

The Belgian environment industry (1995-2005)

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Abstract – This study presents an overview of the evolution of the size, the composition and the economic importance of the environment industry in Belgium between 1995 and 2005. It shows which industries are involved and which environmental domains are most important.

Jel Classification – L60, L80

Keywords – Industry study, environmental goods and services

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1. Executive summary

Recent years have seen a growing interest in the economic potential of environmental protection activities. The protection of the environment indeed necessitates the development of a host of environmentally friendly products and production processes, the production and marketing of these products, the development of the skills needed to use them, environmental legislation in order to guide these developments, an administration to keep track of these developments... All these activities are provided for by the environment industry. This working paper describes the Belgian environment industry in the period 1995-2005, according to the OECD definition. The OECD defines the environment industry as follows:

The environmental goods and service industry consists of activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and ecosystems.

This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use.

The above definition was interpreted in a restrictive way, in the sense that it must really be the purpose of the goods and services to reach the outcome as described in the definition. For instance, the use of public transport is generally acknowledged to pollute less than the use of private cars. However, the purpose of public transport is not to reduce air pollution, as rather to transport people between their point of departure and their point of arrival. Public transport companies are therefore not considered to be part of the environment industry. Organisations that are involved in encouraging people to displace private car use by the use of public transport, on the other hand, are included in the environment industry.

During the period 1995-2005 the number of organisations (enterprises, non-profit organisations, public administrations) identified as performing such environmental activities, and thus considered to be part of the Belgian environment industry, and which we will further refer to as environmental firms, expanded by 44%. Their combined turnover, which we define to equal Belgian environmental turnover, increased by 22% at constant prices, while employment generated by the Belgian environment industry, which we further refer to as Belgian environmental employment, increased by 40%. As a consequence, the share of the environment industry in total Belgian employment increased from 1.5% in 1995 to 2% in 2005. Its share in total output, however, decreased from 2.4% to 2.2%. This decrease is entirely due to a considerable fall in environmental turnover in 2005. In 2004 the share of the environment industry in total output had been as high as 2.5%.

The majority of the organisations belonging to the Belgian environment industry are small, in the sense that they employ less than 10 people. Just over 60% of the total number of firms be-

long to this category. Just over 30% of the firms are medium sized, with 10 to 99 employees. The remaining 7% are large companies, counting at least 100 employees.

The firms constituting the Belgian environment industry belong to a wide array of different industries. The industries traditionally considered to be environmental, namely NACE 37 and 90, the recycling industry and the sewage and refuse disposal industry, represent only 34% of the total number of firms, 20% of total environmental turnover, and just over 15% of environmental employment. Limiting a study of the environmental industry to these two economic categories would lead to a grave underestimation of its size and importance. No less than 40% of environmental turnover and almost 30% of environmental employment is generated by firms belonging to the manufacturing industry, although they only account for 11% of the total number of environmental firms. The other business activities industry (NACE 74) accounts for 17% of the number of environmental firms, 11% of environmental turnover and 14% of environmental employment. Public administration plays an important role in environmental employment as well, with a share of 17%. Its share in environmental turnover is limited to 6%, corresponding exactly to its share in the total number of environmental organisations.

Almost half of all Belgian environmental enterprises are involved in the field of solid waste, which corresponds with the share of this environmental domain in total environmental turnover. It is less of a labour intensive domain, though, since its share in total environmental employment was only about a third. This was only slightly higher than the share in environmental employment of research and development, monitoring, engineering and analysis, the most labour intensive environmental domain, accounting for 18% of the total number of environmental enterprises. The third important environmental domain the Belgian environment industry is involved in is wastewater collection and treatment, representing 17% of the environmental firms, and accounting for approximately the same shares in total environmental turnover and employment.

There is a definite preponderance of enterprises providing environmental services as opposed to those manufacturing environmental goods, and constructing and installing environmental equipment (86% against 14%). This preponderance is somewhat less pronounced when environmental turnover and employment are considered (75-80% against 25-20%).

2. Definition and classification of the environment industry

Recent years have seen a growing interest in the economic potential of environmental protection activities. The protection of the environment indeed necessitates the development of a host of environmentally friendly products and production processes, the production and marketing of these products, the development of the skills needed to use them, environmental legislation in order to guide these developments, an administration to keep track of these developments... All these activities are provided for by the environment industry. But what kind of industry exactly is this environment industry?

The largest problem with studies on the environment industry is indeed the identification and definition of this industry and its boundaries. Enterprises from different industries are involved in the production of environmental goods and services, both for internal use and sales to external users, while simultaneously producing other, non-environmental goods. A distinction therefore has to be made between firms the activities of which are mainly situated in the environmental domain (*principal activities*), of which the environmental activities can only be seen as secondary production (*secondary activities*), or of which the environmental activities are for internal use only (*ancillary activities*). Organisations for which the production of environmental goods and services is the principal activity are called specialised producers. Enterprises for which the production of environmental goods and services is not their main activity are called secondary producers. Both secondary and specialised producers, as well as all other enterprises, can also be involved in ancillary environmental protection activities. In order to further complicate the classification of enterprises belonging to the environment industry, they are often involved in several environmental activities covering a mix of different environmental themes (waste, air, water...).

The definition of the environment industry and the classification of the enterprises belonging to this industry have been a topic for discussion at an international level for many years. For the definition of the environment industry in this study, the version of the OECD/Eurostat Informal Working Group (1996) has been used. This definition was also adopted in the paper "The Environmental Goods and Services Industry: Manual for Data Collection and Analysis" of the OECD (1999) and can be quoted as follows:

The environmental goods and service industry consists of activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and ecosystems.

This includes cleaner technologies, products and services that reduce environmental risk and minimise pollution and resource use.

More recent studies on the eco-industry for the European Commission (2002a, 2006) also use this definition and it is now generally accepted.

However, the above definition remains open-ended. It can be interpreted in different ways. Does one include all enterprises that help to achieve environmental objectives formulated by policy makers, or do we limit the environment industry to those enterprises of which the activities clearly have the purpose to protect the environment or save natural resources? As far as activities are concerned that *measure* or *correct* environmental damage there is no distinction between the two interpretations of the definition. Such activities are to be included in the environment industry according to both interpretations, for there exists no activity that measures or corrects environmental damage accidentally. Activities that *prevent*, *limit* or *minimise* environmental damage are more problematic. Such outcome can be the consequence of activities not having the specific purpose of doing so. Stimulating the replacement of private car use by public transport, for instance, is a policy generally acknowledged to limit environmental damage. However, the purpose of public transport is not to protect the environment, nor to save natural resources. Its purpose is to transport people from point A to point B. According to the first interpretation of the definition of the environment industry public transport would be part of this industry. In contrast, using the interpretation referring to the purpose of the activity, public transport is not considered to be part of the environment industry. In this study we use the latter, more restrictive interpretation of the definition. Because of this interpretation the spectrum of activities included in the environment industry differs from the spectrum of activities considered to be part of what is called the “green economy”.

The concept of the “green economy” was recently launched by the UNEP (United Nations Environment Programme), and is a broader concept than the environment industry.¹ All activities linked to a “greener”, more sustainable way of production and consumption, are considered to be part of the green economy. Furthermore, all upstream activities necessary to deploy those “green” activities are also considered to be part of the green economy. This implies for instance, that all public transport is part of the green economy, as well as all activities needed to supply the intermediate consumption of the public transport sector. All jobs in public transport are considered to be direct “green jobs”, the jobs generated by the intermediate demand of the public transport sector are indirect “green jobs”. UNEP (2008a) defines green jobs as all work in agriculture, manufacturing, services, administration, and research and development that preserves or restores the quality of the environment. This could be interpreted in line with the restrictive interpretation of the OECD-definition of the environment industry, as all jobs created in this industry, as is done in this working paper. But this is clearly not the case. The interpretation of green jobs in UNEP(2008a) corresponds to all jobs generated by the green economy. An even broader interpretation of the concept of green jobs is presented in WWF(2009). This report suggests to include as green jobs even those jobs generated throughout the economy as a conse-

¹ See: UNEP (2008b)

quence of the extra demand caused by the efficiency gains of the green economy, which make it possible to redirect expenditure to other goods than energy or other resources.

Evidently, the concept of green economy and green jobs covers a wider array of activities and jobs than what we want to measure in this study. We want to measure the number of jobs created by the environment industry, where the latter is defined in a restrictive way on the basis of the purpose of the activities performed.

As far as renewable energy is concerned, this implies that we include enterprises which manufacture and install materials necessary to generate renewable energy, that perform research and development in this area, which are involved in the marketing of renewable energy, and that perform maintenance activities to renewable energy generating equipment, but we do not include the production of renewable energy itself, for the purpose of the use of energy, whether it is renewable or not, is to enable the activity of a machine, not to protect the environment or to save natural resources, The purpose of the design, construction and installation of windmills and solar photovoltaic and thermal energy panels on the other hand is to replace fossil fuels, and thus to save natural resources, while concurrently decreasing air pollution.

As concerns transport, we include organisations that deploy sensibilisation activities concerning the modal shift from private cars to public transport or bikes, but we do not include enterprises manufacturing trains, buses or bicycles, nor public transport companies, as the purpose of these vehicles and companies is to get people from point A to point B, not to protect the environment or to save natural resources.

The most contentious choices concerning the delineation of environmental activities have to do with activities (products) which increase resource efficiency. What is more efficient as business as usual today, will probably be considered business as usual in five years, and blatantly inefficient in ten years. As a consequence, the contents of the activities performed by the environment industry change over time, although the definition remains the same. This is an important issue when the broad green economy concept is used. WWF(2009) for instance, includes the manufacture of fuel-efficient cars in the green economy. This implies that one has to define what is to be considered a fuel-efficient car exactly. A particular criterion has to be agreed on. This could be the amount of emissions of CO₂ per kilometre. Then agreement needs to be reached on the cut-off point. How much does a fuel-efficient car emit at most? And do we need several cut-off points to make a distinction between small and large cars? The same kind of decisions need to be made for energy-efficient household appliances of all kinds, as well as lighting appliances. By using the restrictive interpretation of the definition of the environment industry these arbitrary aspects of the delineation of the environment industry are reduced considerably. Cars and household appliances are not made to protect the environment or to save natural resources. So they need not be included in the environment industry.

The resulting environmental employment and turnover in this working paper will thus be considerably lower than results obtained on the basis of the broad green economy concept. Admit-

tedly, this is not an advantage when one wants to show the importance to the economy of activities aiming at environmental protection or the efficient use of natural resources. However, it seems to offer a more objective approach, although discussions about the purpose of certain activities will inevitably surface from time to time.

The classification of the activities of the Belgian environment industry used in this report has also been taken from the OECD Manual.² The environmental goods and services industry is classified according to the following three classification levels:

- Level 1 distinguishes three main types of economic environmental protection activity: A. Pollution Management; B. Cleaner technologies and products; C. Resource management.
- Level 2 distinguishes the main categories of environmental protection business activities for each of the three level 1 types of activity: production of equipment and specific materials; provision of services; construction and installation.
- Level 3 classifies enterprises according to the environmental domain of the performed activities.

The Belgian environment industry can be classified into the following categories³:

2.1. Pollution management group

This group comprises goods and services that are produced solely with an environmental purpose and that have a significant impact on polluting emissions. A first division of this group is made according to the type of business activity. Each of these subgroups is further divided according to the environmental domain of the activities performed.

Production of equipment and specific materials for:

- A.1.1. Air pollution control
- A.1.2. Wastewater management
- A.1.3. Solid waste management
- A.1.4. Remediation and clean-up of soil, surface water and groundwater
- A.1.5. Noise and vibration abatement
- A.1.6. Environmental research and development
- A.1.7. Environmental contracting and engineering

² Currently, Eurostat is finalising a new classification system for environmental activities by the environment industry, in order to align this classification with the one used in the environmental protection expenditure accounts, the CEPA.

³ The OECD Manual distinguishes more categories, but some are not relevant for the Belgian environment industry. The full list is detailed in annex A.

Provision of services for:

- A.2.1. Air pollution control
- A.2.2. Wastewater management
- A.2.3. Solid waste management
- A.2.4. Remediation and clean-up of soil, surface water and groundwater
- A.2.5. Noise and vibration abatement
- A.2.6. Environmental research and development
- A.2.7. Environmental contracting and engineering
- A.2.8. Analytical services, data collection, analysis and assessment
- A.2.9. Education, training, information

Construction and installation for:

- A.3.1. Air pollution control
- A.3.2. Wastewater management
- A.3.3. Solid waste management
- A.3.4. Remediation and clean-up of soil, surface water and groundwater
- A.3.5. Noise and vibration abatement
- A.3.6. Environmental monitoring, analysis and assessment

2.2. Cleaner technologies and products group

This group comprises goods and services which reduce or eliminate negative environmental impacts, but which are often supplied for other than environmental purposes.

In Belgium there are no firms that are specialized in the production of equipment, technology or materials specifically for this group. All products and technologies are also used in either pollution or resource management, so this category was excluded.

2.3. Resource management group

The resource management group comprises goods and services, which may be associated with environmental protection, although this is not their prime purpose. The purpose of these goods or services can be economic, like energy saving. The distinction between products for resource management and pollution management is not always clear. Often the same products can be used for both purposes or there is no detailed information about the final use of the product. If the purpose was not clear, activities were allocated to the pollution management group. In the following subdivision only categories corresponding to activities performed by Belgian firms are displayed.

Production of equipment and specific materials for:

- C.1.1. Indoor air pollution control
- C.1.3. Recycling of materials (manufacture of new materials or products from waste or scrap, separately identified as recycled)
- C.1.4. Materials for renewable energy plants
- C.1.5. Heat/energy saving and management
- C.1.6. Products used in sustainable agriculture and fisheries
- C.1.7. Products used in sustainable forestry

Provision of services for:

- C.2.1. Indoor air pollution control
- C.2.3. Recycled materials (manufacture of new materials or products from waste or scrap, separately identified as recycled)
- C.2.4. Renewable energy plants
- C.2.5. Heat/energy saving and management
- C.2.6. Sustainable agriculture and fisheries
- C.2.7. Sustainable forestry

Construction and installation for:

- C.3.1. Indoor air pollution control
- C.3.3. Recycled materials (manufacture of new materials or products from waste or scrap, separately identified as recycled)
- C.3.4. Renewable energy plants
- C.3.5. Heat/energy saving and management

All environmental activities by firms and public authorities were classified according to this classification scheme. Afterwards, the enterprises and public authorities were individually labelled according to the above classification. Since one economic agent can conduct activities belonging to different classes in the scheme above, they can receive several environmental labels.

