INSTITUTO NACIONAL DE ESTADISTICA

Waste Survey over generation of waste in Services and Construction

2011

Methodology

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1 Introduction

The National Statistics Institute (INE) presents in this publication the results of the Waste Survey over generation of waste in Services and Construction, which are published every two years. This survey, which has been carried out recently in Spain, has been designed according to the project's implementing regulations of the Regulation on Waste Statistics no. 2150/2002.

The availability of the regular statistical data, representative and reliable about the waste generation is necessary in order to implement political measures that encourages the reduction of waste in the source. According to this data, together with the data provided by the Surveys on waste generation (industrial sector, agricultural sector...) will allow the disposal of complete information describing the situation and the state of the generated waste, in order to implement the measures encouraging its reduction.

2 Objectives

The main aim of the survey is to quantify the waste generated by the economic activities classified in the sections from F to S within the National Classification of Economic Activities (CNAE-2009 Rev.2), that is to say, what is known as the activities of the services sector and construction.

At the same time, the results of the survey meet other aims. Among them, worth highlighting:

- To fulfil the Regulation no. 2150/2002 of 25th November 2002 relating to the waste survey.

- To fill in the the joint Eurostat/OECD questionnaire on waste The information asked from EUROSTAT to the Member States allows the decision-taking of the Commission in relation to waste.

- To have the data necessary for compiling balances of materials or input-output tables in physical units.

- To include this information with monetary data that will allow to describe and analyse in detail the economic and environmental aspects of the waste.

3 Framework of the survey

3.1 POPULATION SCOPE

The population studied in this survey is a group of economic activity units, whose main activity is defined by any of the groups of the Services or Construction sector's sections (sections F to S) from the National Classification of Economic Activities (CNAE-2009 Rev.2).

The activities related to the financial intermediation (section K), the Public Administration and the Compulsory Social Security are excluded from the population scope of the survey of activities related to financing intermediation.

The main activity is the economic activity unit that provides the greatest added gross value. In case this information is not available, the main activity will be the one creating the greatest turnover or the one employing the greatest number of persons

3.2 GEOGRAPHICAL SCOPE

From the geographical point of view, the population under study is the set of units of the economic activities that develop its main activity within the national territory.

3.3 TIME FRAME

The survey is carried out every two years. The reference period of the requested data this calendar year.

4 Sample design

4.1 POPULATION SCOPE

The Central Companies Directory (DIRCE) is used as a home directory in order to define the studied population.

The DIRCE determines and classifies the statistical units by main economic activity according to the National Classification of Economic Activities (CNAE-2009 Rev.2) and to the number of employees. The use of the CBR as a reference framework in the sample selection enables ascertaining the number of observation units of the population universe, broken down to a four-digit level of CNAE-2009 Rev.2.

The observation unit is the Company. A company is *"the smallest combination of legal units that create an organizational unit of production of goods and services, enjoing a certain autonomy of decision-taking when using this resources".*

4.2 TYPE OF SAMPLE

A stratified sampling method has been used, building levels based on CNAE-2009 Rev.2 divisions and on the number of wage-earning persons, according to the brackets appearing in the following chart.

Size	Employed persons
12	3 - 5
13	6 - 9
14	10 - 19
15	20 - 49
16	50 - 99
17	100 - 199
18	200 - 499
19	500 - 999
20	1000 - 4999
21	5000 and over

4.3 SIZEOF THE SAMPLE

The collection is carried out in depth for the sample sizes of 19, 20 and 21 and for the samples of the remaining sizes.

5 Variables and definitions

For a better comprehension and interpretation of the results presented in the tables, the main variable and characteristics covered are defined below. The waste classification established in virtue of the waste statistical nomenclature (codes EWC-Stat), which corresponds with the European Waste List (EWL) according to the equivalence table of the Regulation 2150/2002, relating to the waste survey. This way of collecting the data allows the comparison between the member countries of the European Union.

DEFINITIONS

The definitions of waste, according to the European Parliament and Council Directive 2008/98 of 19 November 2008, are the following:

Waste: any substance or object that its owner discards or has the intention or obligation to discard

Hazardous waste: any waste showing one or various dangerous characteristics listed in Annex III of Directive 2008/98/EC.

Non-hazardous waste: waste not included in the previous section.

Other definitions:

European Waste List (SWC Codes): This is a waste listing standardised to a European level. This waste is classified using six-digit codes for the waste, and four and two figures for subchapters and chapters, respectively. The chapters and subchapters define the types of activity that generate the waste.

