

Waste statistics and waste management in the Republic of Serbia, 2008-2010





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PREFACE

The publication „Waste Statistics and Waste Management in the Republic of Serbia“ contains the review of the most significant data regarding waste management in the Republic of Serbia. Data have been produced by the Statistical Office of the Republic of Serbia and Environmental Protection Agency. The publication resulted from cooperation of these two institutions with experts from the Statistics Sweden, in scope of SIDA project „Development of Environmental Protection Statistics“. The project was realized in compliance with national and international regulations and aims determined in Development Strategy of Official Statistics, 2009-2012, as well as in Waste Management Strategy, 2010-2019.

Moreover, the publication includes explanations of basic items related to waste and main goals from the National Program of Environmental Protection, Waste Management Strategy, Development Strategy of Official Statistics (2009-2012), i.e. Program of Official Statistics (2011-2015) regarding environmental protection.

This publication presents the results of the statistical survey on industrial waste that has been conducted by the Statistical Office of the Republic of Serbia since 2008, in accordance with the Law on Official Statistics and Regulation on Waste Statistics 2150/2002 (EC). It also includes other data on waste (municipal, packaging, medical, etc.) that are collected by the Environmental Protection Agency, in scope of the Ministry for Environment, Mining and Spatial Planning. Data are collected on the basis of the Law on Environmental Protection, Law on Waste Management, Law on Packaging and Packaging Waste and appropriate other acts.

Annexes to the publication present results related to generated and treated waste, list of regulations, features, definitions, abbreviations and references.

Starting from 1999 the Statistical Office of the Republic of Serbia has not at disposal and may not provide available certain data relative to AP Kosovo and Metohia and therefore these data are not included in the coverage for the Republic of Serbia (total).

Data from this publication are designed for wide range of users, both domestic and from abroad and are also published in the „Statistical Yearbook of the Republic of Serbia“, „Eco-bulletin“, on the website of the Statistical Office of the Republic of Serbia (www.stat.gov.rs), in the Report on Environmental Situation in the Republic of Serbia, and on the website of the Environmental Protection Agency (www.sepa.gov.rs).

Belgrade, 2012

Director

Dragan Vukmirović, PhD

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1. INTRODUCTION

The purpose of the publication „Waste statistics and waste management in the Republic of Serbia“ is to encompass all available statistical data and information related to waste management and to present them in one place, thus making them accessible to competent institutions, expert and wide public, as well as to international organizations engaged in this activity. In this manner, all interested parties will be able to obtain more obvious picture on environment situation in the section of waste management (generation, treatment, disposal, waste exports and imports) in the Republic of Serbia.

The Statistical Office of the Republic of Serbia (the Office) and the Environmental Protection Agency (the Agency) are the main producers of the data on generation, treatment and flows of waste in the Republic of Serbia.

High level of cooperation between these two institutions is particularly important due to harmonization of all available data on waste management, with the aim to satisfy the Eurostat and European Environmental Agency requirements and to integrate uniform data into European Environment Information and Observation Network (EIONET).

In scope of the determined aims for environment conditions improvement and national and international obligations to provide reports, the Office and the Agency established mutual cooperation referring to exchange of data, information, experiences, numerous meetings' attendance, workshops and joint participation in SIDA project „Development of Environmental Protection Statistics“ that is conducted with the assistance of Statistics Sweden experts. In 2010, the Office and the Agency signed Cooperation Agreement.

Since the Republic of Serbia is considered to be in the group of countries in which activities regarding waste management have been conducted on really low level, where numerous problems have been recorded, such as failure to obey laws and other rules, lack of infrastructure, very high costs, irrational organization, low level of service quality and insufficient care and engagement of the public to solve the environmental problems, this publication becomes particularly important as it presents all available statistical and other relevant data on waste, including also the regulations that are currently in use.

2. NATIONAL AND INTERNATIONAL AIMS AND STRATEGIES

2.1. National Program of Environmental Protection and Waste Management

Natural resources present the basis of economic growth and development of each country. A part of natural resources has to be displaced from the current economic trends so as to be saved for future generations. This particularly refers to non-renewable natural resources. General approach to natural resources of the Republic of Serbia has to include policy definitions and strategy of their sustainable use, as well as definitions of legal frameworks that are necessary for the efficient conducting of the defined policies. The obligation and responsibility for rational management of natural resources becomes obvious, in the broadest sense, in accordance with the policy and strategy of their sustainable development.

Decision on establishing National program of environmental protection¹ also defines strategic aims of environment protection policy, including the specific aims regarding air, water and land protection and influences of certain sections on environment (industry, energy, agriculture, mining and quarrying, transportation, etc.). Moreover, defined are the priority goals in scope of the section and proposed are the reforms inevitable for realizing the aims. Suggested reforms refer to regulatory, economic instruments, monitoring and financing systems, information systems, institutional issues and infrastructure related requests.

2.1.1. General aims of Environmental Protection Policy

General aims of the policy result from general causes of environmental problems. They are the preconditions for successful realization of specific aims, such as development of sustainable waste management system in order to decrease environment pollution and space degradation. So as to accomplish the aims, provided is the detailed plan of specific aims implementation within the Strategy on waste management, with the defined short - term and long – term goals.

2.1.2. Waste Management Strategy – specific aims

Waste management strategy 2010-2019 is the basic document that provides the conditions for rational and sustainable waste management in the Republic of Serbia. Strategy has to be supported by numerous implementation plans for managing particular waste flows (bio-degradable, packaging, etc.). Establishing economic instruments and financial mechanisms is necessary for providing the system for domestic and foreign investments in long-term sustainable activities. Also, the strategy discovers the needs for institutional strengthening, legislation developing, regulations and rules obeying on all levels, education and public awareness enforcing.

Short-term aims that are to be realized in the period 2010-2014 are based on establishing favorable frameworks for environment protection policy, thus offering significant improvement of environment quality in mid-term period. Goals are focused on legal framework improvement, section strategies development, investments planning and monitoring system improvement. In the section of waste management, the goals are defined as follows:

- Harmonization of national regulations related to waste management with the EU legislation;
- Approval of national plans for certain waste flows (storage of PCB waste – polychlorinated biphenyls, abandoned pesticides waste and pesticides packaging waste according to the solutions in operating plans);
- Development of regional and local waste management plans up to 2014;
- Increase number of population engaged in waste collection system to 75% until 2014;
- Development of waste primary selection system in local self-governments;
- Construction of 12 regional waste management centers up to 2014 (regional landfills, facilities for recyclable waste separation, for biological waste treatment and transfer stations in each of the regions);
- Establishment of the system for hazardous waste management (building of central regional warehouses for hazardous waste and start facilities for physical-chemical treatment of hazardous waste up to 2014);
- Establishment of the system for particular waste flows management (used tyres, batteries and accumulators waste, used oils, discarded vehicles, electrical and electronic equipment waste);
- Establishment of the system for medical and pharmaceutical waste management;
- Establishment of the system for animal waste management and regulations acceptance;
- Support waste use as alternative fuels in cement plants, iron and steel industries and thermo- electrical power plants in accordance with the principle of waste hierarchy; and
- Rebuilding of the existing dumps that present the highest risk for environment (so called “black points”).

¹ „Official Gazette of RS”, No. 12/10

Long-term aims (2015–2019) are the goals envisaged for the period after 2015. They include investment projects of lower priority, from the point of view of decreased pollution (e.g. decreased pollution in watercourses, common sludges management), determining nitrate protection zones, defining standards for bath water and standards for noise estimation and noise management. Other fields are encompassed as well:

- Setting up separate collection and treatment of hazardous waste from households and from industry;
- Construction of 12 regional waste management centers- regional landfills, facilities for recyclable waste separation and transfer stations in each of the regions;
- Providing capacities for burning (incineration) of organic industrial and medical waste;
- Strengthening professional and institutional capacities for hazardous waste management;
- Increase the rate of packaging waste recovery and recycling (glass, paper, cardboard, metal and plastic) to 25 % of total waste quantity;
- Start recycling particular sorts of industrial waste (ion resin, mineral wool, ashes, etc.); and
- Establishing the management system for construction waste and waste containing asbestos.

2.2. Program of Official Statistics

Activities of official statistics are based on five-annual program, according to the Law on Official Statistics, as the legal framework for official statistical data production and dissemination, as well as organization of official statistics system in the Republic of Serbia.

Program² of official statistics for the period 2011-2015 is aimed at harmonizing statistical surveys and indicators with international standards, primarily with EU standards, before the end of the specified period.

In this sense and in compliance with the Law on Official Statistics, this Program is based on the Development Strategy of Official Statistics 2011-2015. Strategy is to provide faster development, continuing with the trend of methodologies, standards and good statistical practices' harmonization so as to broaden the basis for obtaining the most significant statistical indicators, thus increasing comparability of official statistical data of the Republic of Serbia with the statistics of other European countries.

Law on Official Statistics determines legal, institutional and program frames regarding production and dissemination of statistical data and organization of official statistics system obeying important recommendations and requirements of the United Nations and EU. Thus, the law provides the conditions for: gaining the most significant statistical indicators; improving official statistics by harmonizing methodologies, classifications, nomenclatures and statistical practice with international standards; increasing comparability of our official statistics with statistics of other countries and international organizations, promoting the role and importance of official statistics in general public. Moreover, the Law regulates activities necessary for preparing, compiling, processing, storing, searching, presenting, analyzing and disseminating statistical data and information. All the before-mentioned activities are conducted by institutions that are defined as main responsible producers of official statistics.

2.2.1. General aims of Statistics Development

Official statistics is obliged to monitor and measure activity results referring to process of methodologies, classifications, nomenclatures and statistical practice harmonization with international standards and EU practice.

The main mission of official statistics refers to statistical data compiling, processing, analysis and publishing, with obligatory applying methodological and organizational knowledge, statistical standards and modern techniques and technologies. Published statistical data have to be quality, timely, objective and easily accessible and user- friendly.

Strategic aims are defined as:

- Improvement and adjustment of the statistical system in compliance with changes in real surrounding;
- International cooperation development;
- Improvement of official statistics via cooperation with and assistance to other institutions charged for conducting particular parts of the statistical program;
- Strengthening thrust in official statistics; and
- Improvement of field work organization.

Strategic aims specify principal directions of development that are to be achieved in versatile strategic fields, whereof statistical data production presents the most significant field, followed by data and information dissemination, usage of information technology, general organization and employees, financial and material resources, international cooperation and activities on regional and local levels.

² „Official Gazette of RS”, No. 23/11

2.2.2. Specific aims of Statistics Development

The main activities in multi-area statistics that are defined in the Development Strategy of Official Statistics are as listed below:

- Sustainable development statistics is to be improved in the forthcoming period, in cooperation with other responsible producers of official statistics. It involves sustainable development indicators that refer to: economic development, poverty and social exclusion- isolation (social margin); population ageing; population health; air protection; energy production and consumption and waste management; land use; protection of waters; biodiversity, i.e. eco-systems and protected areas; transportation, etc.
- In the area of environment statistics, provided will be the data important for presentation of environment conditions regarding waters, waste and air pollution. Data on sources and quantities of all sorts of waste, springs and quantities of pollutant substances' emissions in water and air, consumption of hazardous chemicals in industry and costs of environment protection.
- In the area of health statistics, provided will be the data on correlation between environment conditions and population health, in general sense (influence of environment on diseases, injuries, health correctness and quality of food, drinking water and so on).
- Furthermore, official statistics will have to enable regional statistics development in accordance with the Nomenclature of Statistical Territorial Units, i.e. providing the indicators on regional level for all mayor fields of statistics, including the environment.