3. Methodology

This chapter sets out the objectives of this study, explains the methods used in order to construct the database of the Belgian environment industry, and presents the data sources.

3.1. Scope and objectives

The main objective of this study is to obtain an understanding of the composition, the importance and the development of the environment industry in Belgium during the period 1995-2005. Which economic sectors are involved, what share of total output can be labelled as environmental, how much does the environment industry represent in terms of employment, etc?

The first step in the analysis was the creation of a database containing all organisations in Belgium which conducted environmental activities as defined above during the period 1995-2005. The database contains information for each firm on:

- Turnover
- Employment
- Economic activity according to the NACE classification
- Environmental activity according to the OECD environmental classification

The information in the database allows us to assess the Belgian environment industry from 1995 till 2005 in the following areas:

- The number of firms and their size
- The shares of the different NACE⁴ categories
- The shares of the different environmental domains
- Its share in total Belgian output
- Its share in total employment in Belgium

3.2. Research methods

OECD (1999) gives an overview of the approaches to estimate the environment industry, with an evaluation of their effectiveness. There are basically three approaches: the supply side approach, the demand side approach, and the integrated supply and demand approach. Some other techniques can also be used, for example based on trade association data.

⁴ NACE: Nomenclature générale des Activités économique dans les Communautés Européennes. This is a classification of the economic activities performed in the European Union, constructed and used by Eurostat. Two versions were used for this study. One dates from 1990 and is called NACE Rev.1(1990). The second is called NACE Rev. 1.1 (2002). Recently a new classification, NACE Rev.2 (2008), was designed. The latter was not applied yet in the data sources we consulted in order to construct our database.

The supply side approach is focused on getting information on the production of environmental goods and services.

The demand side approach is characterised by the collection of information on the demand for goods and services for environmental protection. The environmental protection expenditure accounts (EPEA) are based on this type of data (European Commission, 2002b). An advantage of this approach is that it can provide data on ancillary activities.

The integrated supply and demand approach combines information available from both the supply and the demand side. The difficulty with this approach is to balance the data from these two different sources.

Each of the three methods has its own (dis)advantages. We chose to work according to a supply side approach.⁵ The tool used most often to obtain supply side information is a survey of the producers. However, a major guideline of environmental accounting is to use the data that are already available, in order to avoid survey fatigue among the respondents as well as unnecessary costs. Existing data were therefore explored in order to build the database of the Belgian environment industry. Useful data on companies with environmental activities in Belgium were found among others in the Structural Business Survey of Statistics Belgium (NIS-INS)⁶, the balance sheets made by the Central Balance Sheet Office⁷ of the National Bank of Belgium (NBB)⁸, as well as in the National Accounts, generated annually for the National Accounts Institute (NAI)⁹. In what follows the methodology for the supply side approach is explained more in detail.

3.3. Data collection

To assess the Belgian environment industry, a database was created containing all enterprises, self-employed and public bodies that perform environmental activities as defined above for the period 1995-2005.

All economic agents performing environmental activities have been included, private and public organisations, as well as the self employed and non-governmental organisations and associations (e.g. non-profit institutions). Unless specifically mentioned otherwise, in what follows, the terms 'environmental company' or 'firm' or 'enterprise' will be used for each of these different types of environmental producers.

⁵ Data on ancillary activities of Belgian enterprises can be found in Vandille (2005). We do not include these data in this study, because they only cover the period 1997-2002, they are based on a survey of a limited set of industries, and the environmental classification used is different from the one used in this working paper. Furthermore, the ancillary activities are only a minor part of total environmental activities in Belgium, accounting for around one percent of the total.

⁶ Nationaal Instituut voor de Statistiek (NIS), Institut national de Statistique (INS); <http://statbel.fgov.be>, The name of this institution was recently changed to Algemene Directie Statistiek en Economische Informatie, Direction Générale Statistique et Information Economique.

⁷ Balanscentrale, Centrale des bilans.

⁸ Nationale Bank van België, Banque nationale de la Belgique; <http://www.nbb.be>.

⁹ Instituut voor de Nationale Rekeningen (INR), Institut des Comptes nationaux (ICN); <http://inr-icn.fgov.be>.

All types of legal entities and all organisations with an administrative seat in Belgium and in possession of a VAT number were taken into consideration. Only when active in at least one of the environmental fields, an organisation was included in the database. So, if a company was active as from 1990, but only started producing environmental goods in 2001, it will appear in the database as from the year 2001.

As soon as any output activity in the environmental field, however small, was registered for a specific company, this company was added to the database. The database distinguishes specialised producers from secondary producers.

3.3.1. Sources to identify environmental firms and their activities

A large array of sources was consulted in order to establish the database. A considerable part of specialised producers can easily be identified because they are part of industries which are considered to be environmental in the national accounts. For producers not belonging to these industries, and especially the secondary producers, consultation of other sources is inevitable.

Although the environment industry cannot be defined on the basis of economic NACE categories alone, there are certain NACE categories, of which the activities correspond completely to the above defined environmental activities. These are the NACE divisions 37 (recycling) and 90 (sewage and refuse disposal). All companies belonging to these two NACE divisions were extracted from the register of enterprises of the National Bank of Belgium for the years 1995 till 2005, and after checking whether they were correctly classified, added to the environment industry database.

The identification of environmental firms in the NBB register of enterprises was based on NACE-BEL¹⁰ categories, a more detailed economic classification designed specifically for the classification of Belgian enterprises. The 37100 and 37200 NACE-BEL categories contain enterprises with an activity in the recycling of metal and non-metal waste respectively. NACE-BEL category 90001 and corresponding category 90010 contains all activities related to the collection and treatment of wastewater. Solid waste collection and treatment activities are found in NACE-BEL 90002 and 90003 for the years 1995 till 2002 and in division 90021 as from 2003. Management of waste landfills was found in category 90004 for the period until 2002, and in division 90022 as from 2003. Snow-clearing and street-cleansing and sanitation were found in category 90005 for the period 1995-2002 and in divisions 90031 and 90032 as from 2003.

Many firms which do not belong to either NACE 37 or NACE 90 also perform environmental activities. Where can one find information on these enterprises? Obvious sources of information are the umbrella organisations set up by clusters of enterprises which perform similar activities in order to defend their common interests, and the sectoral employers' federations. These organisations can act on a national, regional or even subregional scale. They were contacted in

¹⁰ NACEBEL: Belgian version of the NACE, with a five-digit classification. Three versions of the NACEBEL were used in this study: NACE-BEL 1996, NACE-BEL 2000 and NACE-BEL 2003.

order to obtain their membership lists, and if possible the detailed economic activities of their members. Another source of information are the regional governments, which have the competency in most environmental issues in Belgium.

The list of sources used to identify firms engaged in environmental activities, is the following:

- Flemish Government: The Flemish government publishes a list on their website of persons who are licensed to perform environmental controls in the following environmental domains: noise, air pollution, and soil corrosion¹¹.
- Walloon Government: On the website of the Walloon government a list of companies currently engaged in environmental activities in the Walloon region can be found¹².
- Brussels-Capital Government: During the course of 2006 the Brussels-Capital government composed a list of firms active in its administrative area. This list shows the economic activities for each enterprise, enabling the selection of firms with environmental activities.
- EMIS: The Energy and Environment Information System is a database collected by the Flemish Institute for Technological Research (VITO) with mostly technological and legal information on energy and the environment in Flanders. The database contains profiles of organisations deploying environmental or energy related activities, both private and public.
- OVAM: The Public Waste Agency of Flanders is authorised for waste collection and soil sanitation in Flanders. They hand out permits to firms to collect waste or to perform soil sanitation. A list of companies authorised for these activities in Flanders is available on their website.
- Coberec: This is the Belgian Recycling Federation. The federation groups firms with activities in the recycling of textiles, glass, metal, and paper and cardboard. The members of this organisation were incorporated in our database.
- FEBEM/FEGE: The Federation of Enterprises active in Environmental Management defends the interests of waste companies on a local, regional, national and international level. The members of this organisation were added to our database.
- AGORIA: The Multisector Federation for the Technology Industry represents Belgian companies in the technology industry, promoting their interest in Belgium and abroad. The federation publishes a directory of their members performing environmental activities with detailed information on produced goods and services.
- FEBELAUTO¹³: This organisation coordinates the interests of all firms playing a part in the recycling of cars. It publishes a list of approved centres for the depollution, disassembly and demolition of discarded cars. These firms were incorporated in our database.
- VVS¹⁴: This non-profit institution groups all processors of building and dismantling debris. The members were included in the database.
- EDORA¹⁵: This is the Belgian federation of enterprises involved in renewable energy. It includes both producers and distributors of renewable energy, as well as enterprises involved

¹¹ <http://www.mina.be/milieudeskundigen.html>.

¹² http://economie.wallonie.be/02Databases/Prog_EcoEntreprises/index.cfm.

¹³ <http://www.febelauto.be/nl/index.asp>.

¹⁴ <http://www.vvszw.be/>

in manufacturing renewable energy equipment, and in research and development in this field.

For every firm, both the ones taken from the register of enterprises of the NBB as well as the ones identified on the basis of the above list of sources, a check of its activities was performed on the basis of the Crossroad Bank of Enterprises¹⁶ of the Federal Public Service “Economy”, the Central Enterprises Database of Flanders¹⁷ of the Flemish Community, and company websites. On the basis of this check the enterprises were assigned to the appropriate environmental categories on the one hand, and to specialised or secondary producers on the other hand. Each enterprise can be assigned to more than one environmental category, but no distinction is made between these environmental categories as to whether they concern the main activity of the enterprise or not. In other words, as soon as a firm is determined to be a specialised producer, all categories of environmental activities are considered to be primary activities of this firm.

On the basis of the Crossroad Bank of Enterprises and the Reference Database of legal entities of the Official Journal of Belgium¹⁸, the timeframe of the environmental activities of each enterprise was defined. The combination of the two sources enabled us to determine the years in which the individual firms were active in the field of environmental goods or services production.

3.3.2. Economic data with respect to environmental firms

Economic data on the selected enterprises were collected from an array of different sources. We collected data on turnover, employment, the size and the NACE category. Missing data on turnover and employment were estimated whenever possible.

a. NACE-classification

The database of the National Accounts provided the information on the NACE classifications for each company and for each year of activity in the environment industry.

b. Turnover

Turnover data for the specialized producers were extracted from the database of the Central Balance Sheet Office and completed with turnover data based on the VAT register of the NBB. If no turnover data were found in either of these sources, turnover was estimated. For firms for which turnover per employee could be calculated for at least one year and for which employment data were available, the (average) value for turnover per employee was applied to the employment figure in order to estimate missing turnover figures. For firms for which only em-

¹⁵ <http://www.edora.be/>

¹⁶ Kruispuntbank van Ondernemingen (KBO), Banque carrefour des entreprises (BCE); http://kbo-bce-ps.economie.fgov.be/ps/kbo_ps/kbo_search.jsp?lang=nl&dest=ST.

¹⁷ Centraal Bedrijvenbestand (CBB); <https://www.milieuintfo.be/productie/cbb/logon.jsp>.

¹⁸ <http://www.ejustice.just.fgov.be/tsv/tsvn.htm>

ployment figures were available turnover per employee of companies performing comparable activities as the firm concerned were used to estimate its turnover. Firms for which neither turnover or employment data were available were marked as “unusable”. The latter applies only to the calculations with respect to turnover and employment, however. In the head count of the number of firms these “unusable” firms were included, as well as in the calculation of the number of firms involved in the different environmental domains.

Total turnover of the secondary producers was extracted from the same databases as the specialised producers. The estimation of missing data was done in a comparable fashion. However, to estimate environmental turnover for secondary producers the share of the turnover of environmental goods and services in total turnover of those firms needs to be calculated. Detailed turnover data on a product level are available for certain enterprises from the Structural Business Survey. These detailed turnover data were confronted with a list of products that can be considered to be environmental goods or services. This list was created on the basis of information from the OECD Manual (1999), and adapted to the Belgian economy. This list contains products classified according to CPA¹⁹-codes, just like the turnover data in the Structural Business Survey. On the basis of this list, the share of environmental turnover in total turnover could be estimated for the secondary producers represented in the Structural Business Survey. Unfortunately, this survey does not cover the entire spectrum of secondary producers. In order to estimate total environmental turnover by the secondary producers, first the average share of environmental turnover to total turnover was determined for each NACE category. Then these shares were applied to the total turnover of all firms identified as secondary producers in each of the respective NACE categories.

c. Employment

Employment data were extracted from the Central Balance Sheet Office for the years 1995 till 2005, and are expressed in fulltime equivalents. For specialized producers total employment can be used. For secondary producers only a part of the employees are involved in environmental activities. The share of employees conducting environmental activities for the secondary producers was assumed to correspond to the share of environmental turnover in total turnover for each of the different NACE categories. Missing employment data were estimated along the same lines as missing turnover data. If turnover per employee was available for at least one year and turnover figures were available for the years for which no employment data was found, the (average) turnover per employee was applied to the turnover figures in order to estimate the corresponding employment figures. If only turnover figures were available, the turnover per employee of comparable firms was used to estimate employment. In cases where only employment figures were available for some of the years, the time series was filled by applying the difference of the enterprise’s employment with average employment for the employment category

¹⁹ Before 2002, CPA version 1996 is used, as of 2002 CPA version 2002. For explanation on CPA-codes: http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM&StrGroupCode=CLASSIFIC&StrLanguageCode=EN.

to which it belonged, to the average of this employment category in the years for which employment data needed to be estimated. The employment categories used are the following:

1. 1-4 employees
2. 5-9 employees
3. 10-19 employees
4. 20-49 employees
5. 50-99 employees
6. 100-199 employees
7. 200-499 employees
8. 500-999 employees
9. more than 999 employees

These employment categories were also used to assess the size of the firms belonging to the environment industry. Three orders of magnitude are used for the size of firms: small, medium sized and large enterprises. A small enterprise has a number of employees in categories 1 to 2, for medium sized companies the corresponding categories are 3 to 5 and large companies have employment categories ranging from 6 to 9.

4. Results

In this chapter the data gathered in the Belgian environment database is analysed. It starts off with an extensive demography of the environment industry. The second part of the chapter assesses the economic importance of the Belgian environment industry.