Statistical classification of Waste (SWC Codes): This is a waste nomenclature for statistical purposes, targeting substances, with categories encoded to 1-4 digits - from greater to lesser aggregation level - and with an additional distinction according to whether dealing with non-hazardous or hazardous waste.

Commission Regulation (EU) no. 849/2010, of 27 September, establishes the SWC currently in force, *CER-Stat version 4*, and the equivalence table with the European Waste Catalogue.

The following briefly describes the different types of waste:

Code CER-Stat	Non-hazardous	Hazardous

Code CER-Stat		Non-hazardous	Hazardous
01.1	Solvents used		Chlorofluorocarbons, HCFC, HFC **Solvents, cleaning liquids and organic and halogenated mother liquors** **Sludge or solid waste containing organic and halogenated solvents** **Mixtures of solvents**
01.2	Acidic, alkaline or saline waste	**Lime mud waste** Saline waste that does not contain hazardous substances.	**Acid waste:** hydrochloric, nitric and nitrous, phosphoric and phosphorous, sulphuric and sulphurous, hydrofluoric, etc. Waste etching solutions, pickling acids, bleach solutions and bleach fixer solutions **Alkaline waste:** Ammonia, sodium, calcium hydroxide. Waste from the cleaning of fuel with bases **Saline waste:** Solid salts and solutions containing cyanides, heavy metals, arsenic. Phosphatising sludge **Salt slag from the secondary production of aluminium**
01.3	Spent mineral oils (does not include food preparation)		Engine, gear and lubricating oils **(chlorinated, unchlorinated, synthetic, biodegradable, etc.)** **Hydraulic oils** (containing mineral oil, synthetic oil, etc.) **Oil from oil/water separators** Insulating and heat transmission oils Tank bottom sludge and sludge from desalinisation of petroleum refining Spent waxes and fats
01.4	Chemical waste	Spent catalysts containing precious metals (gold, silver, rhenium, rhodium, platinum, etc.)	**Spent catalysts containing transition metals or dangerous transition metal compounds** **Spent catalysts containing phosphoric acid** **Spent catalysts contaminated with dangerous substances**
02	Chemical waste (except 2.3)	Agrochemical product waste **Unused medicines** Paints, varnishes, inks and adhesive waste not containing dangerous substances Aqueous sludge containing inks, paints, varnishes, adhesives and sealants not considered to be dangerous substances Waste printing toner not containing dangerous substances Gases in pressure containers	Agrochemical product waste containing dangerous substances **Unused medicines** (cytotoxic and cytostatic) **Paints, varnishes, inks and adhesive waste containing dangerous substances** Wood preservatives Waste printing **toner** containing dangerous substances Unused explosives **Gases in pressure containers**
02.3	Mixed chemical waste	Mixed chemical waste **not containing dangerous substances.**	Packaging containing residues of or contaminated by dangerous substances

Code CER-Stat		Non-hazardous	Hazardous
03.1	Chemical waste	**Absorbents, filter materials, wiping cloths and protective clothing contaminated by non-dangerous substances** Green liquor sludge (from recovery of cooking liquor) T**ars and non-hazardous carbonaceous waste, such as asphalt and bitumens**	Absorbents, filter materials, wiping cloths and protective clothing contaminated by dangerous substances **Waste from liquid fuels: gasoline, fuel, oil, gasoil and other fuels (including mixtures)** Oil and water emulsion sludge **(bilge oils and oil/water separator contents)** Chemical reaction waste**(for example: aqueous washing liquids and mother liquors in organic chemical processes, etc.)** **Filter cakes and absorbents used in halogenated organic chemical processes** Tars and hazardous carbonaceous waste**, such as acidic tars, soot, etc.**
03.2	Industrial effluent sludge (equivalent amount in dry material)	Sludge from on-site effluent treatment that **do not contain dangerous substances** Waste from cooling columns and from cooling water treatment Aqueous sludge from boiler cleansing	**Sludge from on-site industrial effluents that contain dangerous substances** Waste from cooling water treatment containing oils Aqueous sludge from boiler cleansing containing dangerous substances Sludge or waste containing hydrocarbons
03.3	Sludge from waste treatment (equivalent amount in dry materials)	**Liquors** and **digestate** from the treatment of **animal and vegetable waste** **Liquors** and **digestate** from the treatment of **municipal waste** Landfill **leachate** not containing dangerous substances	**Landfill leachate containing dangerous substances** **Liquors and digestate from the treatment of municipal waste containing dangerous substances** **Waste from liquid fuels containing dangerous substances, from waste incineration**
05	Medical and biological waste	**Sharps** Human or animal medical waste whose collection and disposal are not subject to special requirements in order to prevent infection	**Waste whose collection and disposal are subject to special requirements in order to prevent infection** **(for example: infectious animal corpses)**
06.1	Ferrous metal waste and scrap (including packaging)	**Ferrous metal waste and scrap (iron and steel)** **Mill scales** **Ferrous metal dust, particles, scales and chips** Ferrous metal **cables** not containing dangerous substances	
06.2	Non-ferrous metal waste and scrap	**Non-ferrous metal waste and scrap (aluminium, copper, bronze, lead, brass, zinc, tin, etc.)** **Ferrous metal dust, particles, scales and chips** **Non-ferrous metal cables** not containing dangerous substances	
06.3	Mixed ferrous and non-ferrous metal waste (including packaging)	**Metallic packaging** **Mixed ferrous and non-ferrous metal waste and scrap** **Mixed ferrous and non-ferrous metal dust, particles, scales and chips**	
07.1	Glass waste (including packaging)	**Glass** **Glass dust and fine particles from the production of glass products** **Glass containers (for example: glass bottles)**	Waste from small particles of glass and glass dust containing heavy metals **(for example: cathode tubes)**
07.2	Paper and cardboard waste (including packaging)	Paper and cardboard waste Paper and cardboard packaging	

