statistics
17.12.35	Testliner' - paper from waste paper to cover liner board	0		13B		
17.12.42-80.01	Waste paper card board of paper density equal or greater than 225 g/m ²	54**	C	13B		
19.20.21-00.02	Engine gasoline, unleaded [oil distillate (30 to 220 degrees Celsius) prepared for spark-ignition engines, not containing tetraethyllead or tetrametaethyllead]	7417	C	1	100%	as above
20.14.72-00	Charcoal (including coal from shells or nuts) even agglomerated	148		13A	33%	as above, percent adopted to the size of output
20.14.75-00	Contaminated ethyl alcohol and other contaminated alcoholic goods of any proof	0		13A	100%	value obtained directly from foreign trade statistics

Table 13. Exports of EGSS goods and services – manner of value determination

PKWIU/PRODPOL symbol	Name of grouping	Value of exports in PLN million **	Data confidentiality (C)	CEPA/ CReMA domain	% included as EGSS	Method of calculations/estimation
20.16.20	Styrene polymers in primary forms	0	C	13B	100%	as above
20.16.56-70	Polyurethane in primary forms	0		13B	100%	as above
20.30.11-50	Paints and varnishes (together with enamels and varnishes) on the basis of acrylic or vinyl polymers dispersed or dissolved in aquatic environment	0		13C	100%	as above
20.30.11-70	Paints and varnishes (together with enamels and varnishes) on the basis of synthetic or natural polymers chemically modified, dispersed or dissolved in aquatic environment, other	0		13C	100%	as above
20.41.31-20	Soap and organic products and surface active agents, in pieces, etc. n.e.c.	109	C	13C	less than 5%	as above, percent adopted to the size of output
20.59.54-00	Active carbon	0	C	2	100%	value obtained directly from foreign trade statistics
20.59.59-97	Bio-fuels (fuel substitutes for diesel engines)	0		13A	100%	as above
22.11.20	Retreaded pneumatic tyres, of rubber	0		13C	100%	as above
22.19.10-00	Reclaimed rubber in primary forms or in plates, sheets or tapes	0	C	13C	100%	as above
22.23.14-50.01	Windows made of plastics for construction	4096**		13B	20%	as above, percent adopted to the size of output
22.23.14-50.02	Doors made of plastics for construction	323**		13B	20%	as above
22.23.14-70	Window shutters, roller blinds and similar accessories and parts thereof made of plastics	43		13B	100%	value obtained directly from foreign trade statistics
23.12.13-30.01	Combined, one-chamber shafts	1300**		5	100%	as above
23.12.13-30.02	Combined, multi-chamber shafts	424**		5	100%	as above
23.51.12	Portland cement, aluminous cement, slag cement and similar hydraulic cements	0		14	61%	as above, percent adopted to the size of output
23.61.11-30.01.01	Cellular autoclaved concrete	632**		13B	100%	value obtained directly from foreign trade statistics
23.62.10-50	Boards, sheets, panes and similar goods made of gypsum or mixes on the basis of gypsum strengthened with paper or cardboard (except for gypsum goods, covered with ornaments)	126**	C	13B	72%	as above, percent adopted to the size of output
23.62.10-90	Boards, sheets, panes and similar goods made of gypsum or mixes on the basis of gypsum, unreinforced with paper or cardboard, excluding gypsum goods and those covered with ornaments	0	C	13B	72%	as above, percent adopted to the size of output

Table 13. Exports of EGSS goods and services – manner of value determination

PKWIU/PRODPOL symbol	Name of grouping	Value of exports in PLN million **	Data confidentiality (C)	CEPA/CREMA domain	% included as EGSS	Method of calculations/estimation
23.65.11-00	Panes, slabs, plates, blocks and similar goods made of natural fibres, straw, chips, sawdust, dust or other waste wood, integrated with concrete, gypsum or other mineral binder	0	C	3	100%	value obtained directly from foreign trade statistics
23.99.19-10	Slag wool, rock wool and similar mineral wools and their mixes in bulk in sheets or rolls	11**	C	13B	100%	as above
23.99.19-20	Exfoliated vermiculite, foamed slag, expanded clays and similar mineral materials (together with their mixtures)	12		13B	100%	as above
23.99.19-30	Mixtures and goods made of natural mineral materials isolating, heat and acoustic n.e.c.	0		13B	100%	as above
24.33.30-00	Multi-layer panels made of thin steel sheet	604		5	100%	as above
24.51.20-00	Cast-iron pipes, ducts and profiles	3	C	2.10	100%	as above
26.51.41-00	Instruments and apparatus to measure or detect ionizing radiation	0	C	7	100%	as above
26.51.53-13	Electronic gas or smoke analysers	16		1	100%	as above
26.51.53-19	Non-electronic gas or smoke analysers	0**	C	1	100%	as above
26.51.70	Thermostats, manostats and other automatic regulating or controlling instruments and apparatus	0		13B	100%	as above
27.40.15	Discharge lamps; ultra-violet or infra-red lamps; arc lamps	637	C	13B	100%	as above
27.52.14-00	Flow water or capacitive heaters, non-electric	163**		13A	80%	as above, percent adopted to the size of output
28.11.22-00	Hydraulic turbines and water wheels	0**		13A	100%	value obtained directly from foreign trade statistics
28.11.24-00	Power generating units propelled by wind	0		13A	100%	as above
28.11.32-00	Part of hydraulic turbines, water wheels, including regulators	1**		13A	100%	as above
28.14.12-53	Thermostatic valves for central heating heaters	0		13B	100%	as above
28.21.12-70	Furnaces and industrial or laboratory furnaces, non-electric including incineration furnaces (except for roasting furnaces, melting or other heat treatment of ores, pyrites or metals, bakery furnaces, drying furnaces and cracking furnaces)	0		3	100%	as above

Table 13. Exports of EGSS goods and services – manner of value determination

PKWIU/PRODPOL symbol	Name of grouping	Value of exports in PLN million **	Data confidentiality (C)	CEPA/ CReMA domain	% included as EGSS	Method of calculations/estimation
28.25.13-80	Thermal pumps however, excluding air conditioners containing: motor fans and elements used for temperature and humidity adjustments as well as air conditioners without the possibility of separate humidity regulation	0		13B	100%	as above
28.25.14-10	Devices and apparatus for filtering or purification of air, excluding inlet air filters for combustion engines	207		1	100%	as above
28.25.14-30	Devices and apparatus for filtering or purification of gases (other than air and excluding those using catalytic processes and isotope separators)	0		1	100%	as above
28.25.14-40	Devices and apparatus for filtering or purification of gases using catalytic method, excluding inlet air filters for combustion engines, devices and apparatus for filtering or purification of air	0		1	100%	as above
28.29.12-70	Devices and apparatus for filtering and purification of solid substances or fluids, excluding water and beverages, centrifuges and rotational dryers, oil filters/fuel for combustion engines	0		2	100%	as above
28.29.82-50	Parts of devices and apparatus for filtering or purification of liquids or gases, excluding centrifuges and rotational dryers	0		1	100%	as above
29.10.24-00.01	Passenger cars equipped with electric engine, excluding vehicles carrying more than 10 people, snow, golf and similar vehicles	0**		1	100%	as above
29.32.30-63	Dampers and exhaust pipes and parts thereof	764		1	100%	as above
30.20.13-00.01	Rail electrical locomotives supplied from accumulators	0**		1	100%	as above
30.20.20-00.01	Passenger, freight or transport cars, rail or tram which are electrically-driven supplied from the external source, excluding rail repair or service vehicles	1615**	C	1	100%	as above
30.91.13-00.01	Motorcycles, motorbikes and motor scooters equipped with electric engine	13**	C	1	100%	as above
35.11	Renewable energy			13A	share of exports in NACE35 in market output -1.6 %	
36	Water withdrawal, treatment and supply services			2.10	share of exports in NACE36 in market output - 0.0%*	

Table 13. Exports of EGSS goods and services – manner of value determination

PKWIU/PRODPOL symbol	Name of grouping	Value of exports in PLN million **	Data confidentiality (C)	CEPA/ CReMA domain	% included as EGSS	Method of calculations/estimation
37	Wastewater discharge and treatment			2.10		share of exports in NACE37 in market output - 0.1%*
38	Waste collection, treatment and disposal services; materials recovery services			3		share of exports in NACE38 in market output -35.4 %*
39	Remediation services and other waste management services			4		share of exports in NACE39 in market output - 0.1%*
41.00.10	energy-efficient residential buildings			13B		no exports – financial support for National Fund for Environmental Protection and Water Management only in Poland
41.00.2	energy-efficient non-residential buildings			13B		
42.21.23	Construction works for irrigation systems (canals), water mains and lines, water treatment plants, sewage disposal plants and pumping stations			2		share of exports in NACE41-43 in market output - 3.7 %*
42.21.24	Works related to: water well and water intakes drilling, installation of septic tanks			2		
42.22.23	Construction works for power plants			13B		
43.21.10	Electrical installation works			13B		
43.22.12	Heating, ventilation and air conditioning installation works					
43.99	Other specialised construction works n.e.c.			3		
43.99.7	Assembly and erection works of prefabricated constructions			13B		
69-70	Legal activity, accounting and tax consultancy, activities of central enterprises; consulting related to management			all possible		share of exports in NACE69-70 in market output - 12.1%*
71	Architectural and engineering services; technical testing and analysis services			as above		share of exports in NACE71 in market output - 9.9 %*
72	Scientific research and development services			as above		share of exports in NACE72 in market output - 15.8%*
73-75	Professional, scientific and technical activities			as above		share of exports in NACE73-75 in market output - 18.0%*

* Coefficient obtained supply and use account CSO for 2010

**In the case when value of exports was higher than the value of market output value of exports was equal to the value of market output.