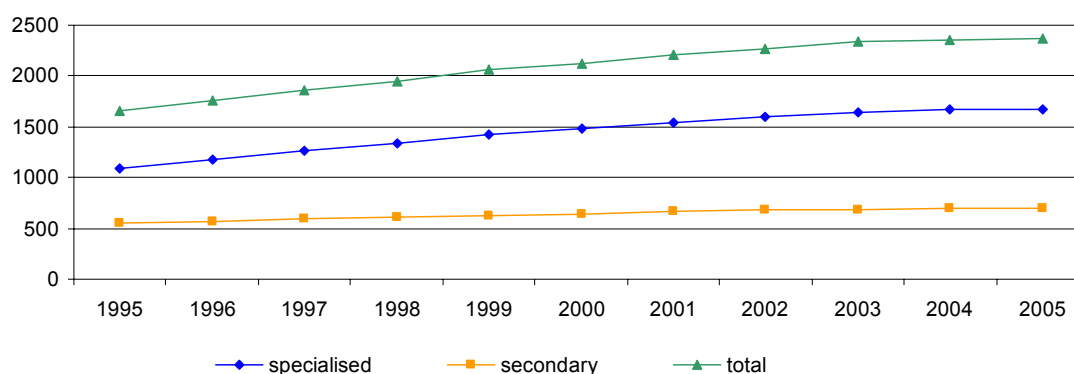
4.1. A demography of the environment industry

In this part the demographic properties of the firms belonging to the Belgian environment industry are discussed: the evolution of the number of firms, the size of these firms, the NACE categories to which they belong, as well as the environmental domains in which they are active.

4.1.1. Number of firms

Over the entire 1995-2005 period a total of 2538 organisations were identified as belonging to the Belgian environment industry. 1821 of these were labelled specialised producers, 717 firms were labelled secondary producers. 6% of these enterprises ceased their activities during the period under investigation, 35% have been started up in the course of this period, and the remaining 59% were active throughout the entire 11 years. Figure 1 shows the evolution of the number of environmental firms.

Figure 1: Number of firms in the environment industry (1995-2005)



Source: FPB own calculation.

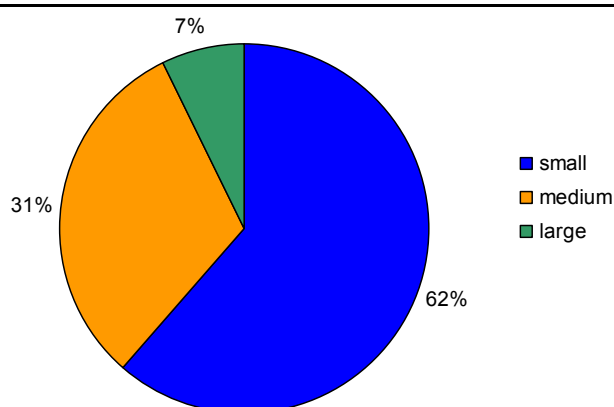
Between 1995 and 2005 the number of firms involved in environmental activities has clearly increased. This is especially true for the specialised producers. In 1995 there were 1093 specialised environmental firms. By 2005 this number had increased by 53% to reach a total of 1671. The number of secondary producers augmented by 26% over the same period, starting from 558 in 1995 and ending with 704 in 2005. The result for the entire Belgian environment industry was a growth in the number of firms of 44%, from 1651 in 1995 to 2375 in 2005.

4.1.2. Size of firms

There are many ways to determine the size of a firm. Companies can be classified according to turnover, number of employees, value of taxes paid, etc. We opted to define the size in terms of employment, more specifically the number of fulltime equivalent workers. Three size classes are distinguished: small, medium sized, and large firms. Small firms employ 1 to 9 workers. Medium sized firms employ 10 to 99 workers. Large firms employ at least 100 workers.

Figure 2 shows that the major part of the Belgian environment industry in the period 1995-2005 consisted of small companies. More than 60% of the enterprises employed less than 10 fulltime equivalent workers. About 30% were medium sized firms, and only 7% employed 100 plus full-time equivalent workers.

Figure 2: Size of environmental enterprises (1995-2005 average share, in %)



Source: FPB own calculation.

Over time these shares were fairly constant. Between 1995 and 2005 there was a slight increase in the share of small firms (from 59% to 62%) at the expense of the medium sized enterprises (from 34% to 31%). This is true both for specialised and secondary producers.

Table 1 shows that the secondary producers are larger on average than the specialised producers. The share of large companies in the total number of secondary producers is almost twice the share of large companies in the total number of specialised producers.

Table 1: Size of environmental enterprises (1995-2005 average share, in %)

	Small	Medium	Large
Specialised	63	31	6
Secondary	57	32	11

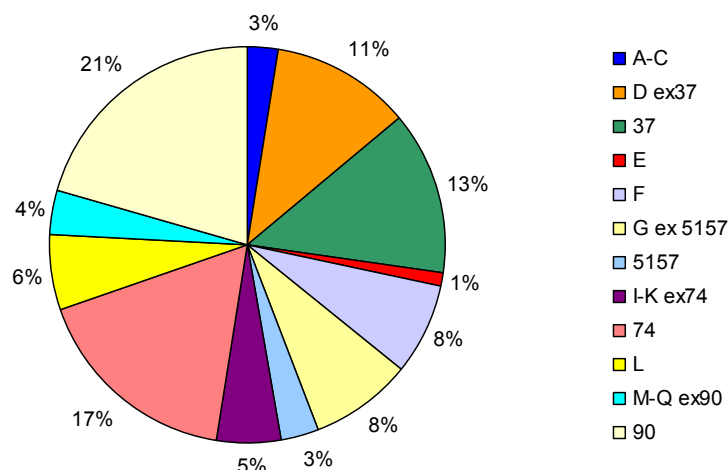
Source: FPB own calculation.

The higher share of the large companies comes at the expense of the share of the small companies, which represented a higher share of the specialised producers.

4.1.3. Distribution according to economic classification

Firms of the environment industry are found in a large array of industries. Figure 3 displays the 1995-2005 average distribution of the Belgian environmental enterprises according to their economic activities. Only the NACE sections and divisions represented in the environment industry are shown.

Figure 3: Number of firms by economic activity (1995-2005 average share, in %)



Source: FPB own calculation.

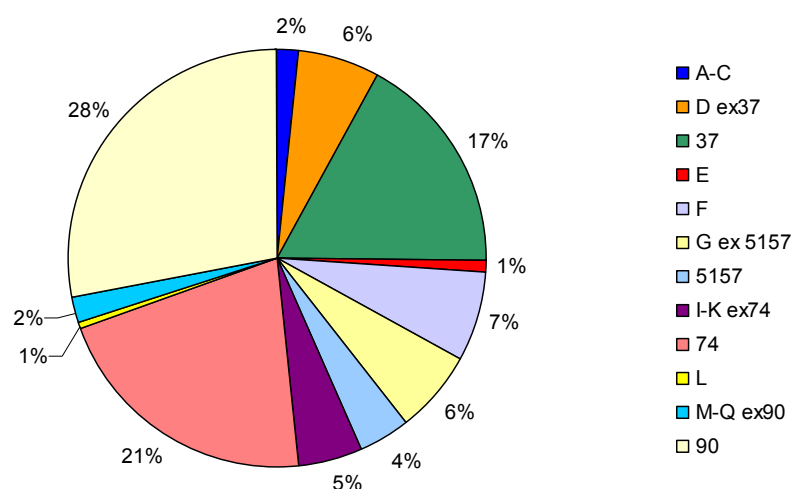
A-C	Agriculture, forestry, fishery, mining and quarrying
D ex 37	Manufacturing
37	Recycling
E	Electricity, gas and water supply
F	Construction
G ex 51.57	Wholesale and retail trade
51.57	Wholesale trade in waste and scrap
I-K ex 74	Transport, storage and communication; financial intermediation; real estate, renting and business activities
74	Other business activities
L	Public administration
M-Q ex 90	Education; health and social work; other service activities
90	Sewage and refuse disposal, sanitation and similar activities

The industries which are traditionally considered to be “environmental” industries, NACE 37 and 90, together accounted for just over a third of the total number of environmental firms in Belgium in the period 1995-2005. Limiting a study of the environment industry to these NACE divisions clearly is far too restrictive. Some studies also consider NACE 51.57 as an environmental industry. But this category of firms represented only 3% of the total number of firms in Belgium. So, it is really no option to use the economic classification of firms in order to describe the environment industry. Figure 3 shows that a large number of firms, 17% of the total, can be found in NACE 74, the other business activities industry. Firms in this category mainly perform environmental studies of all kinds. Among the NACE categories with an important share in the total number of firms, this is the one which experienced the largest increase between 1995 and

2005. During that period the number of NACE 74 firms increased by 88%, which is double the rate of increase of the total number of environmental firms, and more than twice as large as the 30% increase in the total number of firms belonging to NACE 74.²⁰ As a consequence, its share increased from 15% in 1995 to almost 20% in 2005. The number of NACE 90 firms increased by 55% between these two years. Its share increased from 19% in 1995 to 21% in 2005.

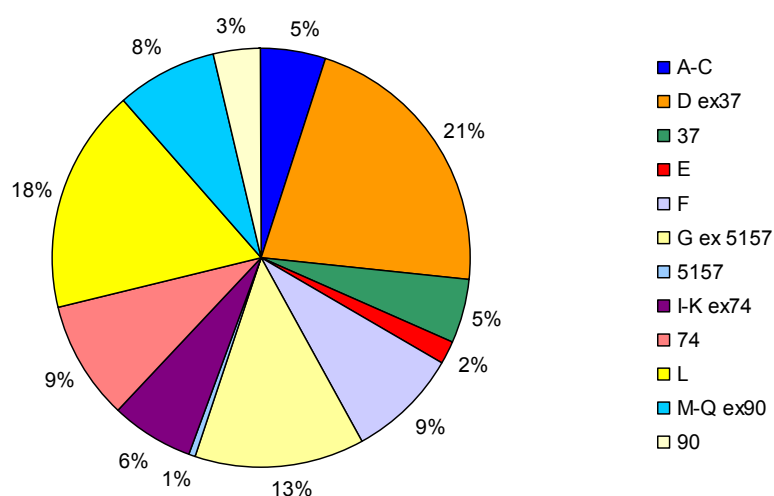
There is a distinct difference between the specialised and the secondary producers as concerns their economic activities. As witnessed by figure 4, two thirds of the specialised producers belong to only three NACE categories, NACE 37, 74 and 90. In contrast, figure 5 shows that the secondary producers are spread out over the different economic activities in a much more equal fashion. Admittedly, there are also three NACE categories which when added together account for over half of the total number of secondary producers. However, except for public administration, these categories contain more than one NACE division. NACE section G, accounting for 13% of the secondary producers, contains three trade related NACE divisions, while NACE section D, accounting for over a fifth of total secondary producers, contains no less than 18 different manufacturing industries. The fact that public administration also accounts for almost a fifth of all secondary producers is due to the fact that all cities with a population of at least 10000 are included as separate entities.

Figure 4: Number of specialised firms by economic activity (1995-2005 average share, in %)



Source: FPB own calculation.

²⁰ Source: Statistics Belgium

Figure 5: Number of secondary firms by economic activity (1995-2005 average share, in %)

Source: FPB own calculation.

NACE categories 37 and 90, two of the most important categories as concerns the specialised producers, together also represented 8% of the secondary producers. This is quite strange, since firms belonging to these NACE categories are supposed to be specialised producers. The fact that companies belonging to NACE 37 and 90 are identified as secondary producers of environmental goods and services points to the fact that these firms have not been assigned to the correct NACE category in the official classification of Belgian firms.

4.1.4. Distribution according to environmental classification

The definition of the environment industry as it was presented in the OECD Manual has a very elaborate environmental classification. Many of the defined fields have overlapping activities and the distinction is not always easy to make. Therefore and in order to simplify the presentation of the results, several environmental categories were joined together.

As producers of specific materials for environmental activities often also take care of construction and installation of these materials, these two groups were joined.

Furthermore, many firms with activities in the resource management group (group C), also perform activities classified in the pollution management group. Categories A.x.1 and C.x.1 (air pollution and indoor air pollution control) were joined. The same was done with A.x.2 and C.x.2, wastewater management and water supply, as well as with A.x.3 and C.x.3, waste management and recycling.

Categories A.x.6, A.x.7, A.x.8 and A.x.9 all contain activities applicable to the various environmental fields, so these were collapsed into one single class, called "R&D, monitoring, engineering and analysis".

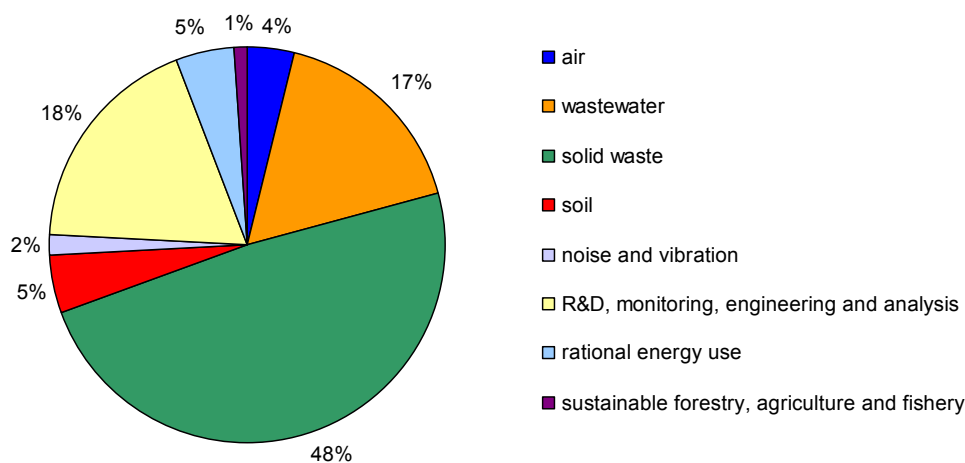
The two categories concerning energy savings and the use of renewable energy were merged into one group called “rational energy use”, and activities concerning sustainable forestry, fishery and agriculture were joined together in one group of environmental activities as well.

Many firms are involved in different environmental activities. As it was impossible to determine the shares of the different environmental activities in total activities of each firm, each environmental activity of a multi-activity firm was given the same weight, with the weights summing to one, in order to ensure that each firm is only counted once.