Code CER-Stat		Non-hazardous	Hazardous
07.3	Rubber waste	**Used tyres**	
07.4	Plastic waste (including packaging)	Plastic waste Uncontaminated plastic containers	
07.5	Wooden waste (including packaging)	**Sawdust, shavings, cuttings, wood, particle board and veneer not containing dangerous substances** Wooden containers or packaging	Sawdust, shavings, cuttings, wood, particle board and veneer containing dangerous substances
07.6	Textile waste	Worn clothing Textile packaging **Textile fibre waste** Waste from tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium	
07.7	Waste containing PCBs		**Hydraulic oils containing PCBs** **Components, transformers, condensers and other discarded equipment containing PCBs** Construction and demolition waste containing PCBs
08	Discarded equipment (except 08.1 and 08.41)	**Electric and electronic equipment not containing dangerous components** **Brake pads** Non-dangerous **components** removed from discarded equipment	**Oil filters** **Fluorescent tubes** and other mercury-containing waste Large household appliances containing chlorofluorocarbons, HCFC, HFC (for example: washing machines, refrigerators) Discarded electric and electronic equipment containing dangerous components Dangerous components removed from discarded equipment
08.1	Discarded vehicles	**Discarded vehicles** not containing liquids or other dangerous components	**End-of-life vehicles**
08.41	Battery and accumulator waste	**Alcaline batteries without mercury** Batteries and accumulators not containing dangerous substances	**Lead batteries** **Mercury-containing batteries** **Ni-Cd batteries/accumulators**
09.1	Animal waste and waste from mixed food products	**Animal-tissue waste** Materials for the preparation of meat, fish and other foods of animal origin that are not adequate for consumption. Also the sludge from washing and cleaning in these processes **Mixed waste from food preparation and products** (for example: Waste from preservatives, biodegradable kitchen and canteen waste) **Edible** oils and fats and mixtures of fats and oils from oily/water separation	
09.2	Green waste	**Biodegradable green waste** **Plant-tissue waste** **Sludge from washing, cleaning, peeling, centrifuging and separation in preparing fruit, vegetables, grains, cocoa, tobacco, etc., production of preserves and yeast** **Waste from washing, cleaning and mechanical reduction of raw materials in the production of beverages** Materials unsuitable for consumption or processing of all the above activities, and of the bread and pastry bakery industry Waste from alcohol distillation	
09.3	Animal faeces, urine and manure	Animal faeces, urine and manure, effluent, collected separately and treated off-site	