3.9. Gross value added

Gross value added is the difference between output value and intermediate consumption. Since output value has been determined value of intermediate consumption remains unknown.

For specialized manufacturers from NACE 36-39 value of intermediate consumption is not available in national accounts and EPEA accounts.

In other cases model recommended by Eurostat was adopted in which gross value added is proportional to the value of output:

$$Value\ added_{nace,cepa/crema} = Value\ added_{nace} \times \frac{Output\ value_{nace,cepa/crema}}{Output\ value_{nace}}$$

The source of data on the share of value added in market output in different NACE groups was SBS statistics. Eurostat database was used: industry - *Industry, trade and services* → SBS – *industry and construction* → *Annual detailed enterprise statistics – industry and construction* → *Annual detailed enterprise statistics for industry and construction (NACE Rev 2)* and services - *Industry, trade and services* → SBS – *services* → *Annual detailed enterprise statistics for services (NACE Rev 2)*.

3.10. Employment

In all NACE groups (except for 36-39 and 84) data concerning the size of employment, collected under EPEA apply only to auxiliary output. These are, however, data concerning only CEPA and CREMA10 domains (expenses on water management are collected in Poland both during the survey of investment outlays and current costs). Employment to particular CEPA and CREMA10 domains was assigned in proportion to the structure of the value of auxiliary output.

Collected under EPEA information in section E (NACE 36-39) are related to employment refer to market output of environmental services. Another source of data for NACE 36-39 may be, for example employment statistics.

In section O (NACE 84) data concerning employment were adopted from EPEA accounts and division was made between CEPA and CREMA10 domains in proportion to non-market output:

$$\begin{aligned} Employment_{nace84,cepa/crema10} &= \\ &= Total\ employment_{EPEA,nace84} \times \frac{Non - market\ output\ value_{nace84,cepa/crema10}}{\sum Non - market\ output\ value_{nace84,cepa/crema10}} \end{aligned}$$

In the case of market output in other types of activities than section E and section O Eurostat proposals were adopted (*Practical guide...*, p. 91):

$$\begin{aligned} Employment_{nace,cepa/crema} &= \\ &= Output\ value_{nace,cepa/crema} \\ &\times \frac{Compensation\ of\ employees_{nace}}{Output\ value_{nace}} : \frac{Compensation\ of\ employees_{nace}}{Employment_{nace}} \end{aligned}$$

The source of data on the share of wages in the value of output and the size of employment in

different NACE groups was SBS statistics. Eurostat database was used: industry - *Industry, trade and services* → *SBS – industry and construction* → *Annual detailed enterprise statistics – industry and construction* → *Annual detailed enterprise statistics for industry and construction (NACE Rev 2)* and services - *Industry, trade and services* → *SBS – services* → *Annual detailed enterprise statistics for services (NACE Rev 2)*.

4. Results of environmental goods and services sector accounts in Poland

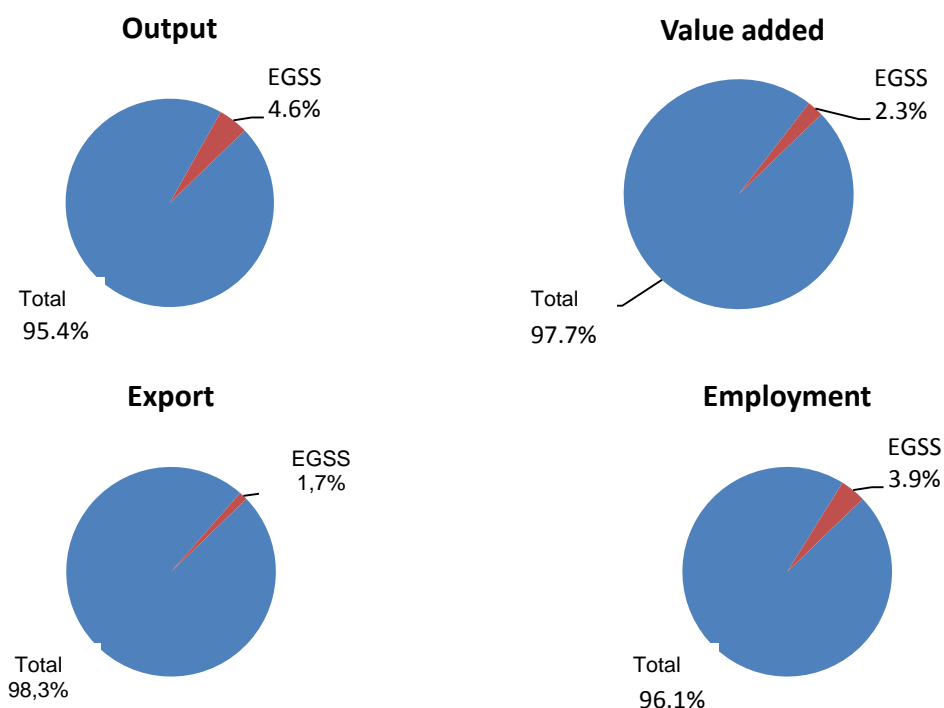
Specification of major variables of EGSS accounts is presented in table 14.

Table 14. Output, value added, exports and employment in environmental goods and services sector in Poland in 2014

EGSS account domains		EGSS account variables			
		market output	value added	export	employment
		in PLN million			[conversion jobs]
CEPA 1	Protection of ambient and air climate	8 070	2 424	2906	8 285
CEPA 2	Sewerage Management	10 183	6 574	687	24 518
CEPA 3	Waste Management	8 797	3 259	2 314	30 398
CEPA 4	Protection and remediation of soil, groundwater and surface waters	6 127	2 754	500	12 647
CEPA 5	Noise and vibrations abatement	3 249	923	2 334	33 595
CEPA 6	Protection of biodiversity and landscapes	541	274	16	5 545
CEPA7	Protection against radiation	19	10	2	123
CEPA8	Research-development works	240	131	19	1 330
CEPA9	Other environmental protection activities	2 627	1 618	184	16 336
CEPA in total		39 853	17 967	8 961	130 005
CRema 10	Water Management	12 901	6 924	700	61 276
CRema 13 A	Energy output from renewable sources	14 270	5 630	777	75 215
CRema 13 B	Heat/energy saving and management	11 037	2 933	3 305	104 989
CRema 13 C	Minimisation of the use of fossil energy as raw materials	1 754	396	1	9 896
CRema 14	Management of minerals	3 760	1 454	0	41 804
CRema in total		43 721	17 338	4 782	293 180
CEPA and CRema in total		83 573	35 305	13 743	423 185

The share of particular EGSS variables in GDP and employment in total are presented in chart 1.

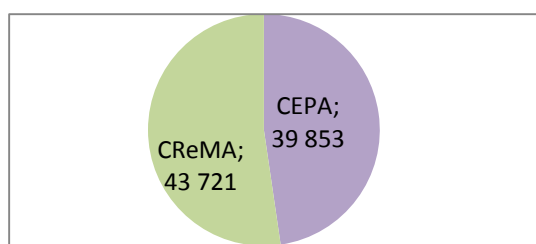
Chart 1. The share of EGSS variables in GDP and employment in total in 2014



4.1. Output

Value of output of environmental goods and services in Poland in 2014 amounted to PLN 83 573 million. The majority – 52.3 % constituted the value of output of goods and services related to resource management (CReMA domains) (chart 2).