Figure 6 shows that half of the firms involved in environmental activities in Belgium in the period 1995-2005 were dealing with solid waste management and recycling of waste. Table 2 shows that almost all of these activities concerned services for recycling of waste, waste collection, treatment and disposal. The remaining 6% concerned the production of equipment for solid waste management, or the construction and installation of such equipment and plants, or the production and installation of equipment for recycled materials.

A comparable preponderance of services can be noticed for the second most important environmental field, namely research and development, monitoring, engineering and analysis, which accounted for 18% of the total number of firms. There is only one other environmental field with a substantial weight in the number of firms, namely wastewater management and water supply. 17% of the environmental firms were involved in this area. The share of firms involved in the production and installation of goods concerning wastewater was considerably higher than for the other two important environmental fields, namely 28%. There is only one environmental field for which the number of firms involved in producing goods and installing equipment is larger than the number of service providing firms, namely air pollution and indoor air pollution control.

Figure 6: Number of firms according to environmental fields (1995-2005, in %)



Source: FPB own calculation.

Table 2: Number of firms involved in production of goods and installation of equipment versus firms providing services (shares, in %)

	Goods and installation	Services
Air	57	43
Wastewater	28	72
Solid waste	6	94
Soil	21	79
Noise and vibration	49	51
R&D, monitoring, engineering and analysis	5	95
Rational energy use	36	64
Sustainable forestry, agriculture and fishery	10	90
Total	14	86

Source: FPB own calculation.

Table 2 leaves no doubt as to the fact that the majority of Belgian environmental firms are service providers. This is less the case for the secondary producers than for the specialised firms. For the former 21% of the firms produce environmental goods or install environmental equipment, while for the latter this is only the case for 12% of the firms. Another difference between specialised and secondary producers is that the predominance of solid waste and recycling is less pronounced for the latter. The number of secondary producers involved in this area accounted for 38% of the total number of secondary producers, while for the specialised producers this environmental field accounted for 53% of the total number of firms. The difference is absorbed by research and development, monitoring, engineering and analysis, which accounted for 29% of all secondary producers, while it accounted for only 14% of the specialised producers.

4.2. Economic importance of the environment industry

The previous chapter sketched a story of a growing Belgian environment industry in terms of the number of firms. This chapter investigates whether this implies that the environment industry has also become more important to the Belgian economy between 1995 and 2005. The importance of the environment industry is measured in terms of turnover and employment.

4.2.1. Environmental turnover

This section starts off by presenting the evolution of total turnover by the Belgian environment industry in the period 1995-2005. Next, it is shown how this turnover was distributed according to the size of the enterprises, across the different industries and across the various environmental fields.

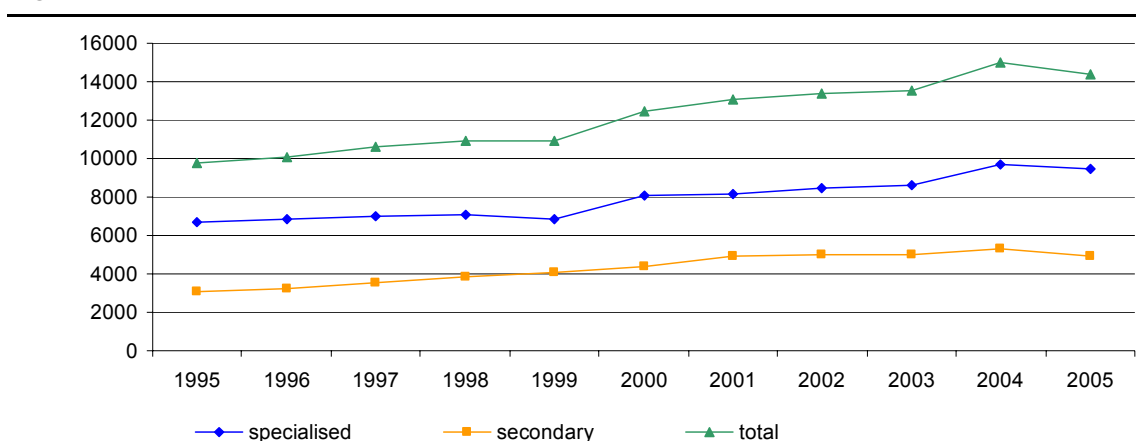
a. Evolution

Figure 7 shows that total turnover of the Belgian environment industry increased from 9.8 billion euro in 1995 to 14.4 billion euro in 2005. This is an increase of 47% in current prices. Taking inflation into account the increase was equal to 22%, equivalent to an average yearly growth

rate of 2%. Turnover by the secondary producers increased at a faster pace than turnover by the specialised producers. The increase at current prices for the latter equalled 40%, while for the former it reached 62%. As a consequence, the share of the secondary producers in total turnover by the Belgian environment industry increased from 31% in 1995 to 34% in 2005.

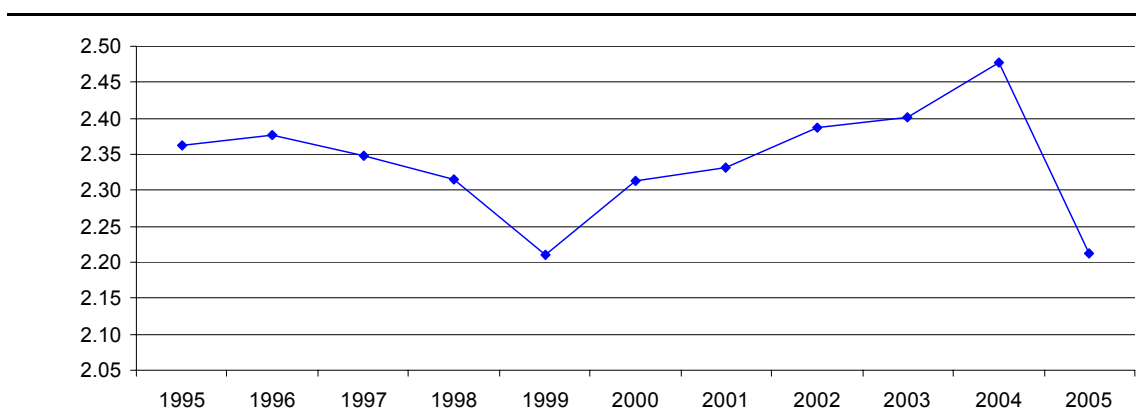
Turnover of the Belgian environment industry increased in every year of the period under investigation, except for 1999 and 2005. In 1999 the drop in the turnover of the specialised producers was almost completely compensated by the rise for the secondary producers, but in 2005 both categories of enterprises experienced a decrease in their turnover, after strong growth in 2004. This contrasts sharply with a continued brisk nominal growth of almost 8% for the total Belgian economy in 2005. As shown in figure 8, this implied a sharp drop in the share of the environment industry in total Belgian output, a share which had been increasing steadily, from 2.2% in 1999 to 2.5% in 2004. Consequently, the share of the environment industry fell to its 1999 level, a level which it had reached after a decline of its share since 1996, when it almost reached 2.4%.

Figure 7: Evolution of turnover (1995-2005, in millions of euros)



Source: FPB own calculation.

Figure 8: Share of the environment industry in total output (1995-2005, in %)



Source: FPB own calculation.

b. Turnover by size

Table 3 presents the shares of small, medium sized and large firms in total Belgian environmental turnover at the beginning and at the end of the period investigated. Clearly, the small firms have become more important over time. This is true for both specialised and secondary producers, but especially for the latter. The share of small secondary producers in total environmental turnover by the secondary producers more than doubled between 1995 and 2005. The share of medium sized firms in total Belgian environmental turnover also increased to reach a third in 2005. This is entirely due to specialised producers. The share in turnover of the large companies decreased for both specialised and secondary producers. However, they still accounted for more than half of total environmental turnover in Belgium. In section 4.1.2 it was shown that large enterprises accounted for 7% of the total number of firms deploying environmental activities. This share was constant throughout the years. This implies that, at least in terms of turnover, the large firms have become smaller relative to the small and the medium sized environmental enterprises.

Table 3: Share in total environmental turnover (in %)

	Specialised		Secondary		Total	
	1995	2005	1995	2005	1995	2005
Small	7	9	6	13	6	10
Medium	31	39	25	23	30	34
Large	62	52	69	64	64	56

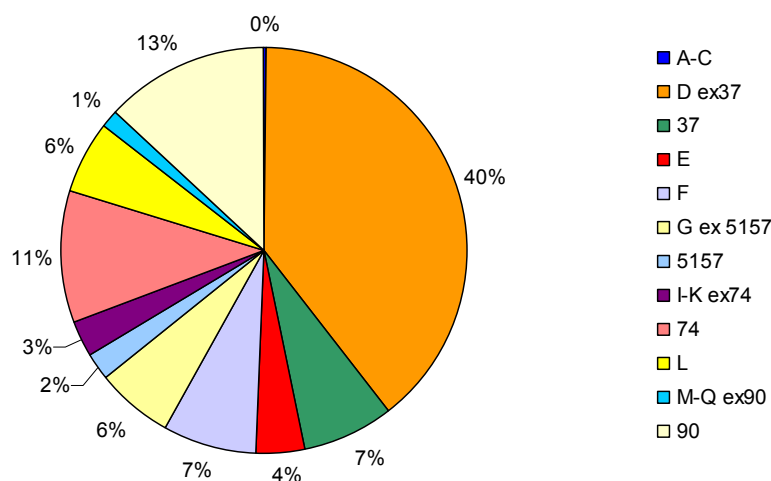
Source: FPB own calculation.

Note: Small = 1 to 9 employees; Medium = 10 to 99 employees; Large = 100+ employees.

c. Turnover by industry

In section 4.1.3 it was shown that the NACE divisions which are traditionally considered to be environmental, namely NACE 37 and 90, on average accounted for a third of all environmental firms during the period 1995-2005. The conclusion was that limiting studies of the environment industry to these two industries would lead to a serious underestimation of the environment industry. This is confirmed by figure 9. It shows that the combined share of NACE divisions 37 and 90 on average accounted for only a fifth of total turnover generated by the Belgian environment industry. The major part of environmental turnover was generated by the manufacturing industry. It stood for no less than 40% of total environmental turnover, while its share in the number of firms was only 11%. This is of course due to the fact that the manufacturing industry contains a comparatively high amount of large firms. The sewage and refuse disposal industry and the other business activities industry are the only other industries with a share in environmental turnover higher than 10%. These were the two industries containing the highest number of firms. The share in environmental turnover of the recycling industry, the industry containing the third highest amount of enterprises with a share of 13%, is comparatively low (7%).

Figure 9: Environmental turnover by economic activity (1995-2005 average share, in %)

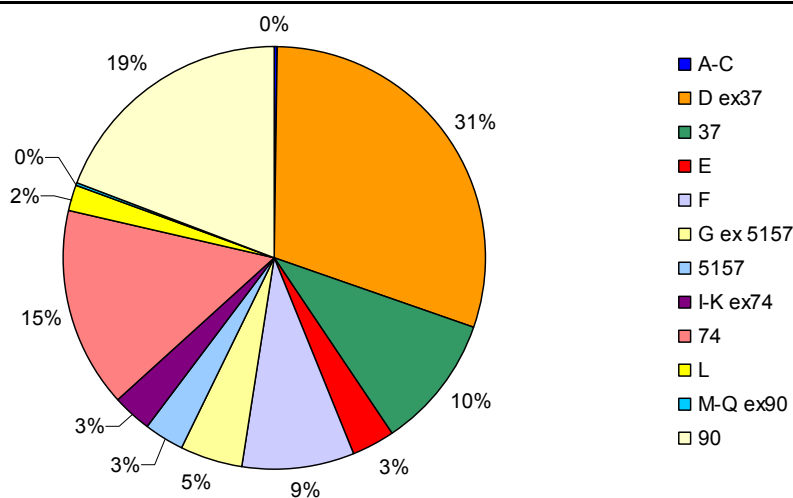


Source: FPB own calculation.

A-C	Agriculture, forestry, fishery, mining and quarrying
D ex 37	Manufacturing
37	Recycling
E	Electricity, gas and water supply
F	Construction
G ex 51.57	Wholesale and retail trade
51.57	Wholesale trade in waste and scrap
I-K ex 74	Transport, storage and communication; financial intermediation; real estate, renting and business activities
74	Other business activities
L	Public administration
M-Q ex 90	Education; health and social work; other service activities
90	Sewage and refuse disposal, sanitation and similar activities

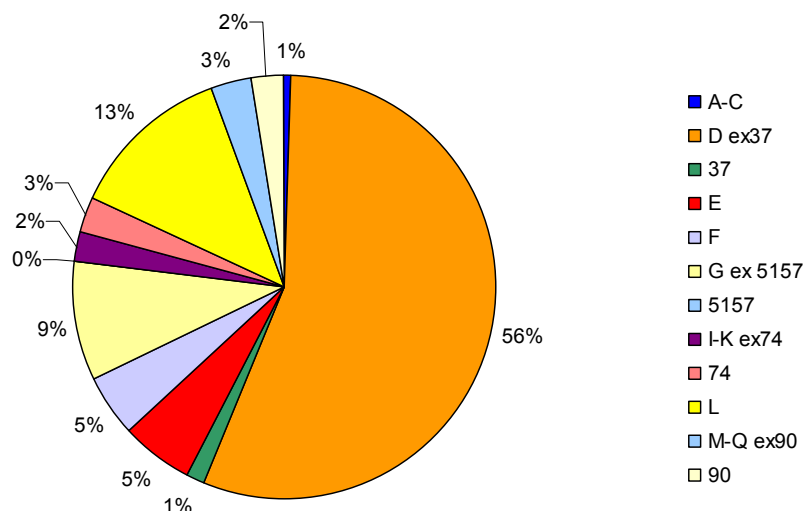
Figures 10 and 11 present environmental turnover by industry for the specialised and the secondary producers separately.

Figure 10: Specialised environmental turnover by economic activity (1995-2005 average share, in %)



Source: FPB own calculation.

Figure 11: Secondary environmental turnover by economic activity (1995-2005 average share, in %)



Source: FPB own calculation.