2.2.3. Development Plan for Waste Statistics in the Statistical Office of the Republic of Serbia

Regarding environment statistics, provided are the data on waters, waste, hazardous chemicals and air pollution. Development Strategy of Official Statistics for the period 2009-2012³ plans collecting data on waste generation (hazardous and non-hazardous waste), treatment and disposal, in compliance with the EC Regulation 2150/2002, developing relevant indicators and reporting to Eurostat, UN Statistical Division (UNSD) and other competent institutions on national and international level.

Program of official statistics 2011-2015, besides industrial waste statistics, defines plan for developing waste statistics, meaning introduction of new statistical surveys for compiling data on agriculture and construction waste. Furthermore, it is planned to use the waste database for computing statistical indicators, as target products of statistics and basis for comparisons with other countries' statistics. This additionally includes waste emissions into air according to the Long-Range Transboundary Air-Pollution Convention (CLRTAP⁴) and UN Framework on Climate Change Convention (UNFCCC⁵).

Annual program of official statistics sets more detailed work plan that is to be in accordance with national priorities and international obligations.

In addition, on the grounds of cooperation between the Office and the Agency (Cooperation Agreement) and their mutual participation in SIDA Project, the Program of Official Statistics (2011-2015) and Annual Plan of Official Statistics now also include Work Program of the Agency.

Annual program of official statistics for 2011⁶ encompasses the following activities regarding environment statistics:

³ Official Gazette of RS*, No. 07/09

⁴ Long-Range Transboundary Air-Pollution Convention

⁵ UN Framework on Climate Change Convention

⁶ Official Gazette of RS*, No. 47/11

Statistical Office of the Republic of Serbia is to:

- Conduct statistical survey on industrial waste that is to provide data on waste categories and quantities (hazardous and non-hazardous) that resulted from activities in technological processes, preparation and processing of raw materials and products; waste treatment, storage and disposal.
- Conduct statistical survey on wastewaters released from settlements. The survey covers all types of treatment and wastewater treatment facilities.
- Conduct statistical survey on water usage in industry and release of treated and untreated wastewaters. The survey comprises data on wastewaters generators, types of treatment and places of release.
- Conduct statistical survey on hazardous chemicals, containing data on hazardous chemicals consumption, production, exports and imports.
- Conduct complex statistical survey on consumption of substances that provoke gas emissions with the “greenhouse” effect, according to UNFCCC – data on production, consumption, exports and imports of fuels, chemicals and other raw materials necessary for annually-balanced CO₂ emissions; technical characteristics of the incineration facilities; data on agriculture (livestock fund, biomass, land); forestry (forest fund, areas, damages); construction; treatment and release of wastewaters; data on transport and households; data on waste.

Environmental Protection Agency, as the responsible producer of official statistics⁷, is to:

- Manage waste; data are provided by questionnaires of the Rulebook on daily evidence form and annual report on waste, with the instruction for filling the questionnaire and Rulebook⁸ on methodologies regarding design of national and local register of pollution sources, including methodologies for types, methods and deadlines for data collection.
- Manage packaging and packaging waste; Questionnaires from the Rulebook⁹ on report form on packaging and packaging waste.
- Products that become particular waste flows after usage.
- National inventory of accidentally released durable organic pollutants; according to Regulation on methodology for data collecting for National inventory of accidentally released durable organic pollutants¹⁰.
- Survey on environment conditions – air quality monitoring in urban areas, quality of industrial wastewaters, records of solid waste landfills, records of infectious medical waste treatments.

Statistical Office of the Republic of Serbia publishes the results of the conducted surveys in its publications:

- Statistical Release – ZS60- Industrial waste
- Eco-bulletin
- Statistical Yearbook of the Republic of Serbia

Moreover, on the website of the Office (www.stat.gov.rs), besides the data on waste, available are questionnaires used for conducting the surveys (guidelines included), Methodological instruction with Annual report on industrial waste (waste catalogue included), Table of equivalency between statistical nomenclature of waste and European Waste Catalogue, as well as short methodology for survey conduction.

Environmental Protection Agency publishes its data and referent documents in the Report on environmental situation in the Republic of Serbia, as well as on the website: www.sepa.gov.rs.

Statistical Office of the Republic of Serbia provides reports on waste to Eurostat and UN Statistical Division¹¹, according to Regulation on waste statistics, while Environmental Protection Agency provides reports on special waste flows to European Environmental Agency (EEA¹²) and to other international organizations and agencies. The Office and the Agency, in the period August 2009 – October 2011, prepared five joint reports on environmental protection indicators, for UNECE¹³ work group meetings.

⁷ Law on Official Statistics, „Official Gazette of RS”, No. 104/09, and Program of Official Statistics in the period 2011–2015, „Official Gazette of RS”, No. 23/11.

⁸ „Official Gazette of RS”, No. 91/10

⁹ „Official Gazette of RS”, No. 21/10

¹⁰ „Official Gazette of RS”, No. 76/10

¹¹ UNSD – UN Statistical Division

¹² European Environmental Agency

¹³ UNECE – United Nations Economic Commission for Europe

2.3. Waste Management Policy of the European Union

Establishing waste management policy on the EU level is directed by Waste Management Strategy. The Strategy is based on the hierarchy principle that defines prevention of waste generation as the priority of the utmost importance, followed by recovery and recycling of materials, energy regeneration and final disposal of waste.

Thematic Strategy of the EU¹⁴ on prevention and recycling of waste is aimed at stopping waste generation, as well as enabling waste recovery, before all, for gaining secondary raw materials and energy. On the other hand, it is necessary to provide undisturbed recycling and recovery activities, simultaneously setting high-level standards for environmental protection. As a precondition for achieving the defined goals, it is required to update currently existing regulatory framework, reflected in establishing analysis of products' life cycle into management policy, together with simplifying and explaining EU legislations regarding waste.

In scope of the regulations and plan documents of the EU, decrease of waste generation is becoming more and more emphasized section since it would finally lead to reduced waste problem at its mere source. However, significant differences appear among EU Member countries referring to application of the mentioned principle. Share of waste recycling fluctuates between 10% and 65% and percent of waste disposal to landfills between 10% and 90%. Principle of decreased waste quantities comprises initiatives for clean technologies introduction and organization of wide - spread campaigns so as to raise public awareness, in schools, etc.

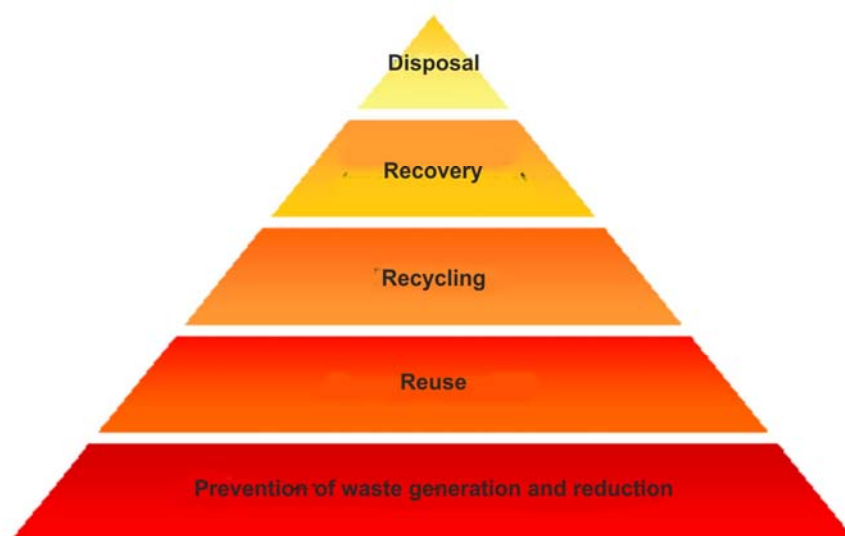
EU Policy on waste underlines development of the following measures:

- Promoting cleaner production;
- Preventing hazardous characteristics of waste by previous treatment;
- Establishing technical standards that are to restrain contents of certain hazardous substances in products;
- Promoting waste recovery and recycling;
- Applying economic instruments;
- Analyzing life cycle of products;
- Developing labeling systems and eco - mark.

Conducting environmental policy is based on the principles of pre-cautiousness and prevention. Namely, each and every activity has to be planned and carried out in such a way to change environment to the least possible extent and to cause the smallest risk to environment and human health, to decrease space burden and raw materials and energy consumption in construction, production, distribution and usage.

Waste management respects the below listed principles:

1. Principle of selection of the most appropriate option for environment
2. Principle of vicinity and regional approach to waste management
3. Principle of waste management hierarchy
4. Principle of responsibility
5. Polluter pays principle (PPP).



Picture 1- Hierarchy principle of waste management

¹⁴ The Thematic Strategy on prevention and recycling of waste (WasteTS) Com (2005/666)

2.3.1. EU Regulation on waste statistics (2150/2002)

In compliance with monitoring achievement of the Strategy goals, supplementary regulations on production of statistical data on waste are simultaneously developed, meaning that the basic Regulation of the European Parliament on waste statistics (2150/2002) obliges all Member countries to provide reports to Eurostat, including the statistical data on waste, following the recommended standards, definitions and classifications enclosed in the Annexes below – Annexes from the Regulation.

The Regulation contains three annexes:

- **Annex I: Waste generation** – in compliance with the divisions of the Classification of Activities in which waste is generated, as well as waste generated by households;

Generated waste is presented by generation sources, classified in 19 groups, meaning that certain related divisions of the Classification of Activities (CA contains divisions 1-99) are grouped as a whole; for example, division 20 (Manufacture of chemicals and chemical products), division 21 (Manufacture of basic pharmaceuticals and pharmaceutical preparations) and division 22 (Manufacture of rubber and plastic products) or division 24 (Manufacture of basic metals) and division 25 (Manufacture of metal products, machinery excluded). More detailed review is provided in table 2.2, Annex 2.

- **Annex II: Waste treatment** – activities of waste recovery (R list) and waste disposal (D list);

In scope of “R list”, defined is the division of types of activities in waste treatment, aiming at recovery, while in “D list”, defined are operations related to waste disposal (Annex 2).

- **Annex III: Table of equivalency**, i.e. connection between (EWC- Stat)¹⁵ substance-oriented statistical nomenclature of waste and European List of Waste (LoW)¹⁶, includes all types of waste generated in the EU.

In compliance with other changes and requirements in the area of environmental protection, the Regulation 2150/2002 is also continuously improved, so that Eurostat receives the reports on 2006 and 2008 data according to the Regulation 574/2004/EC¹⁷ and Regulation 783/2005/EC¹⁸. The mentioned regulations present modifications and amendments to the Regulation 2150/2002, while reports on 2010 will be done according to the latest changes implemented in Regulation 849/2010/EC¹⁹, EWC-Stat, version 4, containing aggregated list of waste with 51 types of waste.

¹⁵ EWC-Stat is the statistical classification of waste that contains aggregated waste list from the European List of Waste and is aimed at easier statistical data presentation (Annex 2).