Chart 2. The structure of output of environmental goods and services 2014 [PLN million]



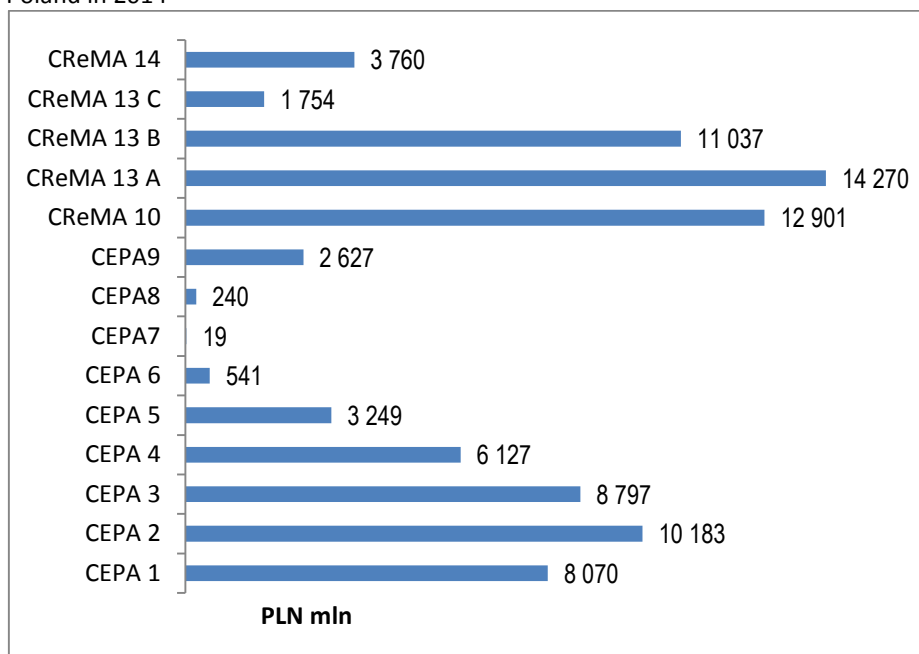
Almost 92% of output was market output, mainly of environmental products and related to resource management (table 15).

Table 15. EGSS output in Poland in 2014

Specification	CEPA	CReMA	Total	
	[PLN million]			[%]
output, of which	39853	43721	83573	100.0
<i>auxiliary output</i>	3784	708	4492	5.4
<i>non-market output</i>	2020	116	2136	2.6
<i>final output for own purposes</i>	-	158	158	0.2
<i>market output, of which:</i>	34049	42740	95825	91.9
<i>services</i>	18674	10885	29559	35.4
<i>goods</i>	15375	31876	47228	56.5

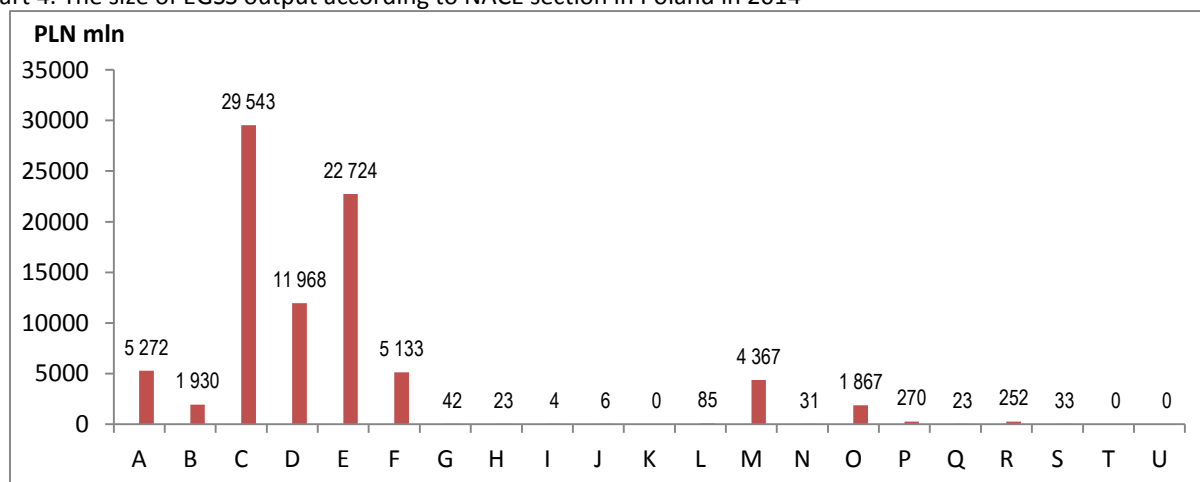
The greatest share of output (17.1%) occurred in CReMA13A domain – energy output from renewable sources. The lowest share of output (0.02%) was recorded in CEPA7 domain – protection against radiation. The structure of output in breakdown into environmental protection and resource management is presented in chart 3.

Chart 3. The structure of EGSS output in breakdown into environmental protection domains and resource management in Poland in 2014



Output of EGSS sector was implemented mainly by units classified into section C – industrial processing and in section E - water supply; sewerage and waste management and activities related to reclamation (chart 4). In units of section C was manufactured only goods used for environmental protection and resource management. The greatest share in the value of output of this section had units classified as section 22 - of rubber goods and plastics output and Section 23 - goods from other mineral, non-metallic raw materials. In units of section E it was environmental services output – mostly in water management, sewerage and waste management domains.

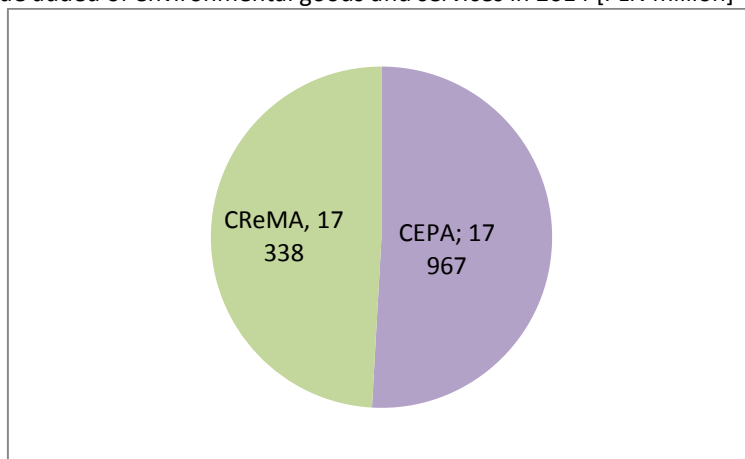
Chart 4. The size of EGSS output according to NACE section in Poland in 2014



4.2. Value added

Value added of environmental goods and services sector in Poland in 2014 amounted to PLN 35 305 million. The majority – 50.9 % constituted value added connected with CEPA domains (chart 5).

Chart 5. Structure of value added of environmental goods and services in 2014 [PLN million]



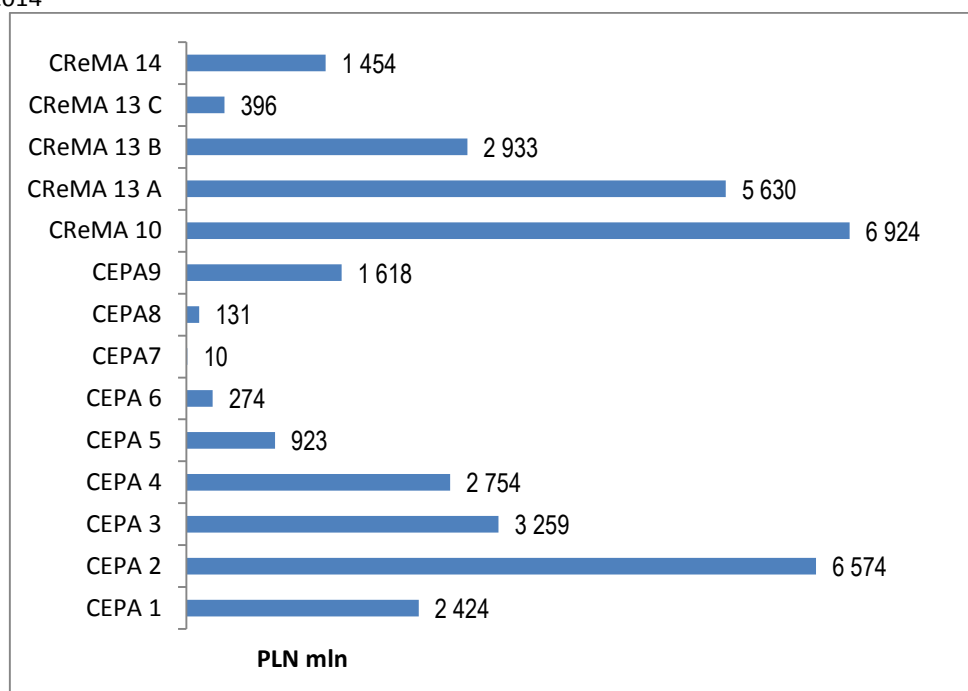
Almost 91% of the value added resulted from market output, environmental goods and services and resource management (table 16).