For both types of environmental firms the manufacturing industry shows a disproportionately high share in turnover in comparison to its share in the number of firms. In the case of the specialised producers its share in turnover is five times higher than its share in the number of firms. In the case of the secondary producers its share in turnover is almost three times higher. Specialised construction firms also generate a comparatively high amount of turnover. Next to the manufacturing industry and public administration they are the only other industry among the specialised producers for which the share in turnover was higher than its share in the number of firms. Among the secondary producers this is only the case for the electricity, gas and water supply industry.

d. Turnover by environmental domain

Table 4 shows that the distribution of turnover by environmental domain did not change dramatically in the course of the ten years following 1995. Solid waste accounted for around half of total environmental turnover in Belgium. Its share did decline somewhat, as was also the case for wastewater, the second most important environmental field in 1995. By 2005 its place as runner-up in the turnover ranking had been taken over by research and development, monitoring, engineering and analysis, which at that time accounted for nearly a fifth of total environmental turnover. The share of firms involved in the sanitation of soil doubled, but it remained one of the smaller environmental domains nevertheless.

Table 4: Environmental turnover by environmental domain (in %)

	1995	2005
Air	6	7
Wastewater	18	15
Solid waste	51	47
Soil	2	4
Noise and vibration	2	2
R&D, monitoring, engineering and analysis	16	19
Rational energy use	4	4
Sustainable forestry, agriculture and fishery	1	1
Total	100	100

Source: FPB own calculation.

The shares of the different environmental fields in turnover are very similar to their shares in the number of firms. This suggests that none of the environmental fields are dominated by large firms in terms of turnover. The only exception is probably air pollution and indoor air pollution control, which in 2005 had a share in turnover almost double as high as its average share in the number of firms.

There is also a distinct difference in the environmental profile of specialised and secondary producers. Turnover generated in the fields of wastewater and solid waste are clearly lower for secondary producers (8% and 43% respectively), while the share of research and development, monitoring, engineering and analysis is a lot higher (36%). This difference is much more pronounced than when the number of firms is considered.

As can be expected, since manufacturing enterprises have a higher weight in turnover than in the number of firms, the share of firms involved in the production of environmental goods and the installation of environmental equipment is considerably higher in turnover than in the number of firms. This is ascertained by a comparison between table 2 and table 5. Production of goods and installation of equipment accounted for only 14% of the total number of environmental firms. In 1995 it nevertheless accounted for almost a third of turnover, while in 2005 it still accounted for almost a quarter. There has been a clear shift in the direction of the provision of services. This shift was most pronounced in the field of wastewater, where in 1995 70% of firms were engaged in the production of goods or the installation of equipment, while in 2005 over half of turnover was realised by the provision of services. For solid waste the share in turnover of the production of goods and the installation of equipment was halved from 20 to 10 percent. The only environmental field for which the share of producers of goods and equipment installation firms increased is air pollution and indoor air pollution control.

Table 5: Share in turnover of firms involved in production of goods and installation of equipment versus firms providing services (in %)

	Goods and installation	Services	Goods and installation	Services
	1995		2005	
Air	68	32	72	28
Wastewater	70	30	48	52
Solid waste	21	79	10	90
Soil	38	62	36	64
Noise and vibration	72	28	63	37
R&D, monitoring, engineering and analysis	6	94	5	95
Rational energy use	46	54	44	56
Sustainable forestry, agriculture and fishery	3	97	3	97
Total	32	68	23	77

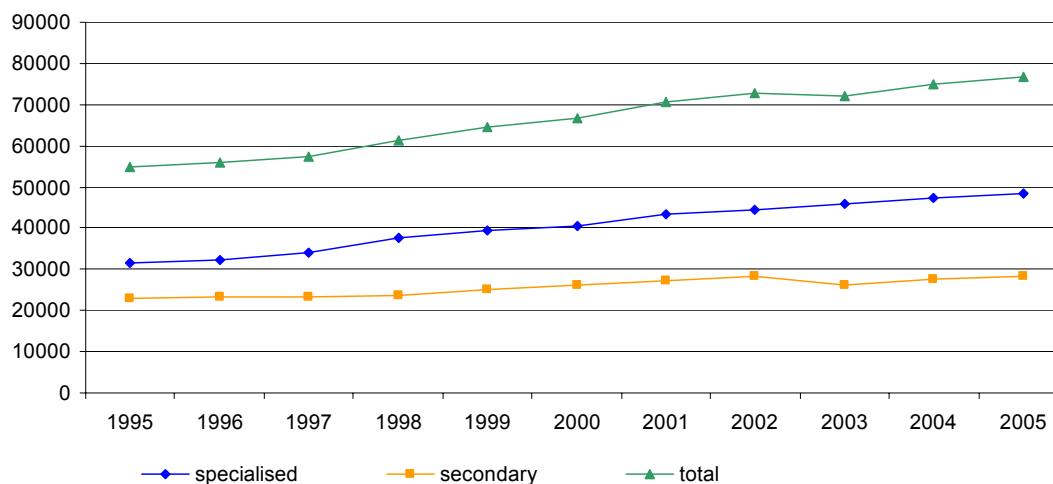
Source: FPB own calculation.

4.2.2. Environmental employment

This part discusses the importance of the environment industry to employment in Belgium. It starts off by presenting the evolution of environmental employment in the period 1995-2005. The following section discusses how environmental employment was distributed according to the size of the enterprises, across the different industries and over the various environmental fields.

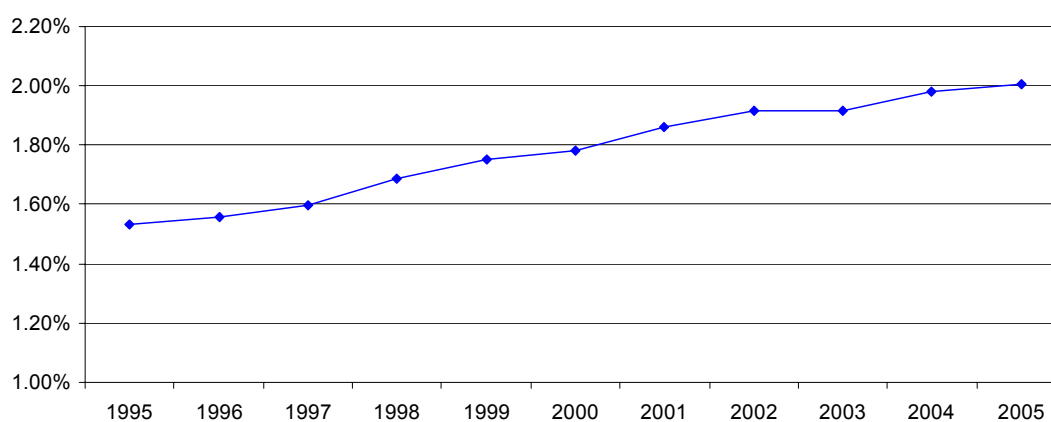
a. Evolution

Figure 12 shows that total employment in the Belgian environment industry increased from 55000 fulltime job equivalents in 1995 to 77000 in 2005, a growth of 40%, considerably faster than the 22% real growth rate of turnover. This points out that the labour intensity of the Belgian environment industry has been on the rise during the period investigated. This was especially so in the case of the specialised producers. Employment by the specialised producers expanded continuously throughout the period investigated, even in the years when turnover receded. This was not the case for the secondary producers, for which a drop in environmental employment was registered in 1997 as well as in 2003. Employment growth for the secondary producers was limited to 23%, while employment by the specialised producers expanded by 53% between 1995 and 2005. As a consequence, the share of the specialised producers in total environmental employment rose from 58% in 1995 to 63% in 2005. The increasing share of the specialised producers in environmental employment is in line with their increasing share in the number of firms, but stands in contrast to their decreasing share in environmental turnover.

Figure 12: Evolution of environmental employment (1995-2005, in fulltime equivalents)

Source: FPB own calculation.

Employment growth in the environment industry was considerably higher than total employment growth in Belgium, which during the corresponding period was limited to just over 7%.

Figure 13: Share of the environment industry in total employment (1995-2005, in %)

Source: FPB own calculation.

As a consequence, the share of the environment industry in total employment rose from 1.5% to 2% during the period under investigation, as illustrated by figure 13.

b. Employment by size

Table 6 presents the shares of small, medium sized and large firms in total Belgian environmental employment at the beginning and at the end of the period investigated. The picture that emerges differs substantially from the one presented in table 3. In the latter it was shown that the share in environmental turnover of the small and medium sized firms had become more important over time, while the share of the large companies decreased. As concerns employment, the share of large firms has increased over time, both for specialised and secondary producers, while the share of medium sized enterprises has decreased. The share of small firms remained constant. The main part of the extra employment generated by the Belgian environment industry between 1995 and 2005 thus took place in large organisations. In 1995 the distribution of total environmental turnover and employment across the different size classes looked almost exactly the same. By 2005 this had clearly changed, with small and medium sized firms having a share in turnover in excess of their share in employment, while the opposite was true for large firms.

Table 6: Share in total environmental employment (in %)

	Specialised		Secondary		Total	
	1995	2005	1995	2005	1995	2005
Small	6	6	3	3	5	5
Medium	34	30	26	23	30	27
Large	60	64	71	74	65	68

Source: FPB own calculation.

Note: Small = 1 to 9 employees; Medium = 10 to 99 employees; Large = 100+ employees.

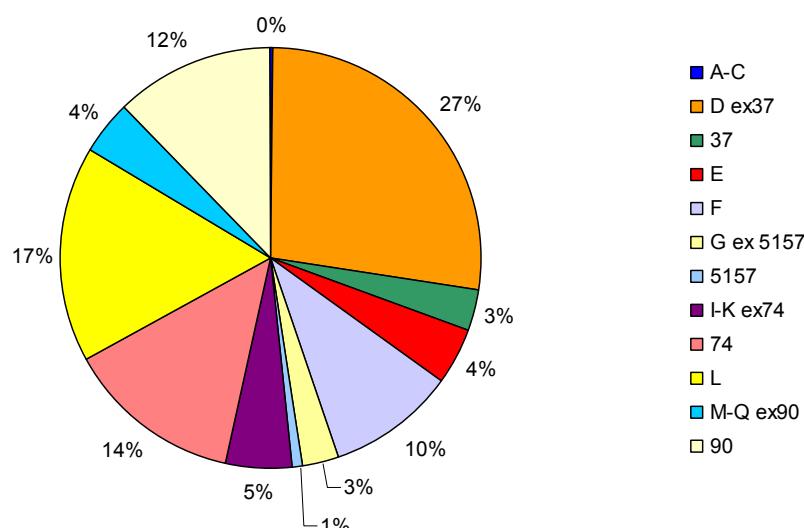
c. Employment by industry

Above we already concluded on the basis of the information on the number of firms and on turnover, that limiting studies of the environment industry to NACE divisions 37 and 90, the two industries which are traditionally considered to be environmental, would lead to a serious underestimation of the environment industry. This is all the more so when the focus is turned to employment.

Figure 14 shows that the combined share of NACE divisions 37 and 90 on average accounted for a mere 15% of total employment generated by the Belgian environment industry. As was also the case with respect to turnover, the major part of environmental employment was created by the manufacturing industry. It accounted for 27% of total environmental employment, considerably less than its 40% share in environmental turnover, but still a lot higher than the share of the runner-up industry. With respect to employment, the latter turned out to be public administration. Although it only accounted for 6% of environmental turnover, its share in environmental employment was as high as 17%. The sewage and refuse disposal industry and the other business activities industry are the other industries with a share in environmental employment higher than 10%, which corresponds to the picture we observed with respect to turnover, al-

though their ranking has been switched. The share in environmental employment of the recycling industry is very low compared to its 13% share in the number of firms. This is also true for trade in waste and scrap, accounting for 4% of the number of firms, but representing a mere percent of environmental employment.

Figure 14: Environmental employment by economic activity (1995-2005 average share, in %)



Source: FPB own calculation.

A-C	Agriculture, forestry, fishery, mining and quarrying
D ex 37	Manufacturing
37	Recycling
E	Electricity, gas and water supply
F	Construction
G ex 51.57	Wholesale and retail trade
51.57	Wholesale trade in waste and scrap
I-K ex 74	Transport, storage and communication; financial intermediation; real estate, renting and business activities
74	Other business activities
L	Public administration
M-Q ex 90	Education; health and social work; other service activities
90	Sewage and refuse disposal, sanitation and similar activities

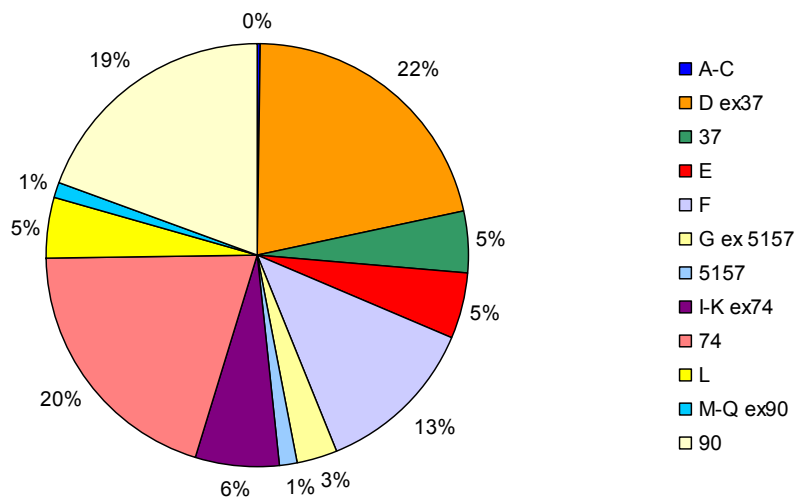
Figures 15 and 16 present environmental employment by industry for the specialised and the secondary producers separately.

As concerns the specialised producers, the manufacturing industry, the other business activities industry, and the sewage and refuse disposal industry each represented around a fifth of total environmental employment. The construction industry was also an important source of environmental jobs, with a share almost double as high as its share in the number of firms.