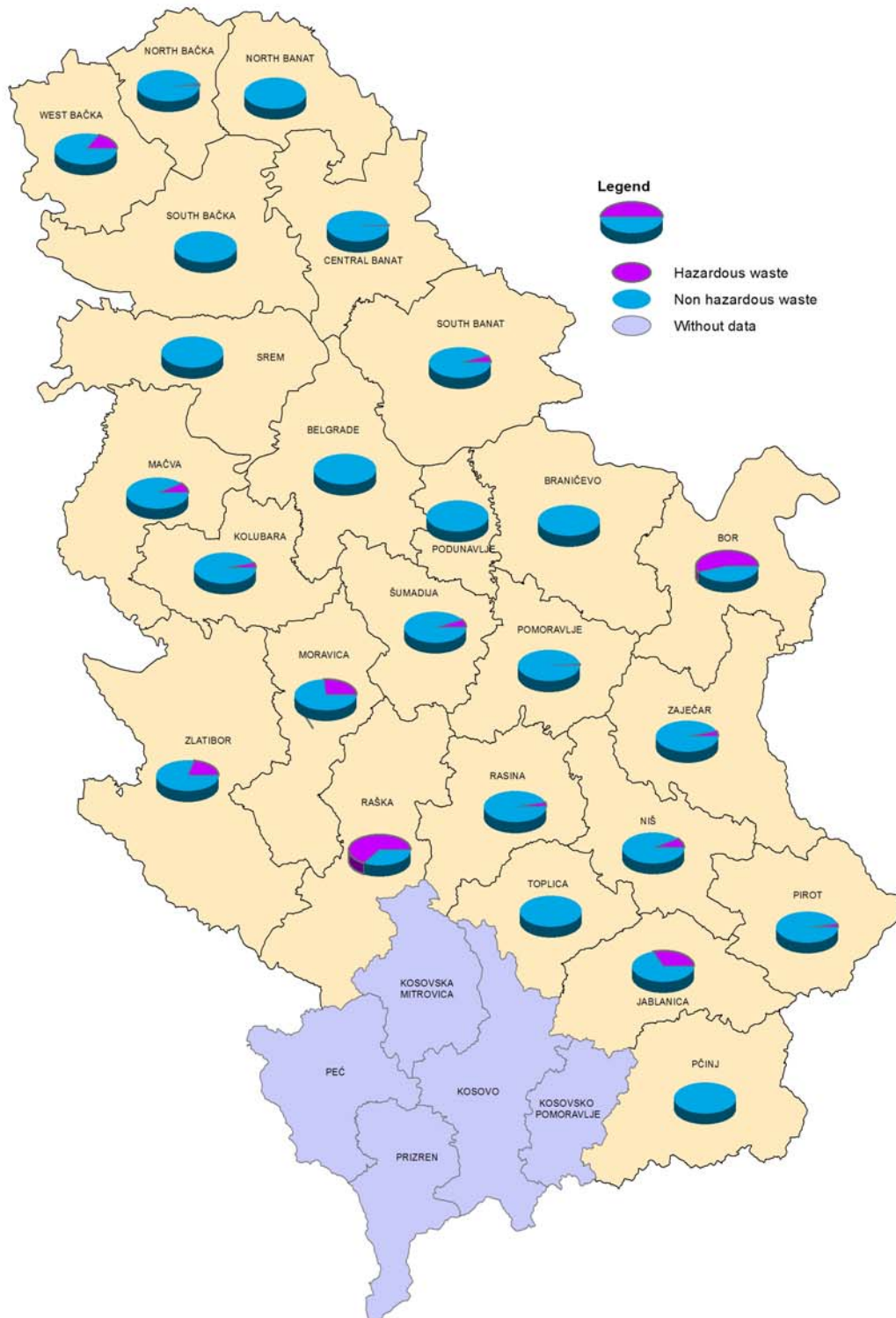
¹⁶ Commission Decision No. 2000/532/EC

¹⁷ Commission Regulation No. 574/2004/EC of 23/02/2004, amending Annexes I and III to Regulation (EC) No. 2150/2002 of the European Parliament and of the Council on waste statistics OJ: L 90, 27/03/2004

¹⁸ Commission Regulation No. 783/2005 of 24/04/2005, amending Annex II to Regulation (EC) No. 2150/2002 of the European Parliament and of the Council on waste statistics (Text with EEA relevance) OJ: L 131,25/04/2005

¹⁹ Commission Regulation No. 849/2010 of 27/09/2010, amending Regulation (EC) No 2150/2002 of the European Parliament and of the Council on waste statistics. (1) OJ: L 253, 28/09/2010

Generated hazardous and non hazardous waste, by areas, 2009



Statistical Office of the Republic of Serbia



3. WASTE GENERATION IN THE REPUBLIC OF SERBIA

Data on generation, disposal and quantities of treated waste in the Republic of Serbia are incomplete. The Office and the Agency have only recently started to collect systematically data on waste, each within its competences.

Waste means any substance or object contained in the Waste Categories List²⁰ which the holder discards, or intends or is required to discard. Any material from manufacturing, service or other activities, items out of use as well as waste materials from consumption which, for producers and consumers are no longer fit for use – are considered waste which must be discarded.

The Law on Waste management defines waste categories: municipal – household, commercial and industrial waste, depending on their properties which affect human health and the environment (hazardous, inert and neo-hazardous).

3.1. Municipal waste

Local selfmanagement units submit to the Agency data on the composition and quantities of municipal waste via public utilities enterprises and other legal entities engaged in municipal service activities, in line with regulations and relevant provisions. Table 3.1.1. below shows the increase in the value of quantities of waste collected and disposed of by public utilities enterprises in 2010, compared to previous years, which is due to better data collection.

Table 3.1.1. Indicators for municipal waste

Indicator	2006	2007	2008	2009	2010
Total quantities of generated waste (mill. t)	1,73	2,07	2,55	2,63	2,65
Quantities of waste collected and disposed of by municipal public utilities enterprises (mill. t)	1,04	1,24	1,52	1,58	1,59
Average coverage of waste collection (%)	~ 60	~ 60	~ 60	~ 60	~ 72 ²¹
Average daily quantities of municipal waste per capita (kg)	0,62	0,77	0,95	0,98	0,99
Average annual quantities per capita (t)	0,23	0,28	0,35	0,36	0,36

As shown by the data, most of local self-management units do not keep records on the composition of municipal waste being collected.

Table 3.1.2. Quantities of municipal waste in selected municipalities

Municipalities	Indicators	2006	2007	2008	2009	2010
Belgrade (12 municipalities)	Total quantities (t)	436 089	535 392	579 716	583 738	599 610
	Collection coverage (%)	100	96	99	92	100
	Quantities of municipal waste per capita – daily (kg)	0,89	1,1	1,16	1,26	1,09
Kragujevac	Total quantities (t)	57 047	77 584	3 853	52 312	51 738
	Collection coverage (%)	69	70	73	73	72
	Quantities of municipal waste per capita – daily (kg)	1,28	1,73	0,08	1,12	1,13
Niš	Total quantities (t)	...	64 253	68 640	63 937	68 000
	Collection coverage (%)	...	43	87	89	92
	Quantities of municipal waste per capita – daily (kg)	...	1,62	0,85	0,77	0,79
Užice	Total quantities (t)	20 000	...	22 300	28 424	29 277
	Collection coverage (%)	72	...	75	69	71
	Quantities of municipal waste per capita – daily (kg)	0,91	...	1,02	1,4	1,43
Novi Sad wih Sremski Karlovc	Total quantities (t)	116 000	100 677	106 050	108 597	109 434
	Collection coverage (%)	100	100	100	100	100
	Quantities of municipal waste per capita – daily (kg)	0,93	0,76	0,80	0,79	0,83

²⁰ Article 5 of the Law on Waste Management („Official Gazette of the RS“, No. 36/09, 88/10)

²¹ According to data from the action „Let's clean Serbia“

To complete the database on the quantities and composition of municipal waste, one has launched the project called „Defining the Composition of Waste and Estimation of Quantities in view of Defining the Strategy of Managing Secondary Raw Materials in the scope of the Sustainable Development of the Republic of Serbia“²², which covers ten representative municipalities on the territory of the Republic of Serbia where the analysis of waste has been carried out. The analysis took place in spring, summer and winter time because some fractions were dependent on the season.

The methodology used to estimate the quantities and composition of generated municipal waste has resulted from analysed experiences of EU member countries and has been recommended as the official method called S.W.A.-Tool (*Development of a Methodological Tool to enhance the Precision & Comparability of Solid Waste Analysis Data*). It has been developed to enhance the precision and comparability of data on municipal waste on European level.

There were two phases in the project:

- Estimation of generated quantities of municipal waste in selected municipalities of the Republic of Serbia;
- Sampling and analysis of the morphological waste composition from the same municipalities according to the Waste Catalogue.

The project has preceded the adoption of the guidelines on the methodology of data collection on municipal waste composition and quantities on the territory of local self-management units, which, since 2012, have been serving the purpose of reporting the quantities and morphological composition of waste. The methodology used during the project is expected to render the reporting more complete and much better.

The results on quantities of generated waste for selected municipalities stemming from the project are shown in table 3.1.3, and daily quantities of waste per capita in graph 3.

Table 3.1.3. Generated quantities of municipal waste

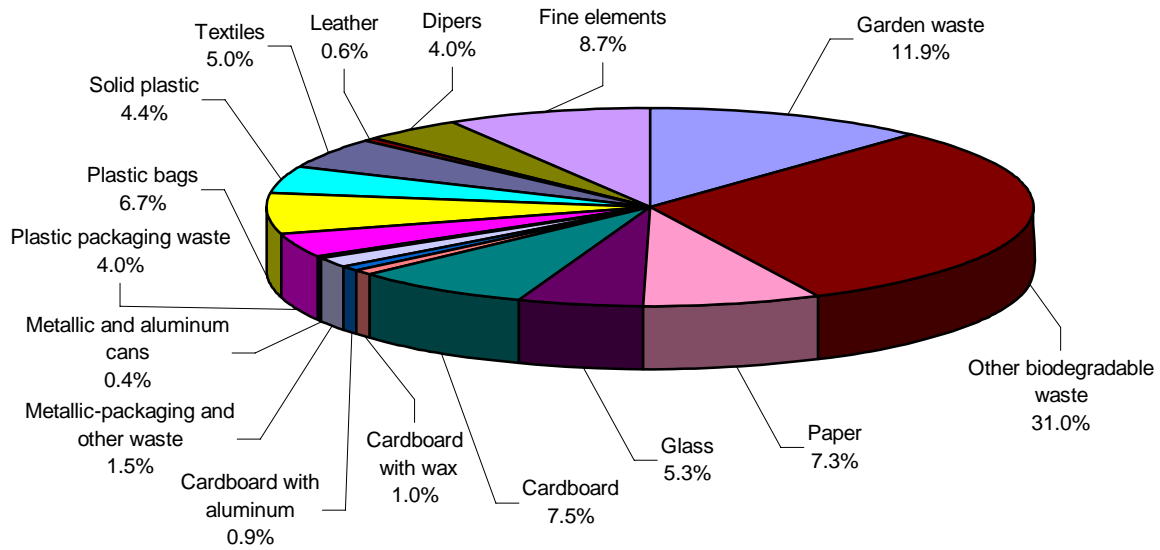
Municipality	Number of population	Amount of generated waste ²³	Amount of waste per capita, daily	Amount of waste per capita, annually
		(t/week)	(kg/per capita./day)	(kg/per capita./year)
Indjija	49 258	363	1,05	383
Sombor	56 734	269	0,67	246
Novi Kneževac	9 648	40	0,59	214
Šabac	123 155	463	0,59	209
Topola	25 292	51	0,29	105
Kragujevac	185 000	897	0,70	252
Bor	55 817	125	0,32	116
Niš	239 596	1 230	0,73	266
Novi Sad	314 192	2 560	1,16	424
Belgrade	1 392 691	10 382	1,08	394

Additional municipalities displaying characteristics similar to those of municipalities being subject to the measurement of generated waste quantities have been included during the project. Afterwards, the number of population for each municipality has been observed, providing thus data on the quantities of waste generated by each of them. By adding up the data one has come to 2.222.427 tons of waste in the Republic of Serbia in summer, 1.857.589 tons in winter and 2.086.212 tons in spring.

Also, a projection of the morphological composition of waste on the level of the whole Republic was made. The share of the total number of population in the municipality where the measurement took place as well as in the additional ones was multiplied with the percentage values of each waste categories. The percentage of all waste categories for the Republic of Serbia was obtained by adding up the results.