Table 16. EGSS value added in Poland in 2014

Specification	CEPA	CReMA	Total	
			[PLN million]	[%]
Value added, of which:	17967	17338	35305	100.0
<i>auxiliary output</i>	1477	213	1691	4.8
<i>non-market output</i>	1554	89	1643	4.7
<i>final output for own purposes</i>		63	63	0.2
<i>market output, of which:</i>	14935	16973	31909	90.4
<i>services</i>	10314	6332	16653	47.2
<i>goods</i>	4621	10641	15256	43.2

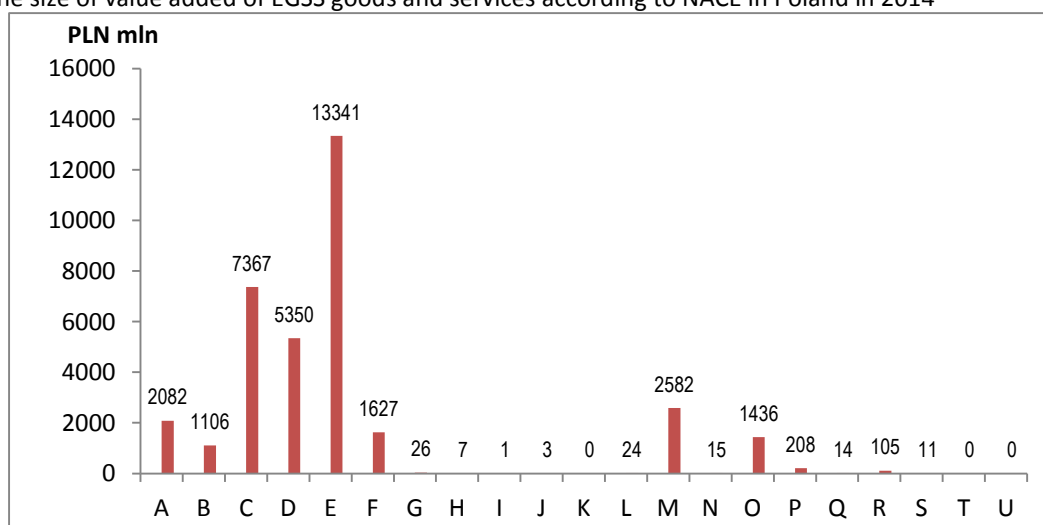
The greatest share of value added (19.6%) occurred in the field of water management – CReMA10 and in sewerage management – CEPA2 (18.6%). The lowest share of value added (0.03%) was recorded in CEPA7 domain - protection against radiation. The structure of value added with breakdown into environmental protection and resource management is presented in chart 6.

Chart 6. The structure of EGSS value added with breakdown into environmental protection and resource management in Poland in 2014



The highest gross value added occurred in section E as well as in sections C and D (chart 7).

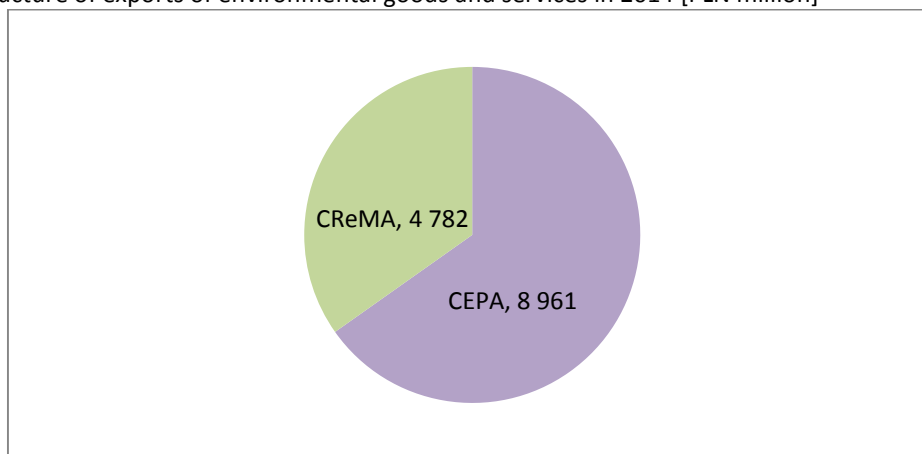
Chart 7. The size of value added of EGSS goods and services according to NACE in Poland in 2014



4.3. Export

Value of exports of environmental goods and services sector in Poland in 2014 amounted to PLN 13 743 million. The majority – 65.2 % occurred in exports of goods and services related to CEPA domains (chart 8).

Chart 8. The structure of exports of environmental goods and services in 2014 [PLN million]



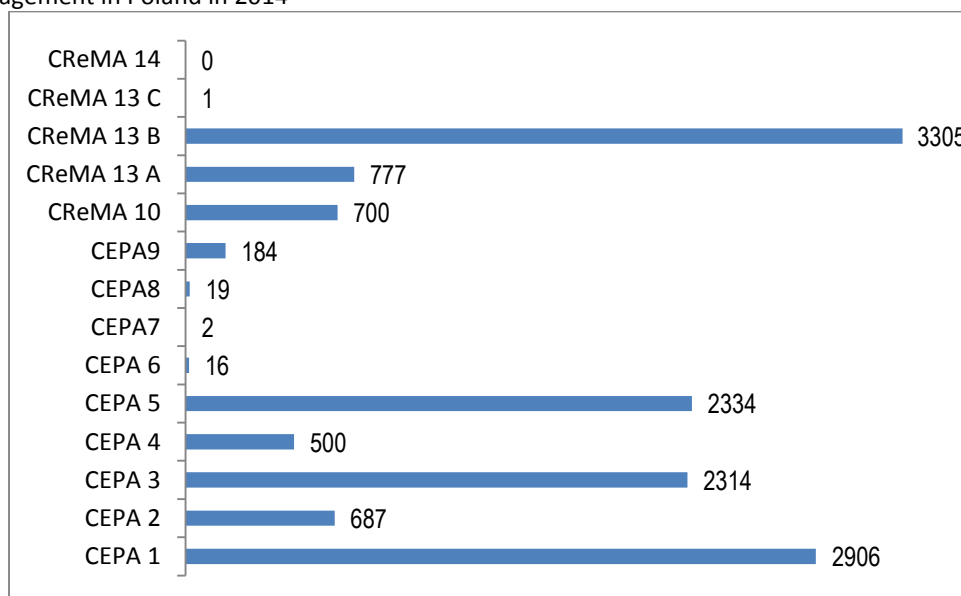
More than 71% of the value of exports was connected with environmental goods, mainly environmental protection (CEPA domains) (table 17).

Table 17. Exports of EGSS goods and services in Poland in 2014

Specification	CEPA	CReMA	Total	
	[PLN million]			[%]
Exports, of which:	8961	4782	13743	100.0
<i>services</i>	3286	691	3978	28.9
<i>goods</i>	5975	4091	9766	71.1

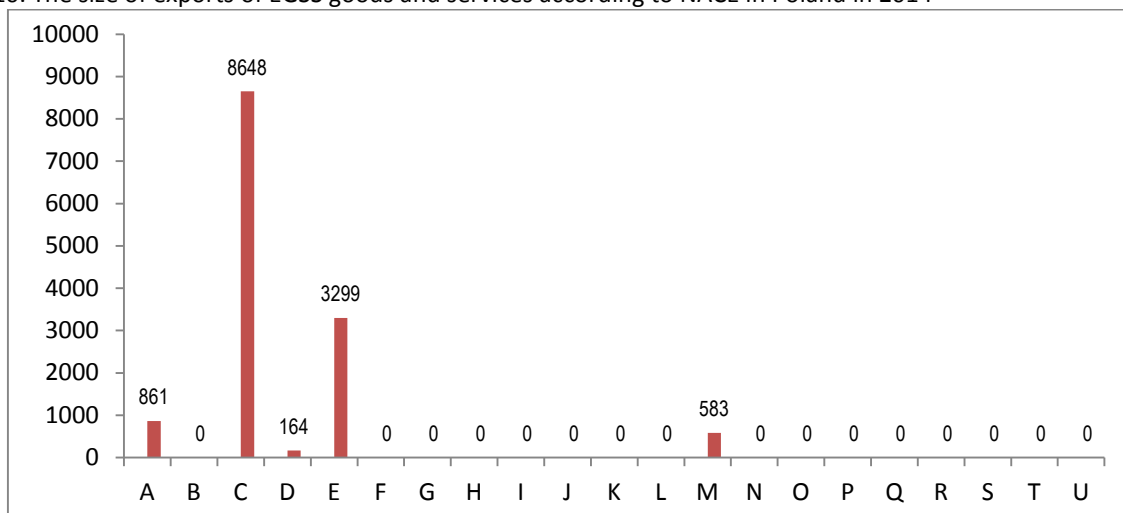
Exports mainly included products associated with heat and energy saving – CReMA13B (24%) and with protection of ambient and air climate – CEPA1 (21.1%). No exports was recorded in CReMA14 domain - management of minerals. The structure of exports with breakdown into environmental protection and resource management is presented in chart 9.