Environmental employment generated by secondary producers was dominated by the manufacturing industry and public administration, both accounting for an equal share of 36%. The

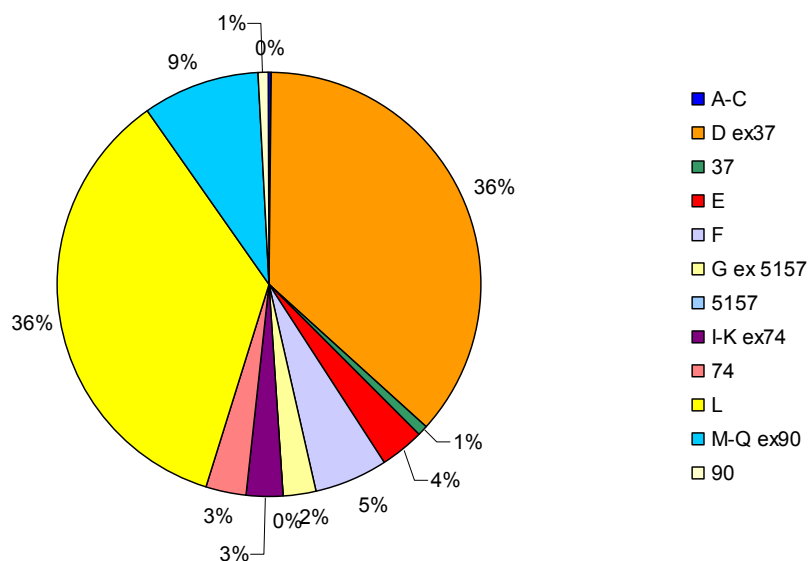
share of public administration in employment was far higher than its share in turnover, which was only 13%. For the manufacturing industry the opposite is true. Its share in environmental turnover was 56%. Education, health and social work, and other service activities was the third most important generator of environmental jobs, with a share of 9%, three times its share in environmental turnover.

Figure 15: Specialised environmental employment by economic activity (1995-2005 average share, in %)



Source: FPB own calculation.

Figure 16: Secondary environmental employment by economic activity (1995-2005 average share, in %)



Source: FPB own calculation.

d. Employment by environmental domain

Table 7 shows that the distribution of employment by environmental domain at the end of the 1995-2005 period looked very similar to the distribution at the start of this period, as was also the case for the distribution of turnover.

Table 7: Environmental employment by environmental domain (in %)

	1995	2005
Air	9	8
Wastewater	15	15
Solid waste	34	36
Soil	2	3
Noise and vibration	2	2
R&D, monitoring, engineering and analysis	33	30
Rational energy use	4	5
Sustainable forestry, agriculture and fishery	1	1
Total	100	100

Source: FPB own calculation.

However, whereas solid waste clearly dominated environmental turnover, its share in environmental employment was similar to the one for research and development, monitoring, engineering and analysis. In contrast to its share in environmental turnover, the share of solid waste in environmental employment did increase slightly. The share of research and development, monitoring, engineering and analysis in environmental employment was nearly double its share in environmental turnover. This type of environmental activity is clearly relatively labour intensive. The share of air pollution and indoor pollution control was more than twice as large as its share in the number of firms, confirming that this type of environmental activity is performed by larger firms on average.

There is also a distinct difference in the environmental employment profile of specialised and secondary producers. Around half of environmental employment generated by the secondary producers was in the field of research and development, monitoring, engineering and analysis. For the specialised producers this kind of environmental activities accounted for less than 20%. Almost 40% of its environmental activities were situated in the solid waste domain, 20% in the field of wastewater, and more than 10% in the field of air pollution. Environmental activities of the secondary producers were much less evenly spread among the different environmental fields. Next to research and development, solid waste was the only environmental field with a considerable share in environmental employment (around 30%).

Just like in the case of environmental turnover, the share of firms involved in the production of environmental goods and the installation of environmental equipment is considerably higher in employment than in the number of firms. Table 8 shows that production of goods and installation of equipment accounted for over 20% of environmental employment, while it represented only 14% of the total number of environmental firms. In other words, producers of environ-

mental goods and installers of environmental equipment are larger than producers of environmental services, both in terms of turnover and in terms of employment. The share of services in total employment was somewhat higher in 2005 than in 1995, but the shift towards services is clearly less pronounced as in the case of turnover, although it did take place across all environmental fields, except for sustainable agriculture, forestry and fishery.

Table 8: Share in employment of firms involved in production of goods and installation of equipment versus firms providing services (in %)

	Goods and installation	Services	Goods and installation	Services
	1995		2005	
Air	70	30	69	31
Wastewater	51	49	44	56
Solid waste	13	87	9	91
Soil	26	74	20	80
Noise and vibration	70	30	62	38
R&D, monitoring, engineering and analysis	5	95	4	96
Rational energy use	48	52	44	56
Sustainable forestry, agriculture and fishery	4	96	4	96
Total	24	76	21	79

Source: FPB own calculation.

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6. List of abbreviations

CPA: Statistical Classification of Products by Activity in the European Economic Community

EPEA: Environmental Protection Expenditure Accounts

NACE: Nomenclature générale des Activités économiques dans les Communautés Européennes;
Statistical Classification of Economic Activities in the European Community.

NAI: National Accounts Institute

NBB: National Bank of Belgium

OECD: Organisation for Economic Co-operation and Development

VAT: Value Added Tax

7. Annexes

7.1. Classification of the OECD Manual (1999)

A. Pollution management group

Production of equipment and specific materials for:

1. Air pollution control
2. Wastewater management
3. Solid waste management
 - 3.1. Hazardous waste collection, treatment and disposal;
 - 3.2. Waste collection, treatment and disposal;
 - 3.3. Waste recovery and recycling (excludes manufacturing of new materials or products from waste and scrap).
- A.1.4. Remediation and clean-up of soil, surface water and groundwater
- A.1.5. Noise and vibration abatement
- A.1.6. Environmental monitoring, analysis and assessment
- A.1.7. Other

Provision of services for:

8. Air pollution control
9. Wastewater management
10. Solid waste management
 - 10.1. Hazardous waste collection, treatment and disposal;
 - 10.2. Waste collection, treatment and disposal;
 - 10.3. Waste recovery and recycling (excludes manufacturing of new materials or products from waste and scrap).
11. Remediation and clean-up of soil, surface water and groundwater
12. Noise and vibration abatement
13. Environmental research and development
14. Environmental contracting and engineering
15. Analytical services, data collection, analysis and assessment
16. Education, training, information
17. Other

Construction and installation for:

18. Air pollution control
19. Wastewater management
20. Solid waste management
 - 20.1 Hazardous waste collection, treatment and disposal;
 - 20.2. Waste collection, treatment and disposal;
 - 20.3. Waste recovery and recycling (excludes manufacturing of new materials or products from waste and scrap).
21. Remediation and clean-up of soil, surface water and groundwater
22. Noise and vibration abatement
23. Environmental monitoring, analysis and assessment
24. Other

B. Cleaner technologies and products group

Production of equipment, technology, specific materials or services for:

1. Cleaner/resource-efficient technologies and processes
2. Cleaner/resource-efficient products

C. Resource management group

Production of equipment, technology and specific materials, provision of services, and construction and installation for:

1. Indoor air pollution control
2. Water supply
3. Recycled materials (manufacture of new materials or products from waste or scrap, separately identified as recycled)
4. Renewable energy plant
5. Heat/energy saving and management
6. Sustainable agriculture and fisheries
7. Sustainable forestry
8. Natural risk management
9. Eco-tourism
10. Other

7.2. Allocation of environmental products by CPA code to the classification of the OECD Manual

CPA_code	EI_code1	EI_code2	Description
02.01.14	A.1.		Fuel wood
02.01.4	A.1		Other forestry products
02.02.10	C.7		Services incidental to forestry and logging
14.12.10	A.1.12		Limestone and gypsum
14.21.11	A.1.3		Kaolin and other kaolinic clays
14.30.11	A.1.22		Natural calcium or aluminium calcium phosphates; carnallite, sylvite, other crude natural potassium salts
14.30.13	A.1.22		Other chemical minerals
14.40.10	A.1.22		Salt and pure sodium chloride
14.50.10	A.1.3b	C.1.3	Bitumen and asphalt, natural; asphaltites and asphaltic rock
15.41.11	A.2		Animal oils and fats, crude and refined, except fats of bovine animals, sheep, goats, pigs and poultry
15.41.99	C.5		Industrial services for crude oils and fats
15.71.10	A.1.3b		Prepared animal feeds for farm animals, except lucerne meal and pellets
15.72.10	a.1.3b		Prepared pet food
15.83.20	C.5		Beet-pulp, bagasse and other waste of sugar manufacture
15.89.13	A.1.4		Yeasts (active or inactive); other single-cell micro-organisms, dead; prepared baking powders
15.92.1	C.1.45		Ethyl alcohol
15.98.11	C.1.23		Mineral waters and aerated waters, not sweetened nor flavoured
15.98.9	C.2.23		Industrial services for mineral waters and soft drinks
17.20.40	A.1.27		Pile fabrics, terry towelling and other special fabrics
17.30.21	A.2.27		Bleaching services of fabrics
17.40.16	A.1.1		Other furnishing articles n.e.c.; sets of woven fabric and yarn for making up into rugs, tapestries and the like
17.53.10	A.1.3		Nonwovens and articles made from nonwovens, except apparel
17.53.9	C.2.3		Industrial services for nonwovens and articles made from nonwovens, except apparel
20.51.11	A.1.3		Tools, tool bodies, tool handles, broom or brush bodies and handles, boot or shoe lasts and trees, of wood
21.21.99	A.1.2		Industrial services for corrugated paper and paperboard and containers of paper and paperboard
21.25.1	A.1.2		Other articles of paper and paperboard n.e.c.
21.25.13	A.1.2		Filter blocks, slabs and plates, of paper pulp
23.20.22	C.5		Ethylene, propylene, butylene, butadiene and other petroleum gases or gaseous hydrocarbons, except natural gas
23.20.3	C.5		Other petroleum products
23.20.40	A.1.3c		Waste oil
23.30.9	A.1.3a		Treatment services of radioactive waste
24.11.11	A.1.1		Hydrogen, argon, rare gases, nitrogen and oxygen
24.11.12	A.1.13		Carbon dioxide and other inorganic oxygen compounds of non-metals
24.11.99	A.1.13		Industrial services for industrial gases
24.12.11	A.1.13		Zinc oxide and peroxide; titanium oxide
24.12.12	A.1.22		Chromium, manganese, lead and copper oxides and hydroxides
24.12.13	A.1.13	B.1.2	Other metal oxides, hydroxides and peroxides
24.12.22	A.1.13		Tanning extracts of vegetable origin; tannins and their derivatives; colouring matter of vegetable or animal origin
24.12.23	A.1.13		Synthetic organic and inorganic tanning substances; tanning preparations
24.12.99	A.1.13		Industrial services for dyes and pigments
24.13.11	A.1.22	C.1.22	Metalloids

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CPA_code	EI_code1	EI_code2	Description
24.13.15	A.1.13	A.1.22	Oxides, hydroxides and peroxides; hydrazine and hydroxylamine and their inorganic salts
24.13.21	A.1.1		Metallic halogenates
24.13.22	A.1.4		Hypochlorieten, chloraten en perchloraten
24.13.31	A.1.22		Hypochlorites, chlorates and perchlorates
24.13.32	A.1.22		Phosphinates, phosphonates, phosphates and polyphosphates
24.13.33	A.1.22		Carbonates
24.13.41	A.1.4		Salts of oxometallic or peroxometallic acids; colloidal precious metals
24.13.42	A.1.4		Other inorganic compounds n.e.c., including distilled water; amalgams other than amalgams of precious metals
24.13.52	C.1.23		Cyanides
24.13.53	A.1.13	B.1.2	Hydrogen peroxide
24.14.11	A.1.22		Acyclic hydrocarbons
24.14.13	A.1.22		Chlorinated derivatives of acyclic hydrocarbons
24.14.14	A.1.22		Sulphonated, nitrated or nitrosated derivatives of hydrocarbons, whether or not halogenated
24.14.15	A.1.22		Other derivatives of hydrocarbons
24.14.22	C.1.45		Monohydric alcohols
24.14.23	A.1		Diols, polyalcohols, cyclical alcohols and derivatives thereof
24.14.24	A.1		Phenols; phenol-alcohols and derivatives of phenols
24.14.32	A.1		Saturated acyclic monocarboxylic acids and their derivatives
24.14.33	A.1		Unsaturated monocarboxylic, cyclanic, cyclenic or cycloterpenic acyclic polycarboxylic acids and their derivatives
24.14.34	A.1		Aromatic polycarboxylic and carboxylic acids with additional oxygen functions; and their derivatives except salicylic acid and its salts
24.14.41	A.1	A.1.4	Amine function compounds
24.14.42	A.1	A.1.4	Oxygen-function amino-compounds, except lysine and glutamic acid
24.14.43	A.1		Ureines; carboxymide-function compounds, nitrile function compounds; derivatives thereof
24.14.52	A.1		Heterocyclic compounds n.e.c.; nucleic acids and their salts
24.14.53	A.1		Phosphoric esters and esters of other inorganic acids, and their salts; derivatives thereof
24.14.62	A.1		Ketone and quinone function compounds
24.14.63	A.1		Ethers, organic peroxides, epoxides, acetals and hemiacetals and their derivatives
24.14.64	A.1	A.1.4	Enzymes and other organic compounds n.e.c.
24.14.71	A.1.22		Derivates of vegetable or resin products
24.15.10	A.1.22		Nitric acid; sulphonitric acids; ammonia
24.15.20	A.1.22		Ammonium chloride; nitrites; nitrates of potassium; ammonium carbonates
24.15.60	A.1		Animal or vegetable fertilizers n.e.c.
24.16.51	A.1.33		Polymers of propylene or of other olefins, in primary forms
24.16.58	C.1.		Other plastics, in primary forms, n.e.c.
24.16.60	A.1.3b		Waste, parings and scrap, of plastics
24.20.14	A.1		Disinfectants
24.20.99	C.2.8		Industrial services for pesticides and other agro-chemical products
24.30.11	B.1.2		Paints and varnishes based on acrylic or vinyl polymers, in an aqueous medium
24.41.20	A.1.22		Lysine, glutamic acid and their salts; quarternary ammonium salts and hydroxides; phosphoaminolipids; amides and their derivatives and salts thereof
24.41.31	A.1.43		Lactones n.e.c., heterocyclic compounds with nitrogen hetero-atom(s) only, containing an unfused pyrazole ring, a pyrimidine ring, a piperazine ring, an unfused triazine ring or a phenothiazine ring system not further fused; hydantoin and its derivatives
24.41.52	A.1.43		Hormones