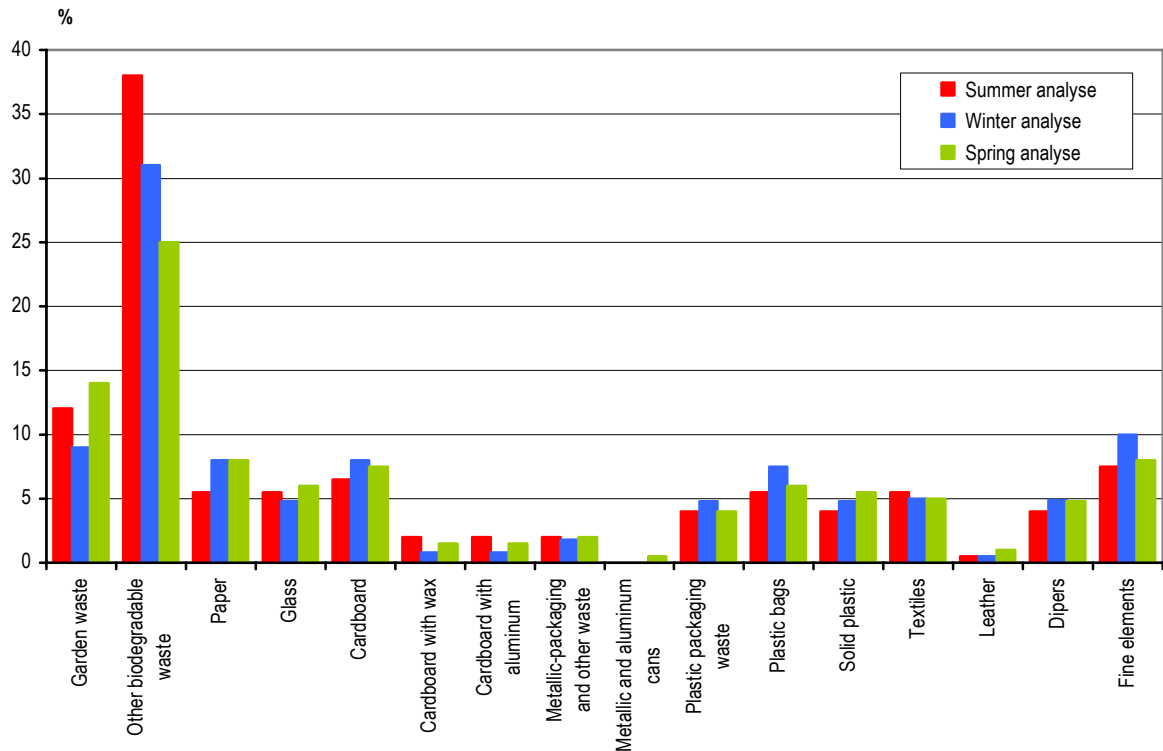
²² The project has been carried out by the Faculty of Technical Sciences from Novi Sad, Division of Environmental Protection Engineering.

²³ Based on the project

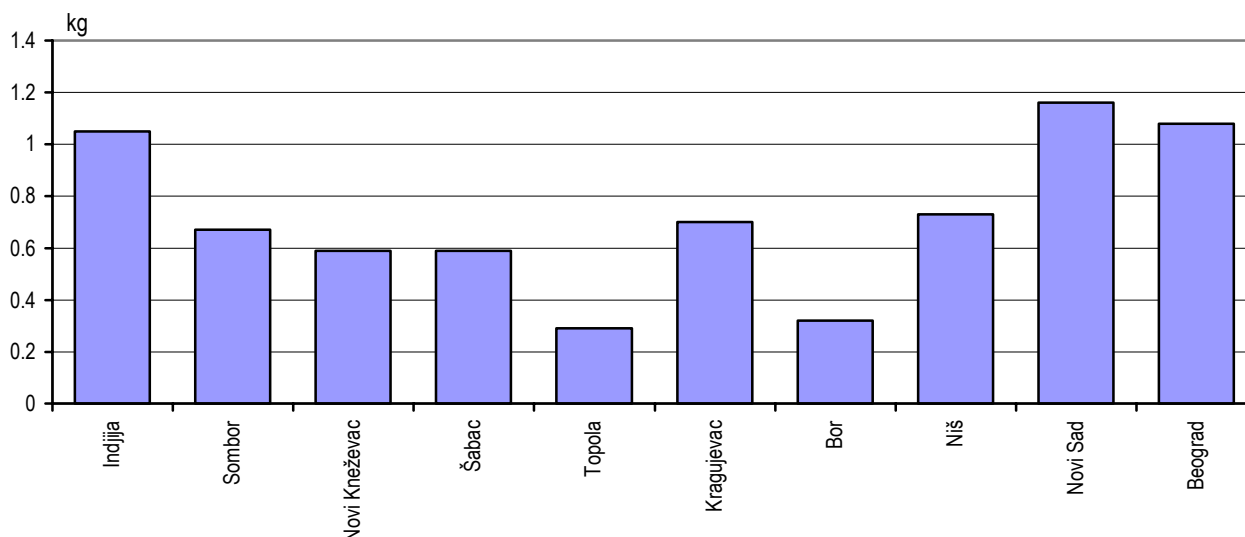


Graph 1. Morphological composition of municipal waste in the Republic of Serbia

Graph 2 shows both the morphological composition of waste in summer, winter and spring, which is based on the results obtained in the project. Namely, one can conclude from multiple measurements of the situation on the field and from long experience that the morphological composition of waste is dependent on the period of the year.



Graph 2: Comparative presentation of the morphological composition of waste in summer, winter and spring in the Republic of Serbia



Graph 3: Generated quantities of municipal waste per capita - daily

3.2. Waste generation according to the Regulation on Waste Statistics (2150/2002/EC) – industrial waste

Pursuant to the Law on Official Statistics, Strategy for the Development of Official Statistics and Programme of Official Statistics for the period 2011–2015, the Statistical Office of the Republic of Serbia conducts the survey on industrial waste in line with the Regulation on Waste Statistics (2150/2002[EC]) and the relevant Waste Catalogue²⁴, which is harmonised with the European Waste Catalogue²⁵;

The survey on industrial waste aims, inter alia, to collect data on waste categories and quantities that are generated by industrial business entities.

The reporting units in this survey are business units registered according to the Classification of Activities in the following sections: Mining and quarrying, Manufacturing, Electricity, gas, steam and air conditioning supply, and in the the divisions: Water collection, treatment and supply and remediation activities and other waste management activities, as well as in local units from other sections engaged in industrial activities. The coverage of the survey of industrial waste is complete as for business units with 10 employees and more that carry out their activity on the entire territory of the Republic of Serbia. In 2011 a pilot survey was conducted in divisions: Water collection, treatment and supply and Sewerage.

Reporting method was used to collect the data, i.e. the reporting unit was requested to fill in the questionnaire OT-Ind. The Office collects the data on waste according to the Waste Catalogue (European Waste List), which are further aggregated according to the statistical Waste Classification (EWC–Stat). The reporting units forward the annual questionnaire on industrial waste for the previous year to the relevant regional office within the deadline defined in the annual plan. Following visual control and checking of identification data, each regional office transmits all the questionnaires to the Group of Environmental Statistics, which performs detailed data quality control, data entry, logical control (editing), output tables processing and data dissemination.

The results of the survey on industrial waste are presented in table 3.2, while tables containing detailed data are provided in Annex 1.

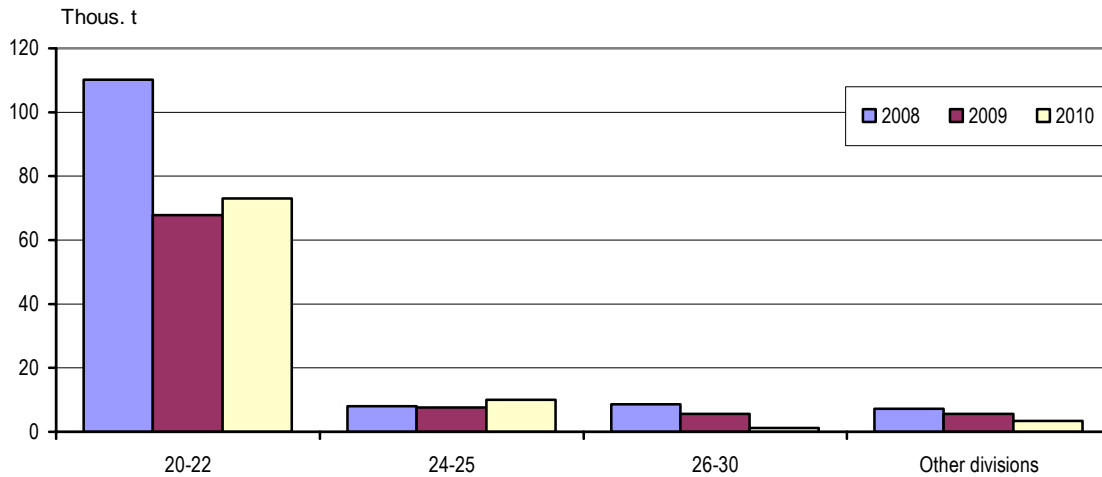
²⁴ Rulebook on Waste Categories, Testing and Classification („Official Gazette of the RS“, No 56/10)

²⁵ European List of Waste (LoW) – Decision of the European Commission 2000/532/EC

Table 3.2. Generated waste in the Republic of Serbia, 2008–2010

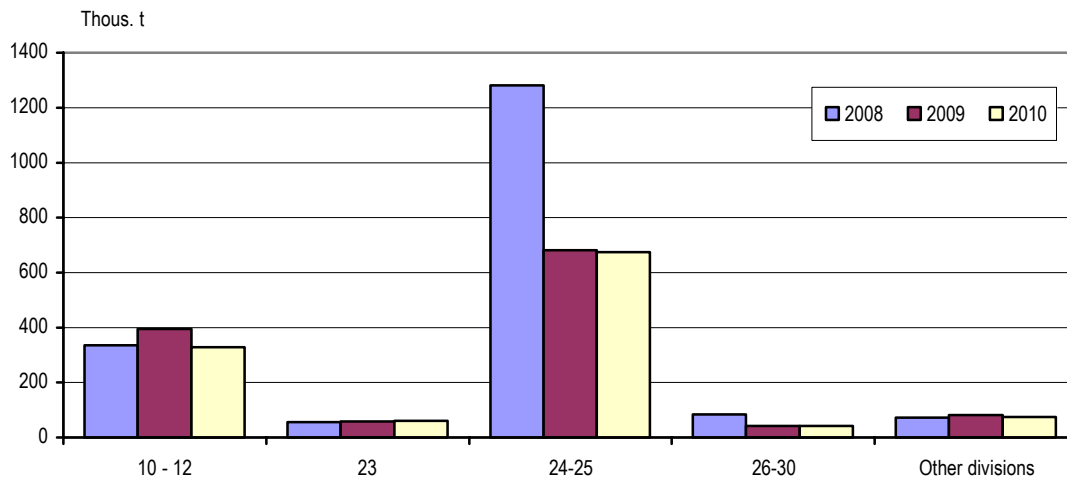
Waste from business units (CA 05–35) ²⁶	2008	2009	2010
Total	22 671 119	28 662 030	33 721 344
Hazardous waste	8 331 354	10 031 220	11 149 603
Non-hazardous waste	14 339 766	18 630 811	22 571 742

Based on the data in graph 4, i.e. table 1, Waste generated from different sections (Annex 1), it is obvious that waste is mostly generated in the divisions: Manufacture of chemicals and chemical products, Manufacture of basic pharmaceutical products, preparations and Manufacture of chemicals and chemical products, Manufacture of basic pharmaceutical products and preparations, and Manufacture of rubber and plastic products.