Chart 9. The structure of exports of EGSS goods and services with breakdown into environmental protection and resource management in Poland in 2014



Exports related mainly to goods from section C and section E, NACE38 - Activity related to collection, processing and neutralization of wastes; recovery of raw materials (chart 10).

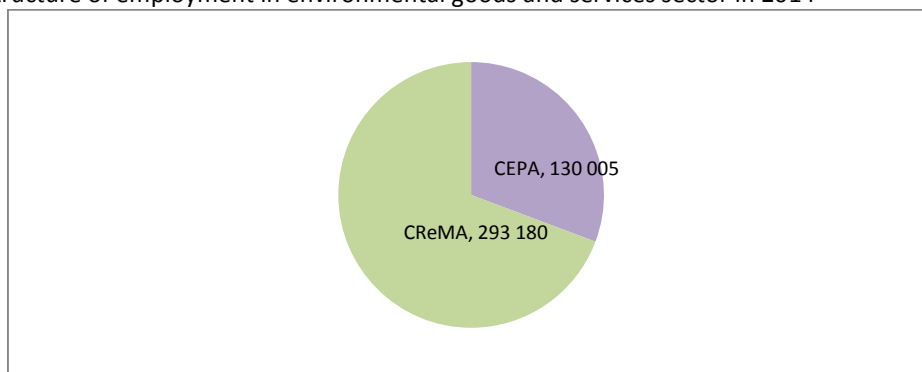
Chart 10. The size of exports of EGSS goods and services according to NACE in Poland in 2014



4.4. Employment

The size of employment in environmental goods and services in Poland in 2014 amounted to PLN 423 185 people (expressed in full jobs). The majority of employees – 69.3% was related to resource management - CReMA domains (chart 11).

Chart 11. The structure of employment in environmental goods and services sector in 2014



Almost 70% of employees related to market output of EGSS goods mainly related to resource management (CReMA domains) (table 18).

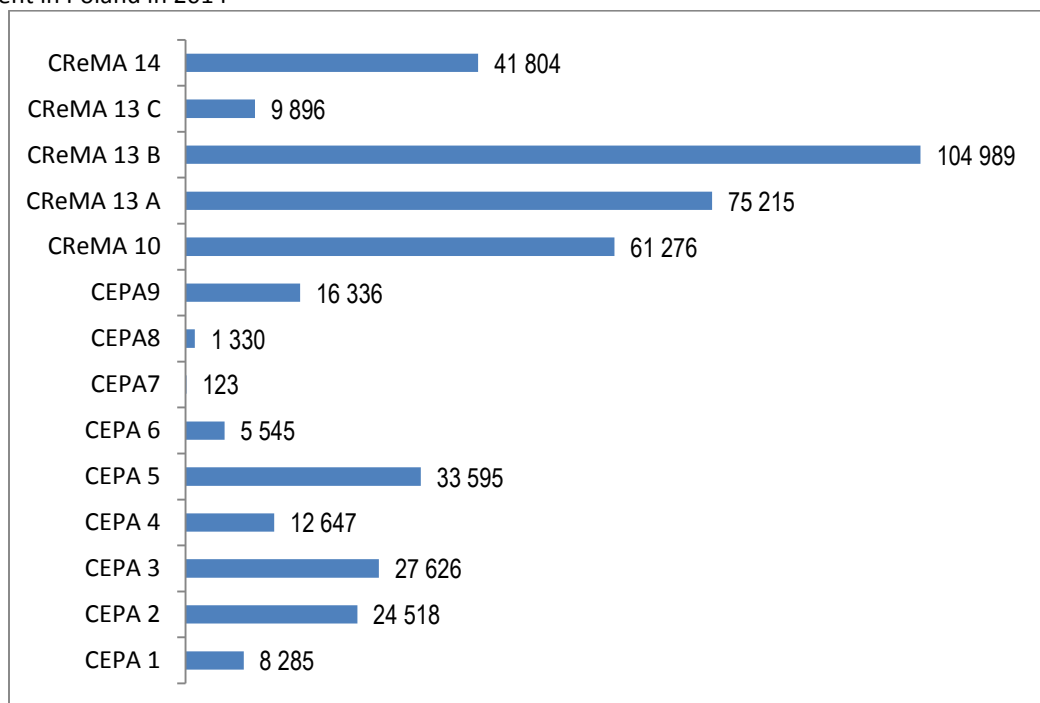
Table 18. Employment in environmental goods and services sector in Poland in 2014

Specification	CEPA	CReMA	Total	
	number of employees			in %
Employment of which:	130005	293180	423185	100.0
<i>auxiliary output</i>	12834	1267	14101	3.3
<i>non-market output</i>	10722	477	11199	2.6
<i>final output for own purposes</i>	-	1037	1037	0.2
<i>market output, of which:</i>	106449	290399	396848	93.8
<i>services</i>	48249	54920	103169	24.4
<i>goods</i>	58200	235479	293679	69.4

The highest employment (24.8%) was related to heat and energy saving – CReMA13B. The lowest

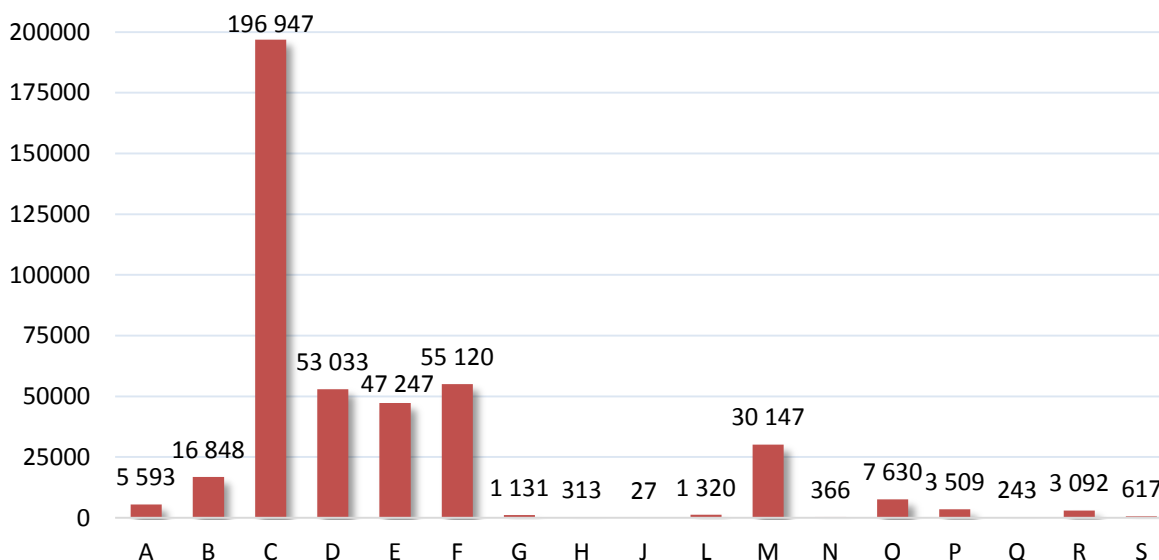
share of employment (0.03%) was recorded in CEPA7 domain - protection against radiation. The structure of employment with breakdown into environmental protection and resource management is presented in chart 12.

Chart 12. The structure of employment in EGSS sector with breakdown into environmental protection and resource management in Poland in 2014



The highest employment related to environmental goods output occurred in section C – manufacturing (chart 13).

Chart 13. The size of employment in EGSS sector according to NACE section in Poland in 2014



5. Database

Within the project a database was created for variables required for setting up of environmental goods and services sector accounts and was connected with the existing database for

environmental accounts.