Code CER-Stat		Non-hazardous	Hazardous
10.1	Domestic waste and the like	**Mixed waste similar to that generated in households (not separated into differentiated fractions for selective collection - paper, packaging, organic material-)** **Mixed waste from canteens and markets.**	
10.2	Mixed and undifferentiated materials	**Compound/mixed containers and packaging (for example: those placed in containers for the municipal selective collection of packaging)** **Mechanically separated rejects from the pulping of waste paper and cardboard** **Waste from the sorting of paper and cardboard destined for recycling** Other mixed and undifferentiated materials that do not contain hazardous waste (not including the waste from section 10.3)	Inorganic and organic waste containing hazardous waste **Metal waste contaminated by dangerous substances** **Cables containing oil, coal tar and other dangerous substances**
10.3	Waste from separation	**Reject fraction and combustible waste (not hazardous) generated in the physical-chemical waste treatment** **Reject fraction of municipal, animal or green waste generated in the aerobic treatment of solid waste** **Waste for fuel or other waste (mixtures of materials) from mechanical waste treatment** Light fragmentation fractions (*fluff-light*) and dust	**Reject fraction and combustible waste (hazardous) generated in physical-chemical waste treatment** **Waste for fuel or other waste (mixtures of materials) that contain dangerous substances from mechanical waste treatment** Light fragmentation fractions (*fluff-light*) and dust
11	Common sludge	Biodegradable sludge **from the treatment of wastewater generated** in the preparation and elaboration of animal and vegetable products and beverages. Sludge from the purification of drinking and process water Sludge from the treatment of urban wastewater Waste from sewer cleaning	
12.1	Construction and demolition waste	Waste from concrete, bricks, plasters **generated in construction and demolition activities** Waste from mixed construction Waste from hydrocarbonised road-surfacing material (for example: non-dangerous bituminous mixtures)	Waste from concrete, bricks, plasters **generated in construction and demolition activities containing dangerous substances** Waste from hydrocarbonised road-surfacing material (for example: **dangerous bituminous mixtures, cal tar pitch and tar products)** Glass, plastic, wood or other waste from construction and demolition that contain dangerous substances or are contaminated by them
12.2	Asbestos waste		**Metallic packaging containing a dangerous solid porous matrix (for example asbestos), including empty pressure containers** Waste containing asbestos from electrolysis Brake pads containing asbestos Waste from fiber cement siding manufacture containing asbestos Discarded equipment containing free asbestos **Construction or isolation materials containing asbestos**

Code CER-Stat		Non-hazardous	Hazardous
12.3	Waste from naturally occurring minerals	**Waste from the extraction of metallic and non-metallic ores** **Mineral waste generated in the physical and chemical transformation of metallic ores (for example: Sterile, dust, powdery waste, red sludge from alumina production)** **Mineral waste generated in the physical and chemical transformation of non-metallic ores (for example: Sterile and other waste from the washing and cleaning of minerals; gravel and crushed rocks; sand, clays, dust; waste from stone cutting and sawing)** Drilling sludge and other drilling waste (without hydrocarbons). Soil from cleaning and washing beets. Aqueous sludge containing ceramic materials Waste from the preparation of mixtures prior to thermal processing in glass manufacturing. **(All of them not containing dangerous substances)**	Acid-generating tailings from the processing of sulphide ores **Waste and sterile containing dangerous substances from the physical and chemical transformation of metallic and non-metallic ores.** Drilling muds and other drilling waste containing dangerous substances
12.4	Waste from combustion	Waste from flue gas purification generated in electrical or combustion plants (not including those from waste treatment plants) Sludge and filter cakes from gas treatment Solid waste from gas treatment **Slag, ashes and boiler dust from thermal treatment and combustion** Particles and dust	Solid waste from gas treatment; sludge and filter cakes from gas treatment; flue-gas dust containing dangerous substances **Slag, ashes and boiler dust from thermal treatment and combustion containing dangerous substances**
12.5	Different mineral waste	Artificial mineral waste (for example: Off-specification calcium carbonate in sugar preparation, glass-polishing and -grinding sludge, waste from ceramics, bricks, roof tiles - after the cooking process-) Waste from refractary materials (casting moulds and cores not containing dangerous substances)	Artificial mineral waste containing hazardous waste (for example, glass-polishing and -grinding sludge, sludge from zinc hydrometallurgy, mills and spent grinding materials, etc.) Waste from refractary materials (casting moulds and cores containing dangerous substances)
12.6	Soil	Soil and stones (including excavated) from construction and demolition activities Soil and stones from parks and gardens	Oil spills from oil refining activity **Contaminated soil (soil and stones)**
12.7	Dredging spoils	Unpolluted dredging spoils	Dredging spoils containing dangerous substances
12.8	Waste from waste treatment	Waste from the incineration or pyrolysis of waste (for example: ash, slag and sand from fluidised beds) generated in waste treatment installations Mineral waste (sand and stone) generated from sorting, crushing, compacting or pelletising in waste treatment installations	Hazardous waste from the incineration or pyrolysis of waste (for example: slag) generated in waste treatment installations **Waste from flue-gas cleaning in oil regeneration**
13	Solidified, stabilised or vitrified waste	Non-hazardous vitrified waste Non-hazardous stabilised and solidified waste.	Waste marked as hazardous, partly stabilised Waste marked as hazardous, solidified

6 Data collection

6.1 QUESTIONNAIRE

The same questionnaire is used in all sectors researched, requesting information on certain environmental aspects, with a special focus on waste generation. Those are classified as hazardous and non-hazardous. There is a priority of accounting for those catalogued as hazardous over those that are non-hazardous, when there may be more than one hazardous substance existing in the same waste.