Graph 4. Waste generation in manufacturing

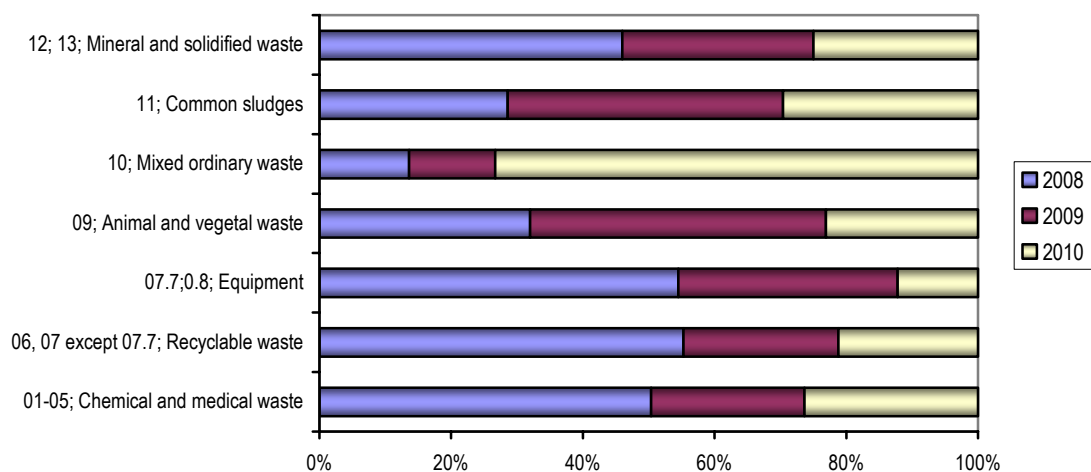
The largest amount of non-hazardous waste in manufacturing (graph 5) was generated in the divisions Manufacture of basic metals and Manufacture of fabricated metal products, except machinery and equipment.



Graph 5. Non-hazardous waste generation in manufacturing

²⁶ Mining and quarrying, Manufacturing and Electricity, gas, steam and air conditioning supply

Graph 6 presents the structure of waste generated in CA (10–33) by groups of EWC–Stat. The data from 2008 and 2009 are aggregated according to EWC–Stat Ver. 3, and for 2010 according to EWC–Stat Ver. 4



Graph 6. Structure of waste generated in manufacturing

3.3. Waste generation according to the Protocol²⁷

Business entities subject to reporting according to the Rulebook harmonised with the Protocol E-PRTR²⁸ reports to the Agency by means of forms, which is part of the Rulebook. The Rulebook defines the enterprises that are liable to submit data to the Serbian Environmental Protection Agency, by minimal limit values and average number of employees in relevant activities (these parameters differ from the need to report according to the national and local registers of pollution sources).

All the data are forwarded by means of prescribed questionnaires, being part of this Rulebook, in hard copies and electronically to the Agency (for the National Register) or to the local self-management unit (for the Local Register), not later than March, 31 of the current year for the previous year.

Other enterprises report to the Agency the waste they generated in carrying out their activity, i.e. which they overtake for the purpose of treatment, disposal or transboundary transfer, by means of relevant forms (GIO1–GIO5), which are part of the Rulebook on the Form for Daily Recording and Annual Reporting on Waste²⁹.

Data on waste generated by business entities according to the Protocol PRTR are presented in table 3.3.

Table 3.3. Waste generation according to the Protocol PRTR

	2008	2009	2010
Total	3 874 930	1 734 230	7 327 714
Hazardous waste	2 084 400	586 341	123 157
Non-hazardous waste	1 790 530	1 168 889	7 204 556

t

²⁷ The European Pollutant Release and Transfer Register (E-PRTR)

²⁸ The European Pollutant Release and Transfer Register (E-PRTR)

²⁹ „Official Gazette of the RS”, No 95/10

3.4. Packaging waste

The management of packaging and packaging waste as well as the reporting are regulated by the Law on Packaging and Packaging Waste³⁰. Legal entities that manufacture packagings or generate waste are liable to follow the provisions of the Law and other related by-laws and to send every year a report to the Serbian Environmental Protection Agency (these are: manufacturer, importer, packing company and supplier of packaging, i.e. the operator entrusted with packaging waste management). An estimated 5.500 to 6.000 legal entities (manufacturers and importers) are operating in the Republic of Serbia. In 2010 permits for packaging waste management were issued to three operators and to one for the management of own packaging waste.

In October 2009, the Regulation on Establishing the Plan for Packaging Waste Reduction for the period 2010 – 2014³¹ was adopted, laying down objectives referring to: collection of packaging and packaging waste, recovery and recycling of packaging waste. Reporting need therefore to be done as prescribed, by using related forms in order to collect the requested data, which are necessary to the fulfillment of those objectives.

According to the report of the Agency on the management of packaging and waste packaging, made by means of the prescribed forms being part of the Rulebook on forms of reports on the management of packaging and packaging waste in 2010³², as well as on the data sent up to May, 10 2010, a total of 327.937 t. of packaging were placed on the market of the Republic of Serbia. A roughly estimated 100.000 t. of packaging were placed on the market in 2010, without being reported to the Agency. There were 84.967 t. of packaging waste taken over and 84.087 t. of recovered packaging waste. Based on the Plan for Packaging Waste Reduction, the national objective was set to 5%, which, according to the data, reached 19.6% in 2010.

In order to fulfill national objectives in 2011, a series of activities, which need to be launched or enhanced, have been proposed. The most important ones are raising public awareness and the capacities of legal entities, greater involvement of public utilities companies in local self-management units in implementing the system of packaging and packaging waste management, as well as intensified supervision over companies.

Table 3.4. Packaging waste

	t
	2010
Total quantities of packaging placed on the market	327 937
Quantities of packaging waste taken over	84 967
Quantities of packaging waste recovery	84 087

3.5. Specific waste streams

Chapter 7 „Specific Waste Stream Management“ of the Law on Waste Management lays down the management methods for specific waste streams and the obligation for all holders of those waste categories to report to the Serbian Environmental Protection Agency. Pursuant to the Regulation³³ on products which, after use, become specific waste streams, data on the mentioned products placed on the market of the Republic of Serbia are collected and processed, these being: tyres, batteries and accumulators, oils, electrical and electronic equipment, products containing asbestos.

Table 3.5. presents the results and estimates of waste “placed” on the market, which were obtained after the processing of data on overtaken and treated quantities of waste generated upon the use of the mentioned products for 2010, which were sent to the Agency.

Table 3.5. Quantities of overtaken and treated categories of specific waste streams in 2010

	t		
Specific waste streams	Placed ³⁴ on the market	Overtaken	Treated
Used tyres	104 232	19 194	22 424
Waste containing asbestos	2 076	0	0
Used batteries and accumulators	-	25 832	25 385
Used oils	71 142	423	405
Waste from electrical and electronic equipment	58 943	2 938	2 903

³⁰ Official Gazette of the RS, No 36/09

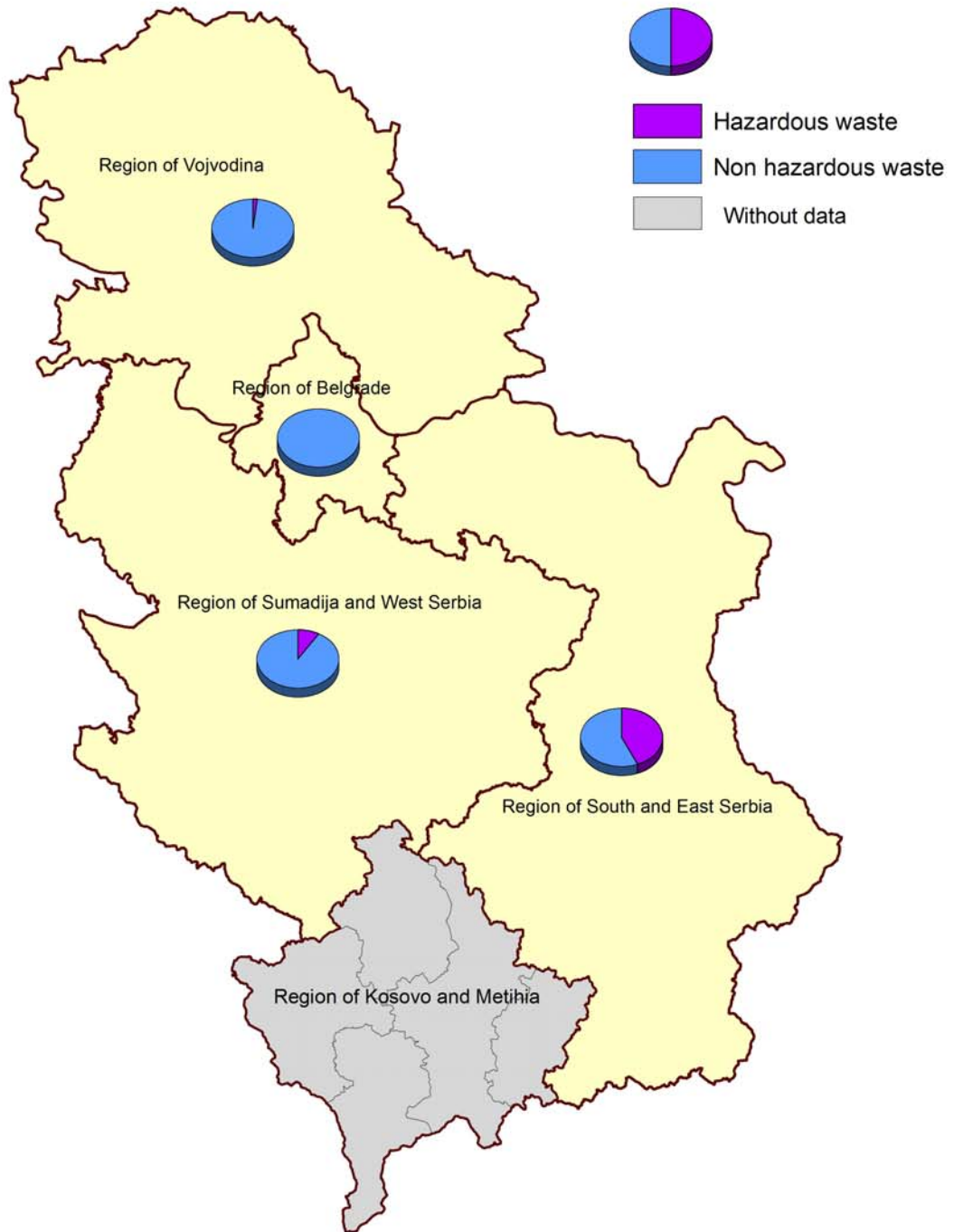
³¹ Official Gazette of the RS, No 88/09

³² Official Gazette of the RS, No 21/10

³³ Official Gazette of the RS, Nos. 89/09, 8/10, 21/10 and 54/10

³⁴ Estimate: the total quantities of products placed on the market of the Republic of Serbia are based on the data of the Customs Administration and Production Agency

Generated hazardous and non hazardous waste, by Regions, in 2009, t



Statistical Office of the Republic of Serbia



4. WASTE TREATMENT IN THE REPUBLIC OF SERBIA

Numerous analysis showed that inadequate waste treatment is one of the greatest ecological problem in the Republic of Serbia. Municipal waste is mainly deposited to wild landfills that resulted from ill-doing of the population, which households were not covered by organised waste collection. It is estimated that more than two million ton of waste are collected annually, including household waste, commercial waste and non-hazardous industrial waste, as well as health care waste, slaughter and construction waste. The accumulation of large amount of hazardous industrial, health care waste, used oils, mixed organic and mixed organic liquid emulsions and other hazardous waste, poses a particular problem. There are no facilities for the treatment and disposal of hazardous waste or adequate storage space. Hazardous waste is temporarily stored mainly under inappropriate conditions on the generation site, but is also often disposed of to municipal and wild landfills without any control.

Even if current provisions point out the need to recycle secondary materials, the amount of household waste sorting, separate collection, treatment and recovery of recycled waste on the domestic market is still unsatisfactory. There is an obvious disproportion between the essence and necessity of recycling and its actual implementation in business practice.