CPA_code	EI_code1	EI_code2	Description
24.51.20	A.1.43		Organic surface-active agents, except soap
24.51.32	A.1.43		Detergents and washing preparations
24.51.99	A.2.43		Industrial services for glycerol; soap and detergents, cleaning and polishing preparations
24.66.33	A.1.4		Hydraulic brake fluids; anti-freezing preparations and prepared de-icing fluids
24.66.41	A.2.43		Peptones, other protein substances and their derivatives, n.e.c.; hide powder
24.66.43	A.2.43		Chemical elements in disk form and compounds doped for use in electronics
24.66.44	A.1.22		Activated carbon
24.66.46	A.1.1	C.1.5	Pickling preparations; fluxes; prepared rubber accelerators; compound plasticizers and stabilizers for rubber or plastics; catalytic preparations n.e.c.; mixed alkylbenzenes and mixed alkyl-naphthalenes n.e.c.
24.66.48	A.1.43		Miscellaneous other chemical products n.e.c.
24.70.14	A.1.3		Synthetic monofilament; strip and the like, of synthetic textile materials
24.70.24	A.1.43		Cellulosic and other artificial monofilament; strip and the like, of cellulosic and other artificial textile materials
25.12.10	C.1.3a		Retreaded pneumatic tyres, of rubber
25.13.10	A.2.3	C.2.3	Reclaimed rubber in primary forms or in plates, sheets or strip
25.21.21	A.1.3		Artificial guts, of hardened proteins or of cellulosic materials; tubes, pipes and hoses, rigid, of plastics
25.21.22	A.1.3		Other tubes, pipes, hoses and fittings, of plastics
25.21.30	A.1.3		Plates, sheets, film, foil and strip, of plastics, not supported or similarly combined with other materials
25.21.41	A.1.33		Other plates, sheets, film, foil and strip, of plastics, cellular
25.21.42	A.1.33		Other plates, sheets, film, foil and strip, of plastics, non-cellular
25.22.13	A.1.32		Boxes, cases, crates and similar articles of plastics
25.22.14	A.1.3		Carboys, bottles, flasks and similar articles of plastics
25.22.15	A.1.3		Other packaging products of plastics
25.23.13	A.2.2		Reservoirs, tanks, vats and similar containers, capacity > 300 l, of plastics
25.24.21	C.1.3a		Self-adhesive plates, sheets, film, foil, tape, strip and other flat shapes, of plastics, in rolls of a width ≤ 20 cm
25.24.22	C.1.3a		Self-adhesive plates, sheets, film, foil, tape and other flat shapes, of plastics, in rolls of a width > 20 cm
25.24.23	A.1.32	C.1.3a	Tableware, kitchenware, other household articles and toilet articles, of plastics
25.24.24	C.1.3a		Parts n.e.c. for lamps and lighting fitting, illuminated name-plates and the like, of plastics
25.24.28	A.1.26	C.1.3a	Fittings for furniture, coachwork or the like, of plastics; statuettes and other ornamental articles, of plastics; other articles, of plastics
25.24.90	A.1.	C.1.	Manufacturing services of plastic parts
26.14.11	A.1.15		Slivers, rovings, yarn and chopped strands, of glass fibre
26.14.12	A.1.15	C.1.5	Voiles, webs, mats, mattresses, boards and other articles of glass fibres, except woven fabrics
26.15.26	A.1		Articles of glass n.e.c.
26.23.10	C.5		Ceramic insulators and insulating fittings
26.26.12	C.1.4		Refractory bricks, blocks, tiles and similar refractory ceramic constructional goods, other than of siliceous fossil meals or earths
26.51.12	A.1		Portland cement, aluminous cement, slag cement and similar hydraulic cements
26.52.10	A.1.13		Lime
26.53.10	A.1		Plaster
26.61.12	A.1		Prefabricated structural components for building or civil engineering, of cement, concrete or artificial stone
26.61.13	A.1.31		Pipes of cement, concrete or artificial stone
26.61.20	A.1		Prefabricated buildings of concrete
26.63.10	A.1		Ready-mixed concrete
26.66.11	A.1.31		Other articles of plaster or compositions based on plaster n.e.c.
26.66.12	A.1.31		Articles of cement, concrete or artificial stone n.e.c.

CPA_code	EI_code1	EI_code2	Description
26.82.15	A.1		Artificial corundum
26.82.16	A.1		Non-metallic mineral products n.e.c.
27.10.20	A.1.31		Ferro alloys
27.10.31	A.1.31		Ingots, other primary forms and semi-finished products (of non- alloy steel)
27.21.10	A.1.27		Tubes, pipes and hollow profiles, of cast iron
27.21.20	A.1.27		Cast fittings, of iron or steel
27.22.10	A.1.		Tubes, pipes and hollow profiles, of iron or steel
27.22.20	A.1.		Tubes or pipe fittings, of iron or steel, n.e.c.
27.42.12	A.1.		Aluminium oxide, excluding artificial corundum
27.43.22	A.1.31		Lead plates, sheets, strip and foil; lead powders and flakes
27.43.23	A.1.		Lead tubes, pipes and tube or pipe fittings
27.43.9	A.2.31		Industrial services for lead, zinc and tin and products thereof
27.44.12	A.1.		Copper, unrefined; copper anodes for electrolytic refining
27.44.13	A.1.3		Refined copper and copper alloys, unwrought; master alloys of copper
27.44.24	A.1.		Copper plates, sheets and strip, > 0.15 mm thick
27.45.30	A.1.3		Other non-ferrous metals and articles thereof; cermets; ash and residues
28.11.2	A.1.3		Structural metal products and parts thereof
28.11.23	A.1.3		Other structures and parts of structures, plates, rods, angles, shapes and the like, of iron, steel or aluminium
28.11.91	A.3		Installation (erection) work of self-manufactured metal structures
28.11.92	A.3		Repair and maintenance services of metal structures
28.11.99	A.3		Industrial services for metal structures and parts of structures
28.12.99	A.3		Industrial services for builders' carpentry and joinery of metal
28.21.11	A.1.27	A.2.2	Reservoirs, tanks, vats and similar containers, of metal, > 300 l
28.21.12	A.1.		Containers for compressed or liquefied gas, of metal
28.21.91	A.3		Installation services of tanks, reservoirs and containers, of metal (other than for building heating)
28.21.92	A.3		Repair and maintenance services of tanks, reservoirs and containers of metal (other than for building heating)
28.21.99	A.3		Industrial services for tanks, reservoirs and containers of metal
28.22.11	C.5		Radiators for central heating, not electrically heated, of iron or steel
28.22.12	A.1.		Boilers for central heating
28.22.13	A.1.		Parts of boilers for central heating
28.22.91	A.3		Installation services of central heating boilers
28.22.92	A.3		Repair and maintenance services of central heating boilers
28.22.99	A.3		Industrial services for central heating radiators and boilers
28.30.11	C.1.5		Steam or other vapour generating boilers; super-heated water boilers
28.30.12	C.1.5		Auxiliary plant for use with boilers; condensers for steam or other vapour power units
28.30.13	C.1.5		Parts of steam generators
28.30.91	C.3.5		Installation services of steam generators, except central heating hot water boilers, including installation services for metal pipe systems in industrial plants
28.30.92	C.3.5		Repair and maintenance services of steam generators (except central heating hot water boilers) and of systems of metal pipes in industrial plants
28.30.99	C.3.5		Industrial services for steam generators, except central heating hot water boilers
28.62.10	C.1.8		Hand tools of a kind used in agriculture, horticulture or forestry
28.71.11	A.1.27		Tanks, casks, drums, cans, boxes and similar containers, for any material (excluding gas), of iron or steel, of a capacity > 50 l but ≤ 300 l
28.71.12	A.1.27		Tanks, casks, drums, cans (except those to be closed by soldering or crimping), boxes and similar containers, for any material (excluding gas), of iron or steel, of a capacity < 50 l
28.71.90	A.3.27		Installation, repair and maintenance services of iron or steel boxes of a capacity

CPA_code	EI_code1	EI_code2	Description
			not exceeding 300 litres
28.71.99	A.3.27		Industrial services for steel drums and similar containers
28.72.11	A.1.27		Cans, of iron or steel, to be closed by soldering or crimping, of a capacity < 50 l
28.72.12	A.2.27		Aluminium casks, drums, cans, boxes and similar containers, for any material (excluding gas), of a capacity ≤ 300 l
28.73.13	A.1.		Cloth, grills, netting and fencing, of iron, steel or copper wire; expanded metal, of iron, steel or copper
28.75.25	A.1.3		Hooks
28.75.27	A.1.		Other articles of base metal n.e.c.
29.11.21	A.2.27		Steam turbines and other vapour turbines
29.11.22	A.1.27		Hydraulic turbines and water wheels
29.11.23	A.1.27		Gas turbines, other than turbo-jets and turbo-propellers
29.11.31	A.1.27		Parts of steam and other vapour turbines
29.11.32	A.1.27		Parts of hydraulic turbines, water wheels including regulators
29.11.33	A.1.27		Parts of gas turbines, excluding turbo-jets and turbo-propellers
29.11.92	A.2.27		Maintenance and repair services of engines and turbines, except aircraft, vehicle and cycle engines
29.12.11	A.1.61		Linear acting (cylinders) hydraulic and pneumatic power engines and motors
29.12.12	A.1.61		Other hydraulic and pneumatic power engines and motors
29.12.21	A.1.29	A.1.37	Pumps for fuel, lubricants, cooling-medium and concrete
29.12.22	A.1.29		Other reciprocating positive displacement pumps for liquids
29.12.23	A.1.29		Other rotary positive displacement pumps for liquids
29.12.24	A.1.29		Other centrifugal pumps for liquids; other pumps; liquid elevators
29.12.31	A.1.11		Vacuum pumps
29.12.33	A.1.11	A.1.21	Compressors for refrigeration equipment
29.12.34	A.1.11	A.1.21	Air compressors mounted on a wheeled chassis for towing
29.12.35	A.1.21	A.1.21	Turbo-compressors
29.12.36	A.1.21	A.1.21	Reciprocating displacement compressors
29.12.37	A.1.11	A.1.21	Rotary displacement compressors, single-shaft or multi-shaft
29.12.38	A.1.11	A.1.21	Compressors for use in civil aircraft and other compressors
29.12.41	A.1.61		Parts of hydraulic and pneumatic power engines and motors
29.12.42	A.1.11		Parts of pumps; parts of liquid elevators
29.12.43	A.1.11		Parts of air or vacuum pumps, of air or gas compressors, of fans, of hoods
29.12.9	A.3.21		Installation, maintenance and repair services of pumps and compressors
29.13.11	A.1.29		Pressure-reducing, control, check and safety valves
29.13.12	A.1.29		Taps, cocks, valves for sinks, wash basins, bidets, water cisterns bath and similar fixtures; central heating radiator valves
29.13.13	A.1.29		Process control valves, gate valves, globe valves and other valves
29.13.9	A.3.29		Installation, repair and maintenance services of taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like of metal
29.21.11	A.1.16	A.2.27	Furnace burners; mechanical stokers and grates; mechanical ash dischargers and the like
29.21.12	A.1.16	A.1.27	Industrial or laboratory furnaces and ovens, non-electric, including incinerators, but excluding bakery ovens
29.21.13	A.1.		Industrial or laboratory electric furnaces and ovens; induction or dielectric heating equipment
29.21.14	A.1.16	A.2.27	Parts of furnace burners, furnaces and ovens
29.22.17	A.1.3		Pneumatic and other continuous action elevators and conveyors, for goods or materials
29.22.18	A.1.32		Other lifting, handling, loading or unloading machinery
29.22.19	A.1.3		Parts of lifting and handling equipment
29.22.92	A.2.32		Maintenance and repair services of lifting and handling equipment
29.23.11	A.1.15	C.1.	Heat exchange units and machinery for liquefying air or other gases

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CPA_code	EI_code1	EI_code2	Description
29.23.12	C.1		Air conditioning machines
29.23.13	C.1		Refrigeration and freezing equipment and heat pumps, except household type equipment
29.23.14	A.1.12	A.1.13	Machinery and apparatus for filtering or purifying gases n.e.c.
29.23.30	C.1.5		Parts of refrigeration and freezing equipment and heat pumps
29.23.9	C.3.5		Installation, maintenance and repair services of non-domestic cooling and ventilation equipment
29.24.11	C.1.5		Producer gas or water gas generators; acetylene gas generators and the like; distilling or rectifying plant
29.24.12	A.1.22	A.1.25	Filtering or purifying machinery and apparatus, for liquid
29.24.21	A.1.36		Machinery for cleaning, filling, packing or wrapping bottles or other containers
29.24.23	A.1.27		Weighing machinery n.e.c.
29.24.24	A.1.42		Fire extinguishers, spray guns, steam or sand blasting machines and similar mechanical appliances except for use in agriculture
29.24.31	A.1.25		Centrifuges n.e.c.
29.24.40	A.1.15	B.1.11	Machinery n.e.c. for the treatment of materials by a process involving a change of temperature
29.24.52	A.1.		Parts of centrifuges; parts of filtering or purifying machinery and apparatus for liquids or gases
29.24.53	A.1.17		Parts of calendering or other rolling machines; parts of spraying machinery, weights for weighing machines
29.24.91	A.3.25		Installation services of other general purpose machinery n.e.c.
29.24.92	A.3.25		Maintenance and repair services of other general purpose machinery n.e.c.
29.32.1	A.1.36		Agricultural and forestry machinery for soil preparation or cultivation
29.32.40	A.1.17		Machinery for projecting, dispersing or spraying liquids or powders for agriculture or horticulture
29.32.65	A.1.29		Agricultural, horticultural, forestry, poultry- or bee-keeping machinery n.e.c.
29.42.11	A.1.31	B.1	Machine tools for working any material by removal of material by laser, ultrasonic and the like
29.42.35	A.1.31		Machine tools n.e.c. for working metal, sintered metal carbides or cermets, without removing material
29.51.11	A.1.12		Converters, ladles, ingot moulds and casting machines; metal-rolling mills
29.52.12	A.1.36		Coal or rock cutters and tunnelling machinery; other boring and sinking machinery
29.52.30	A.1.36		Other excavating machinery
29.52.40	A.1.36	A.1.35	Machinery for sorting, grinding, mixing and similar treatment of earth, stone, ores and other mineral substances; foundry moulds forming machinery
29.52.61	A.1.36		Parts for boring or sinking or excavating machinery; parts of cranes
29.52.62	A.1.36		Parts of machinery for sorting, grinding or other treatment of earth, stone and the like
29.54.11	A.1.2		Machines for extruding, drawing, texturing or cutting man-made textile materials; machines for preparing textile fibres
29.56.25	A.1.36		Special purpose machinery n.e.c.
29.56.26	A.1		Parts of other special purpose machinery
29.71.26	A.1.31	A.1.42	Electric space heating apparatus and electric soil heating apparatus
29.71.9	A.3.31		Installation, repair and maintenance services of professional electric appliances of 29.71
29.72.13	C.1.5	C.1.1	Air heaters or hot air distributors n.e.c., of iron or steel, non-electric
29.72.14	C.1.5		Water heaters, instantaneous or storage, non-electric
30.02.9	A.3.8		Installation services of computers and other data processing equipment
31.10.50	A.1.2		Ballasts for discharge lamps or tubes; static converters; other inductors
31.10.62	A.1.7		Parts of transformers, inductors and static converters
31.20.27	C.1		Plugs
31.40.24	A.1.15		Parts of electric accumulators including separators
31.50.15	C.1.5		Discharge lamps; ultra-violet or infra-red lamps; arc lamps