Under works related to preparation of IT system substantive assumptions were consulted. Upon the analysis of assumptions the selection of software needed to the creation of IT system was made. For the creation of IT system and calculation of data as well as use of databases Eclipse Java EE IDE for Web Developers (Indigo Service Release 2) operating in web on SQL Server 2008 was used. It was decided that the system will operate on PCs, being in CSO network.

The following assumptions concerning data processing were adopted:

- data will be stored in free database tables,
- under the table there will be columns containing data,
- names of columns are unique under the table,
- each piece of data in a column will be stored in a given form (text value, numeric value, logic or other value – date or time),
- in the case of character and numeric fields maximum number of characters is defined,
- each table will be ordered by means of fixed index.

Designed user's interface of the application is used to call functions and procedures located in particular menu options. There are types and ranges of variables necessary to calculate inspection boards and estimated data presented in tabular form. There are relevant procedures containing algorithms used to control data correctness on the basis of prepared assumptions. At each stage of creation of software the correct functioning of the application was tested and verified. In order to move in the program instruction manual was created. During verification correctness of start-up of procedures, data saving and their validation was checked. Data control was conducted on the current basis to facilitate fast detection of errors and their adjustment. Input data were verified in terms of their correctness. During operation of the system files and working printouts were created and contained data were analysed in terms of correctness concerning calculation algorithms and correctness of obtained data. Depending on the results of the analysis adjustments of calculation algorithms of control and output boards were executed.

The effect of the system operation are calculated result boards in .xls format with data estimated according to NACE sections. Estimations were converted on the basis of general classification consistent with the condition of 31.12.2014 which started units sampling algorithm for survey.

Database contains related tables containing:

1. unit data,
2. description of columns with full description consistent with the form,
3. generated file as of 31.12.2014.

Data were archived on the server and carriers to protect large encrypt data with high durability and very large capacity and are identified in National Statistical Data.

6. Summary and conclusions

1. The main purpose of the pilot project concerning module for environmental goods and services sector accounts was to identify possibilities to fulfil obligations resulting from *Regulation of the European Parliament and the Council (EU) No. 538/2014 of 16 April 2014 on European economic environment amending Regulation (EU) No. 691/2011 on European environmental economic accounts*. The goal of the project, i.e. development of methodology concerning preparation of environmental goods and services sector accounts, was achieved, and on its basis Eurostat questionnaire was filled. The results of the project will be used in the future as a basis to implement future, compulsory, annual reporting.

2. The conducted project will have long-term impact. Works started in the course of the project will be continued. It is planned to enter accounts to the framework of Programme of Statistical Surveys of Official Statistics for 2018 as continuous survey with specific purpose scope and costs. Costs of the survey will be covered by CSO.

3. It is necessary to continue activities related to promotion and dissemination of information on economic environment accounts, including environmental goods and services sector accounts. These activities are conducted under works of Task Force for environmental accounts¹³. General methodological assumptions approved during implementation of the project were presented to the Task Group in November 2015.

4. The necessity to continue activities designed to further development of environmental goods and services sector accounts results from the need of its improvement and methodological doubts encountered in the course of the implementation of the project and described in this report.

During compilation of environmental goods and services sector accounts the following problems were identified:

- no information on the value of auxiliary output in the fields related to resource management (except for CREMA10),
- no grounds to identify the share of EGSS output in market output in the case of some environmental goods and services, for instance: determination of the share of machines output for landfills among the value of machines output for mining and extraction and for construction,
- no possibility to reach to source data concerning the values of environmental goods and services, for instance: value/quantity of built acoustic screens, value of sweeping rubbish and snow remove services,
- there is no value of unleaded gasoline (PRODPOL code 19.20.21.50) owing to the fact that there is no legal possibilities to produce gasolines other than unleaded. As a result this product

¹³ Task Force (TF) for environmental accounts was appointed in 2010 by way of internal regulation of the President of Central Statistical Office. Task Force operates, among others, as opinion-forming and advisory body during the implementation of modules for environmental economic accounts in Poland. TF includes representatives of CSO, Ministry of Environment, Ministry of Finance, Ministry of Economy and representatives of scientific environment.

currently is not associated product which is confirmed by the project of Annex to Implementing Regulation on indicative summary of environmental goods and services sector, format concerning transfer of data for the purposes of European economic environment accounts as well as principles, structure and frequency of submission of reports concerning the quality on the basis of the Regulation (EU) No. 691/2011 on European environmental economic accounts of 2015.

Certain difficulty was also the term of publishing of information concerning of demand and supply accounts (in the course of implementation of the project there were available data for 2010).

Future works:

- assessment of the possibility to obtain more detailed and current information concerning supply and use accounts in National Accounts Department in CSO,
- assessment of the possibility to obtain more detailed information concerning environmental services and resource management by Manufacturing Department in CSO,
- analysis of the situation in which value of exports exceeds the value of market output:
 - works on limitation of information on exports of EGSS goods and services solely to units registered in REGON system (not considering units which have only fiscal representative in Poland),
 - information on commercial margin for EGSS goods and services output from National Accounts Department in CSO.

Annex 1. Analysis concerning use of national accounts (supply and use tables) and the size of output according to PRODPOL classification for EGSS products

Yellow colour marks total consistency with CPA classifications 2008 and CN 2013.

No colour means higher (less precise) level of gathered information.

Empty field means that the product is not covered by classification.

CPA 2008 CODE	CPA 2008 DESCRIPTION	CN 2013 CODE	CN 2013 DESCRIPTION/ SHORT DESCRIPTION	CEPA/ CReMA	Supply and use tables	PRODPOL
100% EGS						
01.29.10	Natural rubber	4001.10.00	Natural rubber latex, whether or not prevulcanised	13C	01.29.1	
08.12.13	Mixtures of slag and similar industrial waste products, whether or not incorporating pebbles, gravel, shingle and flint for construction use	2517.20.00	Macadam of slag, dross or similar industrial waste, whether or not incorporating the materials cited in subheading 2517 10	14	08.12	08.12.12-30
22.11.2	Retreaded pneumatic tyres, of rubber	4012.11;4012.12;4012.13;4012.19	Retreaded tyres of rubber	13C	22.11.1 - 22.11.2	22.11.20
22.19.1	Reclaimed rubber in primary forms or in plates, sheets or strip	4003.00.00	Reclaimed rubber in primary forms or in plates, sheets or strip	13C	22.19.1 - 22.19.7	22.19.10-00
23.65.11	Boards, blocks and similar articles of vegetable fibre, straw or wood waste, agglomerated with mineral binders	6808.00.00	Panels, boards, tiles, blocks and similar articles of vegetable fibre, of straw or of shavings, chips, particles, sawdust or other waste of wood, agglomerated with cement, plaster or other mineral binders	3	23.65.1	23.65.11-00
26.51.41	Instruments and apparatus for measuring or detecting ionising radiations	9030.10.00	Instruments and apparatus for measuring or detecting ionising radiations	7	26.51.1 - 26.51.7	26.51.41-00
28.11.22	Hydraulic turbines and water wheels	8410	Hydraulic turbines, water wheels, and regulators therefor	13A	28.11.1; 28.11.2	28.11.22-00
28.11.24	Wind turbines	8502.31.00	Generating sets, wind-powered	13A		28.11.24-00
28.11.32	Parts of hydraulic turbines, water wheels including regulators	see 8410		13A	28.11.3	28.11.32-00
37	Sewerage services; sewage sludge			2	37	35-39
38.1	Waste; waste collection services			3	38	
38.21	Treatment and disposal services of non-hazardous waste			3		
38.22	Treatment and disposal services of hazardous waste			3		

CPA 2008 CODE	CPA 2008 DESCRIPTION	CN 2013 CODE	CN 2013 DESCRIPTION/ SHORT DESCRIPTION	CEPA/ CReMA	Supply and use tables	PRODPOL
38.22.11	Nuclear waste treatment services			7		
38.32.11	Recovery services of sorted metal materials			14		
38.32.12	Recovery services of sorted non metal materials			13C, 14		
38.32.2	Metal secondary raw materials			14		
38.32.3	Non-metal secondary raw materials			13C, 14		
39.00.11	Remediation and clean-up services, soil and groundwater			4		
39.00.12	Remediation and clean-up services, surface water			2		
39.00.13	Remediation and clean-up services, air			1		
39.00.23	Other specialised pollution control services			1-9		
43.29.11	Insulation works			5,13B	43.2	41-43
71.12.15	Engineering services for waste management projects (hazardous and non-hazardous)			3	71.2	
74.90.13	Environmental consulting services			1-16	74	
variable % EGS						
01	Products of agriculture, hunting and related services		organic agricultural products	4	01	
01.1	Non-perennial crops		organic agricultural products	4	01.1	01.11
01.2	Perennial crops		organic agricultural products	4	01.2	
01.4	Live animals and animal products	01;02;04;05	organic agricultural products	4	01.4	
01.61	Support services to crop production		Maintenance of agricultural land in good environmental conditions, Operation of agricultural irrigation equipment using less water	4,10	01.61; 01.63, 01.64	
02.20.14	Fuel wood	4401	Fuel wood when complying with e.g. Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) standards	13A	02.2	
02.40	Support services to forestry		restoration activities, education, training, information, sensibilisation and general administration activities linked to non-cultivated forest management	11A	02.4	