With the adoption of the National Strategy on Waste Management along with the Programme of Accession to EU, the government has set up the foundations which provide conditions for rational and sustainable waste management in the Republic of Serbia. The adoption of the Law on Waste management establishes integral waste management, starting from the source via the collection, transport, storage, treatment ending with final disposal. This law is the framework for the establishment of modern principles, waste categories and classification, management planning, competences in management, management organisation, specific waste streams management, permits for hazardous waste management, transboundary waste movement, databasis and the financing of waste management.

4.1. Waste treatment

Waste is an enormous loss of resources in the form of energy, and inadequate waste management and disposal may impact seriously on the environment. Landfills cover for example large areas and may pollute the air, water and land, while uncontrolled waste incineration may lead to hazardous emission of pollutants into the air.

According to EU policy on Waste Management, the objective is to reduce the hazardous waste impact on the environment and human health, i.e. to reduce and prevent waste generation, to reach a larger scale of recycling and ensure safe waste disposal.

Waste treatment³⁵ covers physical, thermal, chemical and biological processes, including waste sorting, which alter its characteristics in order to reduce the volume or hazardous features, facilitate waste handling or encourage recycling. It also includes waste recovery and recycling.

Waste recovery is any process in which waste is re-used by altering other materials that should fulfill the function.

Recycling is "any process of re-use in which waste are transformed into products, materials or substances for original use or other purposes".

Waste disposal is any process or method used whenever there is no possibility of regeneration, recycling, treatment, direct re-use or use of alternative energy sources.

4.2. Waste treatment according to the Regulation of Waste Statistics (2150/2002/EC) – industrial waste

The Framework Directive on Waste³⁶, Waste Shipment Regulation³⁷ and Regulation on Waste Statistics³⁸ require that corresponding codes³⁹ for recovery (R) and disposal (D) should be written next to the related process. Based on such distinction of treatments with codes (R) and (D) (annex 2), data are processed on the European level according to the mentioned regulations.

The classification by processes (R) and (D) is used to monitor the process of recovery/disposal of waste into the land, during transboundary waste movement, in procedure of issuing permits for waste treatment operations and other purposes.

The Statistical Office of the Republic of Serbia collects data on treated waste⁴⁰ according to annex II of the Regulation on Waste Statistics and definitions of the Framework Directive on Waste⁴¹, in which **waste treatment** is used as the term that covers waste recovery and disposal operations, including preliminary operations.

Industrial waste management (disposal, incineration and recovery) from business entities registered in divisions of activities 05–35 of the Classification of Activities is presented in table 4.2 and on graph 7 (based on table 8 in annex 1).

³⁵ Definition from the Law on Waste Management

³⁶ Waste Framework Directive (Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste and repealing Directives (OJ L 312, 22.11.2008. p.3)

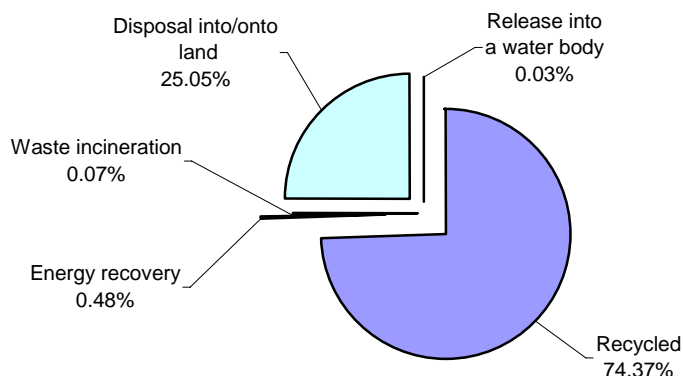
³⁷ Waste Shipment Regulation – Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste (OJ L 190, 12.7.2006. p.1- 98)

³⁸ Waste Statistics Regulation (EC) No 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics (OJ L 332, 9.12.2002. p.1)

³⁹ Annex 2

⁴⁰ Annual statistical survey on industrial waste

⁴¹ Waste Framework Directive, 2008/98/EC



Graph 7. Hazardous waste treatment in manufacturing, CA (10-33), 2009

 Table 4.2. Treated waste⁴² according to the Regulation on Waste Statistics (2150/2002-[EC])

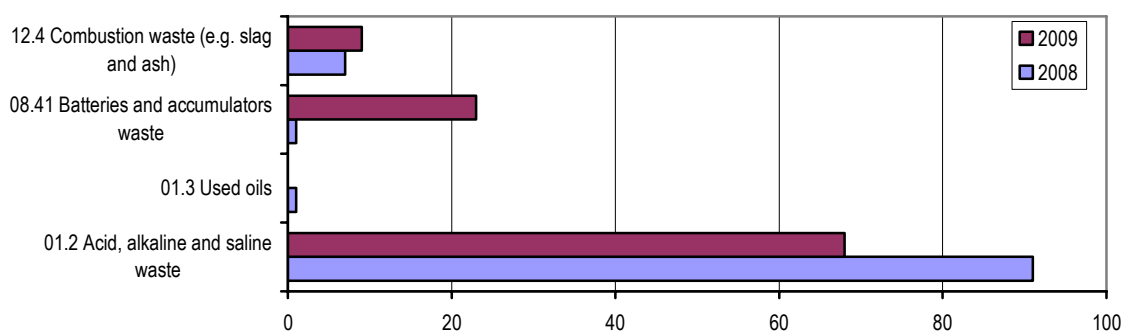
Treated waste from business entities (CA 05-35) ⁴³	Total	Hazardous waste	Non-hazardous waste
		2008	
Total	21 476 445	8 324 057	13 152 387
Disposed of	20 908 098	8 255 182	12 652 917
Incinerated	34 416	2 479	31 937
Recovered	533 931	66 397	467 534
		2009	
Total	27 843 823	10 023 226	17 820 596
Disposed of	27 303 332	9 963 591	17 339 742
Incinerated	18 164	436	17 729
Recovered	522 326	59 200	463 126
		2010	
Total	32 964 973	11 140 891	21 824 082
Disposed of	32 495 620	11 082 029	21 413 591
Incinerated	27 005	1 187	25 818
Recovered	442 347	57 675	384 673

Data in **Annex 1** are more detailed as to waste treatment according to the Regulation of Waste Statistics (2150/2002[EC]). They are presented by types of treatment of hazardous and non-hazardous waste, by activities in which treatment is carried out, by waste quantities disposed of internally, incinerated (with energy generation or without), recycled or released into water body, with adequate codes for recovery or disposal.

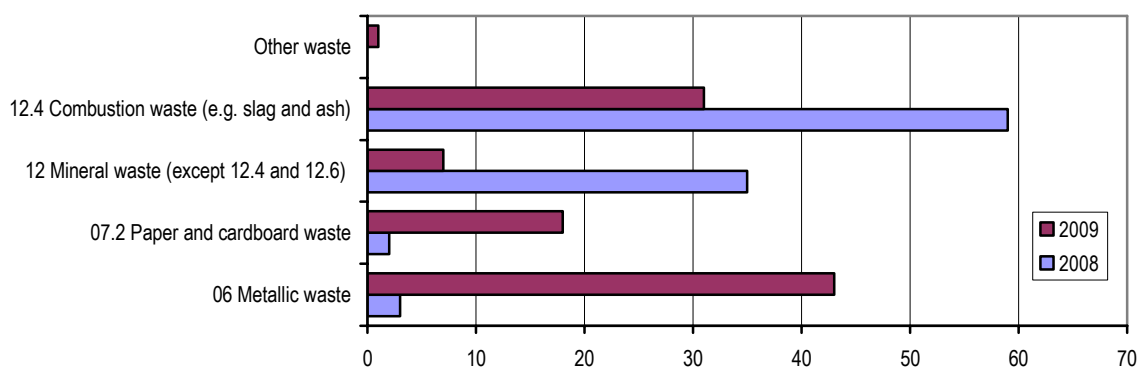
Graph 8 shows the structure of hazardous waste recovery, and graph 9 non-hazardous waste recovery in sections: Mining and quarrying; Manufacturing; Electricity, gas, steam and air conditioning supply. Data from table 3, Waste Treatment – Waste Recovery Operations (Annex 1) have been used to produce graphs.

⁴² The survey covers all business entities with 10 employees or more in the sections: Mining and quarrying; Manufacturing; Electricity, gas, steam and air conditioning supply.

⁴³ Waste not being treated in divisions of manufacturing (CA 05-35) has been transferred for further treatment, disposed of to municipal landfill or kept in a temporary storage.



Graph 8. Structure of recovered hazardous waste, in %



Graph 9. Structure of recovered non-hazardous waste, in %

4.3. Waste treatment according to the Protocol E-PRTR⁴⁴

Table 4.3. shows the results that the Serbian Environmental Protection Agency has obtained based on the data it has collected from business entities liable to send a report according to the Rulebook, the latter being harmonised with the Protocol E-PRTR.

Table 4.3. Waste treatment according to the Protocol E-PRTR, 2008–2010

	Total	Hazardous	Non-hazardous
		2008	
Total	19 203 168	17 631 248	1 571 920
Disposed of	18 246 658	17 627 348	619 310
Incinerated	...	...	...
Recovered	956 510	3 900	952 610
		2009	
Total	1 335 650	27 510	1 308 140
Disposed of	147 820	...	147 820
Incinerated	...	...	...
Recovered	1 163 070	27 510	1 160 320
		2010	
Total	1 084 819	...	103 740
Disposed of	103 740	...	103 740
Incinerated	...	...	...
Recovered	981 079	...	...

⁴⁴ The European Pollutant Release and Transfer Register (E-PRTR)

4.4. Medical waste treatment

The method and procedure of management of hazardous waste from facilities where health care is carried out are regulated by the Rulebook on Medical Waste Management⁴⁵. This category of waste requires specific handling and covers: infectious and highly infectious waste, pathological and anatomical waste, sharps, pharmaceutical, cytotoxic waste, blood infected waste and body fluids, chemical waste, waste with high content of heavy metals, waste bottles under pressure and radioactive medical waste.

In 2009, the Serbian Environmental Protection Agency received reports from 141 health institutions (health centres, clinical centres, hospitals, institutes, veterinary stations, etc.) based on which 6.754 ton and 7.567 litres of medical waste were generated as well as 409 bottles under pressures.

Table 4.4. Data on medical waste treatment, 2009

	Total	Hazardous	Non hazardous
Medical waste	699	...	699
Disposed of	...	...	...
Incinerated	...	...	...
Recovered	699	...	699

Based on the data on quantities of waste from human and animal health care, which were provided in **2010** by 178 health institutions, in 2010 there were 2.402 ton of waste. Most waste were waste whose collection and disposal were subject to special requirements in order to prevent infection (2.104 ton), then used dressings and sharps.

In the same period 1.909 ton of municipal waste were generated by those institutions.

Thirty five health institutions that possess facilities for medical waste treatment provided data on quantities of medical waste overtaken for treatment purposes (952 tons) and on quantities treated in 2010 (700 ton).

4.5. Municipal waste treatment

The Serbian Environmental Protection Agency collects data on municipal waste. Those are shown in table 4.5. and are indicative of a slight increase in the value of quantities of waste collected and disposed of by the Public Utilities Enterprise in 2010, compared to the previous year, which is due to better data collection. However, complete data on waste treatment are not available.