6.2 ORGANISATION OF FIELDWORK

The questionnaire was sent to all companies in the sample.

6.3 COMPUTERISED MANAGEMENT OF THE SAMPLE FILE

A special computer program was used both for monitoring the collection and the updating of the data on the respondent companies. This guarantees the control and organisation of the whole process. This system allows the data from the informant units to be supervised and updated, while simultaneously collecting and filtering the information. This guarantees an efficient control over the process from the beginning of the survey, since systematic errors when completing the questionnaires can be rapidly detected in the initial stages, which facilitates their correction.

7 Information processing

The initial stage of the survey information processing coincides with the fieldwork and is carried out in parallel along the entire duration of the data collection.

The main purpose is to establish appropriate quality levels that enable a correct and adequate recording of the questionnaires, and significantly simplify the subsequent processing of the information. The recording of questionnaires is carried out establishing the control measures required to guarantee an adequate quality level throughout the whole process. By doing so, the process attempts to limit errors that appear in this stage that could affect the quality of the information given by the respondent units.

Once the questionnaires are recorded and the information is available on a magnetic support, the information coverage is analysed in order to detect possible duplicated data or coverage errors. A first assessment of the quality of the variables obtained from the questionnaires is also carried out at the same time. This stage is performed for each economic sector, and its implementation is previous to the creation of the survey file and thus, to the whole treatment of information.

Once the survey file is created, inconsistencies and errors are detected and corrected for every identification variable, followed by several stages of filtering and imputation of content errors. When all filtering phases are completed, analysis tables are obtained in order to detect and eliminate errors or inconsistencies, and to compare the results obtained with other sources of information.

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8 Dissemination of the results

The aim of the results tables in this publication is to offer basic and relevant information on the main results of the survey in order to satisfy the demand for information from the different users.

Results are shown on a national level and by branch of economic activity.

National Classification of Economic Activities 2009 (NCEA-2009)

Cc	Title
F	**Construction**
G	**Wholesale trade retail; Repair motor vehicles motorcycles**
45	Sale, maintenance and repair motor vehicles, motorcycles; sale retail engine
46	Wholesale trade and agents involved in the sale, except motor vehicles motorcycles
47	Retail sale, except trade motor vehicles
I	**Transportation and storage**
49	Transport overland and pipelines
48	Sea transport and transport by domestic navigable routes
51	Air transport
52	Storage activities related to transport
53	Activities postal service
I	**Hotel and restaurant services**
55	Accommodation services
56	Food and beverage services
J	**Information and communication**
58	Publishing
59	Motion picture, video and television programme activities, sound recording and Music publishing
60	Radio and television programming and broadcasting activities
61	Telecommunications
62	Programming, consultancy and other activities related to IT
63	Services information
K	**Activities financial insurance**
L	**Real estate activities**
68	Real estate activities
M	**Activities professional, scientific techniques**
69	Activities accounting
70	Consultancy activities management business
71	Technical architecture and engineering services; technical trials and analyses
72	Research and development
73	Advertising and market studies
74	Other professional, scientific and technical activities
75	**veterinary activities**
N	**Activities administrative services**
77	Activities renting
78	**Activities related to employment**
79	Travel agency, tour operator, reservation services and activities related to them
80	Activities security research

81	Services to buildings and landscape activities
82	Administrative office activities and other business support activities
O	**Public Administration defence**
84	Public Administration defence; social security Compulsory
P	**Education**
85	Education
Q	**Human health and social work activities**
86	Health activities
87	Attendance establishments residential
88	Social services activities without accommodation
R	Arts, recreation and entertainment activities
90	Artistic and showbusiness activities
91	Activities libraries, archive, other activities cultural
92	Activities games
93	Sporting activities
S	Other services
94	Associative activities
95	Repair of computers and personal and household goods
96	Other personal services
T	Private households with employed housekeeping staff; Activities Of households as producers of goods and services for their own use
U	Activities Organisations institutions Extraterritorial