CPA 2008 CODE	CPA 2008 DESCRIPTION	CN 2013 CODE	CN 2013 DESCRIPTION/ SHORT DESCRIPTION	CEPA/ CReMA	Supply and use tables	PRODPOL
03.00.72	Support services to aquaculture		restoration activities, education, training, information, sensibilisation and general administration activities linked to aquaculture	6,12	03.00.7	
08.99.1	Bitumen and asphalt, natural; asphaltites and asphaltic rock	2714	Bitumen and asphalt to reduce noise	5	08.99.1	08.99.10-00
09	Mining support services		overburden removal service from mines	3	09	09.10, 09.90.11, 09.90.19
13.92.21	Sacks and bags, of a kind used for the packing of goods	6305	sacks and bags for replacing plastic bags	3	13.92.2	13.92.21-30, 13.92.21-50, 13.92.21-70, 13.92.21-90
13.96.1	Metallised yarn or metallised gimped yarn; woven fabrics of metal thread and woven fabrics of metallised yarn; rubber thread and cord, textile covered and textile products and articles for technical uses	5908.00.00	storage systems for biogas made from high tech textiles	13A	13.96.1	13.96.11 do 13.96.13
16.10.22	Wood wool; wood flour	4405	wood wool used for thermic isolation	13B	16.10.1 - 16.10.3	16.10.22-00
16.10.23	Wood in chips or particles	4401 2	renewable energy	13A		16.10.23-03, 16.10.23-05
16.23.11	Windows, French windows and their frames, doors and their frames and thresholds, of wood	4418.10;4 418.20	low emission/ high energy performance windows	13B	16.23.1	16.23.11
16.23.20	Prefabricated wooden buildings	9406.00.20	low emission/consumption and/or passive buildings	13B	16.23.2	16.23.20-00
16.24	Wooden containers	4415	Reconditioning of wooden containers	11B	16.24.1	16.24
16.29	Other products of wood; articles of cork, straw and plaiting materials	4503	woods for the production of energy	13A	16.29	16.29.22-50, 16.29.22-90
16.29.2	Articles of cork, straw or other plaiting materials; basket ware and wickerwork	4503	cork for thermal insulation	5, 13B	16.29.1 - 16.29.2	16.29.22-50, 16.29.22-90
17	Paper and paper products	48	recycled paper	11B	17	17.12
17	Paper and paper products	48	cellulosic materials for thermal insulation	13B	17	17.12
19.20.2	Fuel oil and gas; lubricating oils	2710	Motor fuels with lower content of lead and sulphur, GPL	1	19.20.2	19.20.21, 19.20.22, 19.20.24, 19.20.25
20.14	Other organic basic chemicals	2207	Biofuels	13A	20.14	20.14.75-00
20.14.72	Wood charcoal	4402	Charcoal when complying with e.g. Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) standards	13A	20.14.1 - 20.14.8	20.14.72-00

CPA 2008 CODE	CPA 2008 DESCRIPTION	CN 2013 CODE	CN 2013 DESCRIPTION/ SHORT DESCRIPTION	CEPA/ CReMA	Supply and use tables	PRODPOL
20.16.2	Polymers of styrene, in primary forms	3903	Polymers of styrene for insulation purposes (e.g. EPS, XPS)	13B	20.16.2	20.16.20
20.16.56	Other amino-resins, phenolic resins and polyurethanes, in primary forms	3909	Polyurethanes for insulation purposes	13B	20.16.5	20.16.56-30, 20.16.56-50, 20.16.56-70
20.3	Paints, varnishes and similar coatings, printing ink and mastics	3209	Bio paints (e.g. water based paintings with no chemical, i.e. derived from petrol, solvents)	13C	20.3	20.30.11-70
20.41	Soap and detergents, cleaning and polishing preparations	3401	Soap and detergents 100% biodegradable	13C	20.41	20.41.31-20, 20.41.31-30, 20.41.31-50, 20.41.31-90
20.59.54	Activated carbon	3802.10.00	For filtering purposes	2	20.59.1 - 20.59.6	20.59.54-00
20.59.59	Miscellaneous other chemical products n.e.c.	3826	Biocarburants	13A		20.59.59-97
22.21.2	Tubes, pipes and hoses and fittings thereof, of plastics	3917	Tubes and pipes for wastewater treatment plants as well as for water management (maintenance and repairing water networks)	2, 10	22.21.1 - 22.21.4	22.21.21-53 - 22.21.29-70
22.22.11	Sacks and bags (including cones), of polymers of ethylene	3923.21.00	Waste bags	3	22.22.1	22.22.11-00
22.22.12	Sacks and bags (including cones), of other plastics than polymers of ethylene	3923.29	Made of bio-plastic (Starch based plastics, Polylactide acid (PLA) plastics, Poly-3-hydroxybutyrate (PHB), Polyamide 11 (PA 11), Bio-derived polyethylene)	13C		22.22.12-00
22.22.19	Other plastic packing goods	3923	Any specific container for transporting of waste	3		22.22.19-50
22.23.13	Reservoirs, tanks, vats and similar containers, capacity > 300 l, of plastics	3925.10.00	Reservoir for septic tanks	2	22.23.1 - 22.23.2	22.23.13-00
22.23.14	Doors, windows and frames and thresholds for doors; shutters, blinds and similar articles and parts thereof, of plastics	3925.20.00 ; 3925.30.00	High efficient windows	5, 13B		22.23.14-50, 22.23.14-70
22.29.26	Fittings for furniture, coachwork or the like, of plastics; statuettes and other ornamental articles, of plastics	3926.90.50	Plastic perforated buckets and similar articles used to filter water at the entrance to drains (PRODCOM 22292630)	2	22.29.1; 22.29.2	22.29.26-30
22.29.29	Other articles of plastics		Containers for waste	3		22.29.29-90
23.12.13	Glass mirrors; multiple walled insulating units of glass	7008.00.81 ;7008.00.8 9	multiple walled insulating units of glass	5	23.11.1; 23.12.1	23.12.13-30
23.14.1	Glass fibres	7019	Glass fibres for insulation purposes	13B	23.14.1	23.14
23.51.12	Portland cement, aluminous cement, slag cement and similar hydraulic cements	2523	Manufacture of metallurgical slag-based cement and other types of cement containing a proportion of waste	14	23.51.1	23.51.12

CPA 2008 CODE	CPA 2008 DESCRIPTION	CN 2013 CODE	CN 2013 DESCRIPTION/ SHORT DESCRIPTION	CEPA/ CReMA	Supply and use tables	PRODPOL
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)	2, 10	23.61.1 - 23.61.2	23.61.11-30.01.01
23.61.12	Prefabricated structural components for building or civil engineering, of cement, concrete or artificial stone	6810,91	Autoclave Cellular Concrete (for isolation)	5, 13B		23.61.12-00
23.62.10	Plaster products for construction purposes	6809,19	Production of plaster made from phosphogypsum or citrogypse (waste of metallurgic processes)	5, 13B	23.62.1	23.62.10-50, 23.62.10-90
23.99	Other non-metallic mineral products n.e.c.	6806	Isolation materials as rock wool n.e.c.	13B	23.99	23.99.19-10, 23.99.19-20, 23.99.19-30
23.99.19	Non-metallic mineral products n.e.c.		For isolation purposes	5	23.99.1	
24.33.30	Panels comprising two walls of profiled "ribbed" sheet, of iron or steel with an insulating core	7308.90.51		5	24.33.1 - 24.33.3	24.33.30-00
24.33.30	Panels comprising two walls of profiled "ribbed" sheet, of iron or steel with an insulating core	7308.90.51		13B		
24.51.20	Tubes, pipes and hollow profiles of cast-iron	7303.	tubes and pipes for waste water management	2, 10		24.51.20.-00
25.12	Doors and windows of metal	7308.30;7610.10	low emission/ high energy performance windows	13B	25.12	25.12
25.21.12	Central heating boilers, for producing hot water or low pressure steam	8403.10.10 ; 8403.10.90	Condensing boilers	13B	25.21.1	25.21.12-00
25.21.13	Parts for central heating boilers	8403.90.10 ;8403.90.90	Condenser to be added to traditional boiler to improve efficiency and thus reduce consumption	13B		25.21.13-00
25.29	Other tanks, reservoirs and containers of metal	7309;7311 ;7611	Waste containers	3	25.29	25.29
25.92	Light metal packaging	7310;7617 ;8309	Waste containers	3	25.92	25.92.12
25.99	Other fabricated metal products n.e.c.		Lead containers for radioactive waste	3, 7	25.99	25.99.29-45
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)	2	25.99.2	
26.11.22	Semiconductor devices; light-emitting diodes; mounted piece-electric crystals; parts thereof	8541.40	Solar panels and/or their components	11A	26.11.1 - 26.11.4; 26.12.1 - 26.12.3	26.11.22-20, 26.11.22-40
26.11.40	Parts of electronic valves and tubes and of other electronic components n.e.c.	8541.40	Solar panels and/or their components	11A		26.11.40-70