Table 4.5. Data on municipal waste treatment, 2008–2010

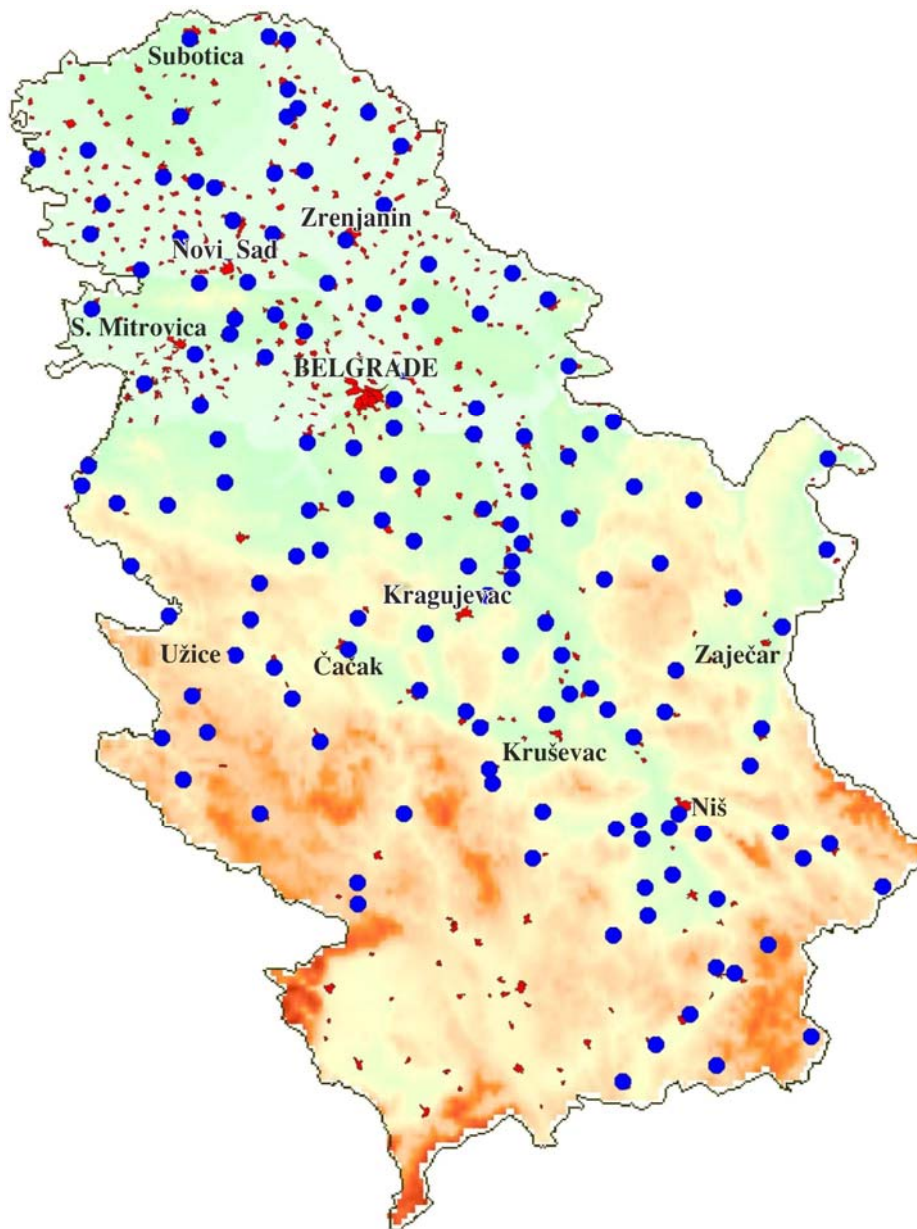
Municipal waste	2008	2009	2010
Total	1 520 000	1 580 000	1 590 000
Landfilled	1 520 000	1 580 000	1 590 000
Incinerated	...	...	...
Recovered	...	...	...

4.6. Landfilling

On the territory of the Republic of Serbia, waste disposal on local landfills is practically the only method. Local landfills, with just a few exceptions, do not meet basic hygiene, technical and technological conditions. Most of them are not located on proper sites and even more some are practically full.

On the territory of the Republic of Serbia, in the scope of the project Innovation of the Cadastre of Landfills in the Republic of Serbia, 164 landfills, used by municipal public utilities enterprises, were detected (picture 1).

⁴⁵Official Gazette of the RS^{*}, No 78/10

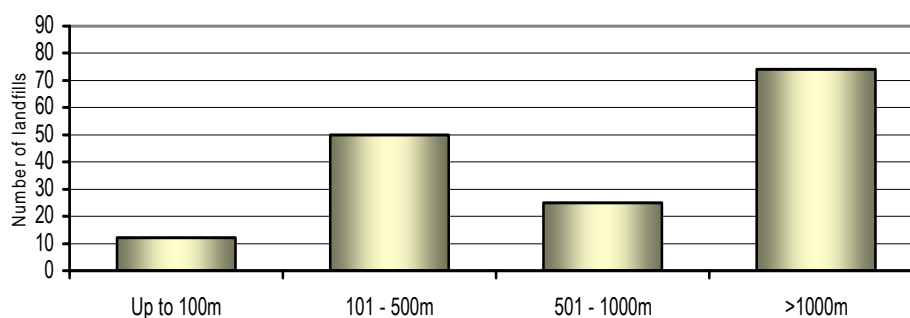


Landfills in the Republic of Serbia

The age of certain landfills is not the same. Five of them (Bačka Palanka – Obrovac, Bela Palanka, Malo Crniće, Pančevo and Tutin) started operating in 2005 while for example the landfill in Silbaš, municipality of Bačka Palanka, has been operating since 1956.

Data on landfills size and capacity are not the most reliable ones because the values are mostly estimated or because there is no technical documentation. The largest landfills are located in Belgrade, Niš and Novi Sad.

Various types of vehicles are used to collect waste, starting from the Rotopress, forklift trucks for big containers ending with tractors with trailers. In a large number of municipalities there is a lack of adequate machinery for waste collection, which is also the case with machinery used on landfills. Bulldozers are used to spread out, press flat and compact waste. Compacters are used on 10 landfills, while machinery is rented on several landfills.

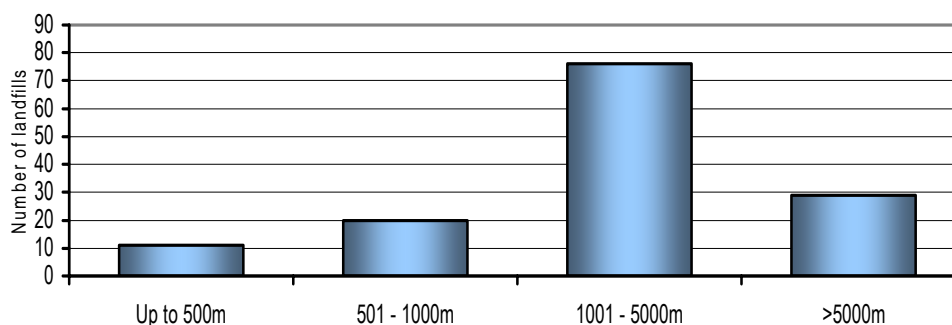


Graph 10. Distance between landfills and settlements

Of the total number of landfills, 12 (7.3%) landfills are less than 100 m far from settlements. This is indicative of how population is endangered by landfill emissions, but also of possible diseases transmitted by mice, rats and other animals that live on landfills.

The data on distances between landfills and water bodies indicate that 15.2% of landfills are less than 50 m far from river, streams, lakes or reservoirs. Of that number, 14 landfills are practically located on the watercourse bank or bed.

Data on distances between landfills and water supply sources are shown on picture 3. Eleven (6.7%) landfills are less than 500 m far from water supply sources and 20 (12.2%) less than 1.000 m.



Graph 11. Distances between landfills and water supply sources

Data on distances between landfills and protected natural wealth and monuments have been provided only by 63 municipalities. In three of them, landfills are less than 100 m far from the mentioned sites while eight less than 1.000 m.

Table 4.6. shows the number of landfills where selected categories of hazardous waste are deposited.

Table 4.6. Waste categories on landfills

Waste categories	Number of landfills
Municipal waste (domestic waste)	163
Metallic waste and parts of household appliances	138
Used vehicles	82
Packaging waste	
Glass	160
Plastics	159
Paper	158
Paperboard	157
Cans	156
Agricultural waste	82
Construction waste	134
Electronic waste	52
Hazardous waste	60
Medical waste	84
Animal waste (dead animals, from abattoirs)	83
Used tyres	117
Green waste from gardens and public areas	134
Forest waste and waste from wood processing	48
Industrial waste and waste from quarrying and mining	30
Sludges/sediments/ashes/slag/mud	95

One can conclude from these data that other categories of waste, which are prohibited in EU countries, are deposited to landfills, beside municipal waste.

Smoke has been recorded on 101 landfills where waste matters are burnt and gases from the decomposition of organic matters are emitted into the air, endangering thus the environment.

Matters that pollute most the air and are emitted from landfills are sodium and sulphur oxides, PAH, dioxins, furanes and heavy metals. Landfill gas is emitted from landfills as the result of the waste decomposition, containing approximately 50% of methane. In addition, unpleasant odors emanate also, which impact significantly on life quality in landfill surroundings.

Inadequate waste disposal to wild landfills pollute the soil and groundwaters. Precipitations that are filtrated through a mass of waste decompose harmful matters, polluting thus the soil and groundwaters. As the pollution of the soil is not strictly of local character, it affects also groundwaters on a large space and indirectly endangers the flora and fauna onto and into the soil. The wind poses also a problem because it carries waste, polluting thus a vast area. Noise develops during landfill operations (construction machines).

Waste management problems are not equally and evenly present in all self-management units, and the implementation of the integral system depends mainly on the economic structure of selected municipalities. To tackle this issue one needs to create **regional centres for waste management** within which waste, collected from several municipalities, will be treated in facilities for recyclable waste separation and the remains will be deposited to regional landfills. Those regions will implement the principles of the integral system of waste management for a long-term period according to the Strategy of Waste Management for 2010–2019.

According to the data of the Division for Waste Management of the Ministry of Environment, Mining and Spatial Planning:

- Regional sanitary landfills in Kikinda, Lapovo, Leskovac and Jagodina are operational.
- The construction of landfills “Muntina padina” in Pirot and “Duboko” in Užice has been completed.
- The landfill in Pančevo, which is not of regional type but has adequate capacity and the permit for the first phase, has been built.
- Sanitary landfills, which are not of regional type, have been built in Vranje and Gornji Milanovac.
- Landfills in Sremska Mitrovica and Nova Varoš are under construction.
- Documentation is being prepared for the construction of landfills in Indjija (works are due to start soon), Zaječar – „Holovo 2”, Subotica and district of Kolubara – “Kalenić”. The landfill in Smederevo is also under construction.

After cleansing, most of disposal sites can be transformed into transfer stations for recyclable waste collection, and the rest of them will be closed after the construction of regional landfills. The construction of 26 regional centres for municipal waste management (regional landfills, facilities for recyclable waste separation, waste treatment facilities and transfer stations in each region) is foreseen. Landfills are necessary for each selected treatment option because there is always a part of waste that needs to be disposed of. For the time being there are six sanitary landfills that are operational and three have been constructed but are not opened.

In the scope of the project “Identification and categorisation of landfills on the territory of the Republic of Serbia”, developed by the Serbian Environmental Protection Agency and the Faculty of Technical Sciences from Novi Sad, wild landfills have been pointed out as being a problem. Wild landfills are presented on the website of the Serbian Environmental Protection Agency (www.sepa.gov.rs).

In most cases wild landfills are located in rural localities. They are the result of a lack of funds for improving the quality of waste collection, but also of a bad organisation of waste management on local level. Except in villages, landfills are also formed along roads, most of them on slide slopes and embankments where waste is unloaded from trucks. Such landfills are often not easy to access to. Natural holes, karst-holes and the like are often used for waste disposal where cleansing is practically impossible.