CPA_code	EI_code1	EI_code2	Description
31.61.21	A.1.451		Sparking plugs; ignition magnetos; magneto-dynamos; magnetic flywheels; distributors; ignition coils
31.62.12	A.1.35		Permanent magnets; electromagnetic couplings, clutches and brakes; magnetic lifting heads; parts thereof
31.62.13	A.1.43		Electrical machines and apparatus having individual functions
31.62.92	A.3.42		Maintenance and repair services of other electrical equipment n.e.c.
32.10.52	C.1.4		Semiconductor devices; light-emitting diodes; mounted piezo-electric crystals; parts thereof
32.10.92	C.2.4		Services connected with manufacturing of electronic integrated circuits
33.20.41	A.1.61		Instruments and apparatus for measuring or detecting ionizing radiations
33.20.51	A.1.61		Hydrometers, thermometers, pyrometers, barometers, hygrometers and psychrometers
33.20.52	A.1.29	A.1.61	Instruments for measuring or checking the flow, level, pressure or other variables of liquids and gases
33.20.53	A.1.61	A.1.43	Instruments and apparatus for physical or chemical analysis n.e.c.
33.20.63	C.1.5	A.1.61	Gas, liquid or electricity supply or production meters
33.20.65	A.1.61		Measuring or checking instruments, appliances and machines n.e.c.
33.20.70	A.1.61	C.1.5	Thermostats, manostats and other automatic regulating or controlling instruments and apparatus
33.20.81	A.1.61		Parts and accessories for the goods of 33.20.1, 33.20.32, 33.20.33, 33.20.4, 33.20.5, 33.20.62 and 33.20.65; parts n.e.c.
33.20.82	A.1.61		Parts and accessories of microscopes (other than optical) and of diffraction apparatus
33.20.84	A.1.61		Parts and accessories of instruments and apparatus of 33.20.7
33.20.9	A.3.61	A.2.61	Installation, maintenance and repair services of instruments and apparatus for measuring, checking, testing, navigating and other purposes
33.30.10	A.1.63		Design and assembly services of industrial process control equipment, also for automated production plants
33.30.9	A.2.63		Repair and maintenance services of industrial process control equipment
33.40.23	A.1.31	A.1.42	Liquid crystal devices; lasers, except laser diodes; other optical appliances and instruments n.e.c.
33.40.24	A.1.61		Parts and accessories of other optical instruments
33.40.9	A.3.61		Installation, repair and maintenance services of professional photographic, cinematographic and optical instruments
34.10.41	A.1.33		Goods vehicles
34.10.51	A.1.33		Dumpers for off-highway use
34.10.54	A.1.33		Special purpose motor vehicles n.e.c.
34.20.21	A.1.33		Containers specially designed for carriage by one or more modes of transport
34.20.70	A.1.51		Reconditioning, assembly, fitting out and bodywork services of motor vehicles
34.30.11	A.1.51		Parts for spark-ignition internal combustion engines, excluding parts for aircraft engines
34.30.12	A.1.51		Parts for other engines n.e.c.
34.30.20	A.1.51		Other parts and accessories n.e.c., for motor vehicles
35.30.12	C.1.42		Turbo-jets and turbo-propellers
36.62.1	A.1.32		Brooms and brushes
36.62.9	A.2.32		Industrial services for brooms and brushes
37.10.10	C.1.32		Metal secondary raw materials
37.20.10	C.1.32		Non-metal secondary raw materials
41.00.11	A.1.2		Drinking water
41.00.12	A.1.2		Non-drinking water
45.11.2	A.1.36		Excavating and earthmoving work
45.12.10	A.1.6		Test drilling and boring work
45.21.11	A.1		General construction work for one- and two-dwelling buildings
45.21.12	A.1		General construction work for multi-dwelling buildings
45.21.13	A.1		General construction work for warehouses and industrial buildings

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CPA_code	EI_code1	EI_code2	Description
45.21.14	A.1.		General construction work for commercial buildings
45.21.15	A.1.		General construction work for other buildings
45.21.31	C.1.5		General construction work for long-distance pipelines for oil and gas
45.21.32	C.1.5		General construction work for other long-distance pipelines, including for water
45.21.41	A.1.2		General construction work for local water and sewage pipelines, including ancillary works
45.23.12	A.1.54		General surface work for motorways, roads, streets and other vehicular or pedestrian ways
45.24.13	A.1.2		General construction work of locks, floodgates and other hydro-mechanical structures
45.24.14	A.1.3	A.1.2	Dredging work; other water-associated work
45.25.62	A.1.2		Other special trade construction work n.e.c.
45.31.42	C.3.4		Electrical installation work of heating and other electrical equipment, including electric solar energy collectors, of buildings
45.32.11	C.3.5		Thermal insulation work
45.32.12	C.3.5		Other insulation work
50.10.11	A.1.33		Wholesale trade services of lorries, trucks, trailers, semi-trailers and buses
50.30.12	A.1.3		Wholesale trade services of other parts and accessories of motor vehicles
51.47.37	A.2.3		Wholesale trade services of miscellaneous consumer goods n.e.c.
51.56.12	A.2.2	A.2.3	Wholesale trade services of textile fibres
51.65.12	A.2.6		Wholesale trade services of machinery and equipment related supplies
51.65.15	A.2.6		Wholesale trade services of professional electrical and electronic machinery
51.65.16	A.2.6		Wholesale trade services of other general and special purpose machinery
51.66.11	C.2.8		Wholesale trade services of agricultural tractors
51.66.12	C.2.8		Wholesale trade services of agricultural and forestry machinery (excluding tractors) and of accessories and implements
51.51.11	C.2.5		Wholesale trade services of solid fuels
51.51.12	C.2.5		Wholesale trade services of motor spirit, including aviation spirit
51.51.13	C.2.5		Wholesale trade services of other liquid and gaseous fuels and related products
51.54.12	C.2.5		Wholesale trade services of plumbing and heating equipment and supplies
51.55.13	A.2.4		Wholesale trade services of other industrial chemicals
51.57.10	A.1.33		Wholesale trade services of waste and scrap
52.48.31	A.2.3		Retail trade services of cleaning materials
60.24.14	A.2.3		Transportation by vehicles for containerized freight
60.24.16	A.2.3		Transportation by vehicles for dry bulk goods
60.24.17	A.2.3		Transportation services by specialized vehicles, n.e.c.
60.24.2	A.2.3		Freight transportation services by non-specialized road vehicles
63.11.11	A.3.31		Container handling services
63.11.12	A.3.31		Other cargo handling services
64.20.14	A.2.6	A.2.8	Shared business network services
64.20.15	A.2.6	A.2.8	Dedicated business network services
64.20.16	A.2.6	A.2.8	Data network services
73.10.11	A.2		Research and experimental development services on physical sciences
73.10.12	A.2		Research and experimental development services on chemistry and biology
73.10.13	A.2		Research and experimental development services on engineering and technology
73.10.14	A.2		Research and experimental development services on agricultural sciences
73.10.15	A.2		Research and experimental development services on medical sciences and pharmacy
73.10.16	A.2		Research and experimental development services on other natural sciences
71.31.10	A.2	C.2.8	Leasing or rental services of agricultural machinery and equipment without operator
71.32.10	A.2	A.2.61	Leasing or rental services of construction and civil engineering machinery and

CPA_code	EI_code1	EI_code2	Description
			equipment without operator
74.12.14	A.2.		Other accounting services
74.12.2	A.2.		Book-keeping services, except tax returns
74.14.2	A.2.		Other management-related services
74.20.23	A.2.		Other architectural services
74.20.31	A.2.		Technical advisory and consultative services
74.20.34	A.2.		Engineering design services for the construction of civil engineering works
74.20.35	B.2.1		Engineering design services for industrial process and production
74.20.36	B.2.1		Engineering design services n.e.c.
74.20.52	A.2.8		Landscape architectural services
74.20.60	A.2.5		Project management services related to constructions and civil engineering works
74.20.71	A.2.4		Geological, geophysical and other scientific prospecting services
74.20.72	A.2.4		Subsurface surveying services
74.20.73	A.2.4		Surface surveying services
74.20.75	A.2.		Technical consultancy services other than engineering consultancy
74.30.11	A.2.		Composition and purity testing and analysis services
74.30.12	A.2.		Testing and analysis services of physical properties
74.30.13	A.2.		Testing and analysis services of integrated mechanical and electrical systems
74.30.15	A.2.		Other technical inspection services
74.30.16	A.2.		Other technical testing and analysis services
74.70.11	A.2.3		Disinfecting and exterminating services
74.70.14	A.1.43		Specialized cleaning services
74.70.16	A.2.3		Other cleaning services
74.82.10	A.2.3		Packaging services
74.87.1	A.2.6		Other business services
75.11.13	A.2.6	A.2.7	Overall economic and social planning and statistical services
75.11.14	A.2.6	A.2.7	Government services to fundamental research
75.11.15	A.2.6	A.2.7	Other administrative services of the government n.e.c.
75.12.1	A.2.6	A.2.7	Administrative services for the regulation of agencies that provide health care, education, cultural services and other social services excluding social security
75.13.11	A.2.6	A.2.7	Administrative agriculture-, forestry-, fishing- and hunting-related services
75.13.12	A.2.6	A.2.7	Administrative fuel- and energy-related services
75.13.13	A.2.6	A.2.7	Administrative mining- and mineral resources-, manufacturing- and construction-related services
75.13.17	A.2.6	A.2.7	Administrative multipurpose development project services
75.13.18	A.2.6	A.2.7	General administrative economic, commercial and labour affairs-related services
75.14.11	A.2.6	A.2.7	General personnel services for the government
75.14.12	A.2.6	A.2.7	Other general services for the government n.e.c.
80.30.1	A.2.9		Higher education services
80.42.1	A.2.9		Adult education services n.e.c.
80.42.10	A.2.9		Adult education services n.e.c.
80.42.2	A.2.9		Other education services
90.01.11	A.1		Sewage removal and treatment services
90.01.12	A.2.2		Treatment services of cesspools and septic tanks
90.02.11	A.1		Refuse collecting services
90.02.12	A.1		Refuse incineration services
90.02.13	A.1		Other disposal services of refuse
90.02.14	A.1		Special refuse treatment services
90.03.11	A.1.43		Remediation and clean-up of soil and groundwater services
90.03.12	A.1.43		Clean-up services of polluted surface water

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CPA_code	EI_code1	EI_code2	Description
90.03.13	A.1		Sanitation and similar services
92.53.11	C.8		Botanical and zoological garden services
92.53.12	C.1		Nature reserves services, including wildlife preservation services

Note: Many of the products in this list are not environmental products per se. They can potentially be used for environmental purposes. Whether or not these products are of an environmental nature is determined by the use which is made of them. An estimate of the size of the environment industry based on this list of products will therefore most probably generate an overestimation. It results in the potential size of the environment industry when all the potentially environmental products would effectively be used for environmental purposes.

7.3. Industry classification, based on NACE rev. 1

Industry classification

A	01-02	Agriculture, hunting and forestry
	.01	Agriculture, hunting and related service activities
	.02	Forestry, logging and related service activities
B	05	Fishing
C	10-14	Mining and quarrying
	10	Mining of coal and lignite; extraction of peat
	11	Extraction of crude petroleum and natural gas; service activities incidental to oil surveying and gas extraction excluding
	12	Mining of uranium and thorium ores
	13	Mining of metal ores
	14	Other mining and quarrying
D	15-37	Manufacturing
	15	Manufacture of food products and beverages
	16	Manufacture of tobacco products
	17	Manufacture of textiles
	18	Manufacture of wearing apparel; dressing and dyeing of fur
	19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
	20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and manufacture plaiting materials
	21	Manufacture of pulp, paper and paper products
	22	Publishing, printing and reproduction of recorded media
	23	Manufacture of coke, refined petroleum products and nuclear fuel
	24	Manufacture of chemicals and chemical products
	25	Manufacture of rubber and plastic products
	26	Manufacture of other non-metallic mineral products
	27	Manufacture of basic metals
	28	Manufacture of fabricated metal products, except machinery and equipment
	29	Manufacture of machinery and equipment n.e.c.
	30	Manufacture of office machinery and computers
	31	Manufacture of electrical machinery and apparatus n.e.c.
	32	Manufacture of radio, television and communication equipment and apparatus
	33	Manufacture of medical, precision and optical instruments, watches and clocks
	34	Manufacture of motor vehicles, trailers and semi-trailers
	35	Manufacture of other transport equipment
	36	Manufacture of furniture; manufacturing n.e.c.
	37	Recycling
E	40-41	Electricity, gas and water supply
	40	Electricity, gas, steam and hot water supply
	41	Collection, purification and distribution of water
F	45	Construction
G	50-52	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and
	51	
	52	household goods
H	55	Hotels and restaurants

I	60-64	Transport, storage and communication
	60	Land transport; transport via pipelines
	61	Water transport
	62	Air transport
	63	Supporting and auxiliary transport activities; activities of travel agencies
	64	Post and telecommunications
J	65-67	Financial intermediation
K	70-74	Real estate, renting and business activities
L	75	Public administration and defence; compulsory social security
M	80	Education
N	85	Health and social work
O	90-93	Other community, social and personal service activities
	90	Sewage and refuse disposal, sanitation and similar activities
	91	Activities of membership organization n.e.c.
	92	Recreational, cultural and sporting activities
	93	Other service activities
P	95	Private households with employed persons
Q	99	Extra-territorial organizations and bodies