CPA 2008 CODE	CPA 2008 DESCRIPTION	CN 2013 CODE	CN 2013 DESCRIPTION/ SHORT DESCRIPTION	CEPA/ CReMA	Supply and use tables	PRODPOL
26.51.53	Instruments and apparatus for physical or chemical analysis n.e.c.	9027.10.10 +9027.10.9 0	For environmental purposes (e.g. analysis of pollutants)	1, 2	26.51.1 - 26.51.7	26.51.53-13, 26.51.53-19
26.51.70	Thermostats, manostats and other automatic regulating or controlling instruments and apparatus		Thermostats for heating regulation in buildings	13B		26.51.70
27.40.15	Discharge lamps; ultra-violet or infra-red lamps; arc lamps	8539	Discharge lamps as low pressure lamps (e.g. compact fluorescent lamps)	13B	27.40.1 - 27.40.4	27.40.15
27.5	Domestic appliances		The most efficient domestic appliances	13B	27.5	27.5
27.52.12	Other domestic appliances, for gas fuel or for both gas and other fuels, for liquid fuel or for solid fuel	7321.81;7 321.82;73 21.89	wood fired boilers and other appliances	13A	27.51.1; 27.51.2	27.52.12-33, 35, 50, 70
27.52.14	Water heaters, instantaneous or storage, non-electric	8419.11;8 419.19	Solar	13A		27.52.14-00
28.13	Other pumps and compressors	8413	Pumps for use in wastewater treatment	2	28.13	28.13.14
28.14.13	Process control valves, gate valves, globe valves and other valves	8481.80	Thermostatic valves	13B	28.14.1 - 28.14.2	28.14.13
28.21.12	Industrial or laboratory furnaces and ovens, non-electric, including incinerators, but excluding bakery ovens	8417.80.70	Incinerators (PRODCOM 28211270)	3	28.21.11 - 28.21.13	28.21.12-70
28.25.13	Refrigeration and freezing equipment and heat pumps, except household type equipment	8418.61.00	Heat pumps for heating or cooling buildings	13B	28.25.1 - 28.25.2	28.25.13-80
28.25.14	Machinery and apparatus for filtering or purifying gases n.e.c.	8421.39.20 ;8421.39.6 0;8421.39. 80	For environmental purposes (e.g. abating pollution)	1		28.25.14
28..25.30	Parts of refrigeration and freezing equipment and heat pumps	8418.99.90	Parts of heat pumps for heating or cooling buildings	1		28.25.30-70
28.29.12	Filtering or purifying machinery and apparatus, for liquid	8421.29.00	For environmental purposes (e.g. abating pollution)	2	28.29.1 - 28.29.7	28.29.12-70
28.29.82	Parts of centrifuges; parts of filtering or purifying machinery and apparatus for liquids or gases	8421.99.00	Parts of filtering or purifying machinery and apparatus for environmental purposes (e.g. abating pollution)	1	28.29.8	28.29.82-50
28.41	Metal forming machinery	8456-8459	Used for metal recovery	14	28.41	28.41
28.92	Machinery for mining, quarrying and construction		Machinery for waste treatment (e.g. used at landfilling sites)	3	28.92	28.92
29	Motor vehicles, trailers and semi-trailers	87	Electric vehicles and more resources efficient vehicles	1	29	29.10.24-00.01
29.10.59	Special-purpose motor vehicles n.e.c.	8705	Vehicles for wastewater treatment, vehicles for sewer cleaning	2	29.10.5	29.10.59-90

CPA 2008 CODE	CPA 2008 DESCRIPTION	CN 2013 CODE	CN 2013 DESCRIPTION/ SHORT DESCRIPTION	CEPA/ CReMA	Supply and use tables	PRODPOL	
29.32.30	Parts and accessories n.e.c., for motor vehicles		Silencers, exhaust pipes and their parts (also particles filters)	1	29.32.1 - 29.32.3	29.32.30-63	
30	Other transport equipment	86	electric transport equipment and more resources efficient transport equipment	1	30	30.20.11-00, 30.20.13-00.01, 30.20.20-00.01, 30.91.13-00.01	
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.)	1-16	33.1	33.11.11	
33.12.12	Repair and maintenance services of fluid power equipment, other pumps, compressors, taps and valves		For reducing losses and thus water use	10	33.12.12	33.12.12-10, 33.12.12-20	
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.)	1-16	33.2	33.2	
35.11.10	Electricity		Renewable energy	13A	35.11	35-39	
35.2	Manufactured gas; distribution services of gaseous fuels through mains		LNG for vehicles	1	35.2		
35.2	Manufactured gas; distribution services of gaseous fuels through mains		Gas from agricultural by-products and waste	13A	35.2		
35.3	Steam and air conditioning supply services		Renewable energy	13A	35.3		
36.00.1	Natural water		Desalted water and collection of rainwater	10	36		
36.00.2	Treatment and distribution services of water through mains		Maintenance of water mains (i.e. activities for reducing water losses)	10			
38.22.2	Nuclear and other hazardous waste disposal services		Nuclear waste	7	38	41-43	
38.22.21	Nuclear waste disposal services		Nuclear waste	7			
39.00.2	Other remediation and specialised pollution control services		Not including remediation services primarily aimed at health protection	1-9	39		
41.00.10	Residential buildings		Low energy consumption and passive buildings	13B	41.00.1; 41.00.3		
41.00.2	Non-residential buildings		Low energy consumption and passive buildings	13B	41.00.2; 41.00.4		

CPA 2008 CODE	CPA 2008 DESCRIPTION	CN 2013 CODE	CN 2013 DESCRIPTION/ SHORT DESCRIPTION	CEPA/ CReMA	Supply and use tables	PRODPOL
42.21.1	Utility constructions for fluids		Maintenance and reduction of losses for water networks	10	42.21	
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	2		
42.21.24	Water well drilling and septic system installation works		Septic system installation works	2		
42.22.23	Construction works for power plants		Renewable power plants	13B	42.22	
43.21.10	Electrical installation works		Installation of photovoltaic panels	13A	43.2	
43.22.12	Heating, ventilation and air conditioning installation works		Installation of solar panels for warming water	13B		
43.99	Other specialised construction works n.e.c.		Incinerators	3	43.9	
43.99	Other specialised construction works n.e.c.		Soundproofing barriers	5		
43.99.7	Assembly and erection works of prefabricated constructions		Assembly and erection works of prefabricated low energy and passive buildings	13B		
71.12.12	Engineering services for building projects		for more efficient/passive buildings	13B	71.1	
71.12.13	Engineering services for power projects		for renewable energy projects	13A		
71.12.16	Engineering services for water, sewerage and drainage projects		Engineering services for reducing water losses and sewerage and drainage	2,4,10		
71.20.14	Technical inspection services of road transport vehicles		The part of services which controls emissions	1	71.2	
72.1	Research and experimental development services in natural sciences and engineering		For environmental or resource management purposes	7,15	72	
81.29.12	Sweeping and snow removal services		Public litter and collection of garbage from the street	3	81	
84.1	Administration services of the State and the economic and social policy of the community		Administration for environmental protection and resource management purposes	1-16	84.1; 84.2	
94.99	Services furnished by other membership organisations n.e.c.		Organisation with an environmental / resource management aim	1-16	94	

Annex 2. Tables of EGSS questionnaire.

Project Manager

Deputy Director

Regional Research and Environmental Department