Data on the size of wild and old landfills and estimates of already deposited waste indicate that some of them have been already used for many years as well as that all waste categories have been uncontrollably disposed of – municipal, medical waste, animal carcasses, hazardous waste, etc. According to the inspection report from 2009, approximately 40% of municipal waste in the Republic of Serbia has been deposited to wild landfills, which are not supervised by public utilities enterprises. The at-that-time Ministry of Environment and Spatial Planning recognised the priority of the problem and launched in March 2009 the action “Let’s clean Serbia”. This action was mostly focused on the removal of wild landfills on the territory of the Republic of Serbia according to prescribed waste management conditions and measures. The action was not aimed at one-time cleaning of wild landfills but at raising the awareness about the significance of the environment, which made the effects more permanent.

4.7. Waste imports and exports according to the Regulation 2150/2002/EC

According to the Regulation 2150/2002/EC (Article 5), waste statistics should include data on waste imports and exports which are not covered by the Regulation on Transboundary Waste Movement⁴⁶. This type of data helps completing the picture on waste streams, establishing the connection between statistical data on waste generation and treatment, attaining higher level in the use of waste statistics data (for indicators, analysis, etc.). It also helps perceiving the real recycling capacities particularly in the case of imports of larger quantities of waste to be recovered.

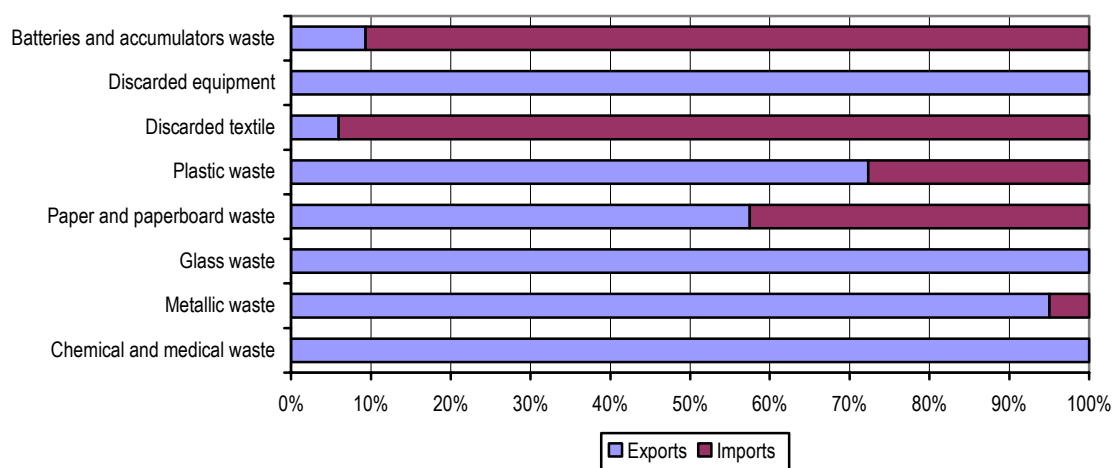
Based on experiences of EU member countries, which have carried out a statistical pilot survey on imports and exports of waste back in 2005, it appears that data collection on exports and imports of waste is rather complicated because various data sources may be used. Though there exists no adequate methodology for carrying out the survey, external trade statistics may be used as one of the possible data sources.

Also, at the meeting of the Working Group of Waste Statistics, held in 2009 in Eurostat, it was agreed to simplify the proposed tables for data transmission on waste imports and exports by reducing the number of requested waste categories according to EWC-Stat as well as to monitor only waste exports outside EU member countries. The working group will continue with the activities related to the simplification of the mentioned tables, to the methodology for carrying out the survey taking into account the suggestions of member countries.

In order to complete waste databases, the Group of Environmental Protection Statistics overtakes every year data on non-hazardous waste exports and imports in the Republic of Serbia (Table 4.7) from the external trade database⁴⁷ of the Statistical Office of the Republic of Serbia. The data are overtaken according to the required tariff codes for waste categories, then are aggregated according to the statistical Waste Classification (EWC-Stat) as required by the Regulation⁴⁸ on Waste Statistics.

Table 4.7. Imports and exports of non-hazardous waste

EWC-Stat	Group name	2008		2009		2010	
		Exports	Imports	Exports	Imports	Exports	Imports
01-05	Chemical and medical waste	146	...	325	...	114	...
06	Metallic waste	362 899	56 353	348 123	20 921	447 645	23 343
07.1	Glass waste	11 545	...	4 891	53	14 905	1
07.2	Paper and paperboard waste	72 232	11 935	58 626	10 862	63 467	47 008
07.4	Plastic waste	2 306	2 370	2 653	1 247	2 387	915
07.6	Textile waste	90	1 370	167	133	70	1 106
08.0 excl. 08.1- 08.41	Discarded equipment	276	3	304	11	432	...
08.41	Batteries and accumulators waste	...	...	...	283	346	3 369
11 excluding 11.3	Sludges	...	...	...	3	...	...



Graph 12. Imports and exports of non-hazardous waste, 2010

⁴⁶ 1013/2006/EC – Waste Shipment Regulation

⁴⁷ <http://webzns.stat.gov.rs/WebSite/userFiles/file/Spoljna/smet/SMET0160A0C.pdf>

⁴⁸ Waste Stat Regulation 2150/2002/EC

5. INTERNATIONAL COMPARISONS

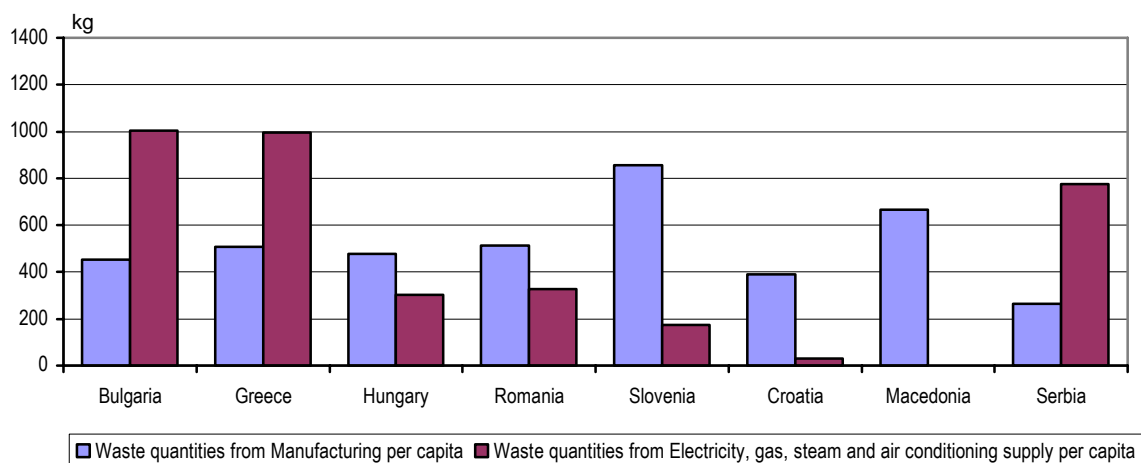
The process of European integrations of the Republic of Serbia and development activities in the field of environmental protection aim to reach full harmonisation with European legislation along with the implementation and respect of official statistics basic principles, adopted by the United Nations, and of the Code of Statistical Practice in the process of standards, classifications and methodologies harmonisation in view of obtaining comparable indicators.

International co-operation, within which European integrations are prioritised, is the base for implementing and developing international statistical standards in which are involved all responsible official statistics producers. In the scope of the international co-operation, responsible official statistics producers will co-operate with national statistical institutions of other countries and countries in the region.

The results achieved in the field of waste statistics by EU member countries represent for the Republic of Serbia guidelines in the process of harmonisation with EU regulations, which helps improving the environmental situation (Table 40 from **Annex 1**). Table 5.1 contains data on total waste quantities generated in the given sections and annual waste quantities per capita for countries in the region in 2008.

Table 5.1. Comparative data on waste generated in the countries in the region⁴⁹, 2008

Countries in the region	Number of population	Mining and quarrying, t	Waste quantities per capita, kg	Manufacturing, t	Waste quantities per capita, kg	Electricity, gas, steam and air conditioning supply, t	Waste quantities per capita, kg
Bulgaria	7 640 238	267 558 647	35 097	3 447 006	452	7 654 555	1 004
Greece	11 171 740	38 151 604	3 395	5 702 706	507	11 180 698	995
Hungary ⁵⁰	10 066 158	272 490	27	4 788 947	477	3 050 228	304
Romania	21 565 119	140 677 024	6 539	11 064 033	514	7 058 116	328
Slovenia	2 010 377	54 519	27	1 734 777	858	353 639	175
Croatia	4 441 238	34 225	8	1 726 759	389	136 461	31
Macedonia	2 041 941	...	...	1 362 466	666	...	...
Republic of Serbia⁵¹	7 365 507	15 009 969	2 038	1 961 276	266	5 699 875	774



Graph 13. Waste quantities per capita in countries in the region

⁴⁹ Source: Eurostat

⁵⁰ Estimation for the indicator, waste quantities per capita

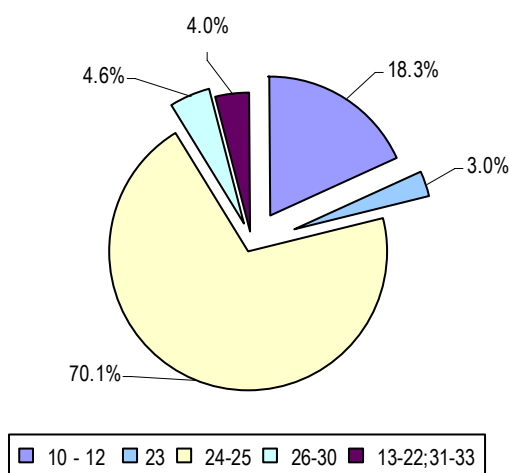
⁵¹ Source: Statistical Office of the Republic of Serbia

Annex 1

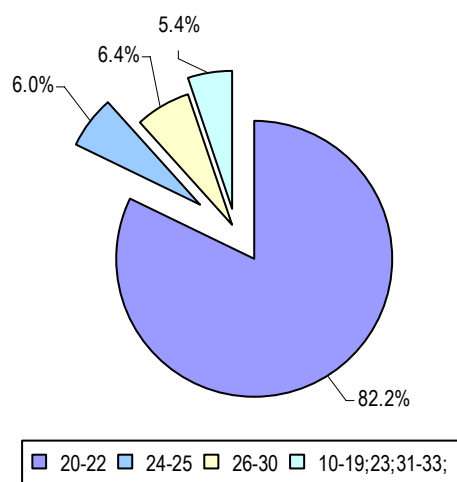
Tables

Table 1. Generated quantities of hazardous and non-hazardous waste

Sections, divisions	2008		2009		2010	
	Hazardous waste	Non-hazardous waste	Hazardous waste	Non-hazardous waste	Hazardous waste	Non-hazardous waste
Total	22 671 119		28 662 030		33 721 345	
All	8 331 354	14 339 765	10 031 220	18 630 810	11 149 603	22 571 742
B 04-09 Mining and quarrying	8 195 230	6 814 739	9 943 964	11 165 354	11 060 611	15 373 746
C 10-12 Manufacture of food products, beverages and tobacco products	649	333 815	364	396 215	380	328 623
C 13-15 Manufacture of textiles, wearing apparel, leather and related products	6	4 196	529	2 549	320	2 479
C 16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1 310	17 406	819	20 787	350	14 719
C 17-18 Manufacture of paper and paper products, printing and reproduction of recorded media	380	23 465	1 331	22 852	284	24 172
C 19 Manufacture of coke and refined petroleum products	753	1 461	1 485	875	961	563
C 20-22 Manufacture of chemicals and chemical products, basic pharmaceutical products and pharmaceutical preparations, rubber and plastic products	110 134	21 743	67 820	28 143	72 944	25 550
C 23 Manufacture of other non-metallic mineral products	215	55 220	215	58 367	185	59 367
C 24-25 Manufacture of basic metals, fabricated metal products, except machinery and equipment	8 059	1 280 679	7 538	680 945	10 017	675 211
C 26-30 Manufacture of computer, electronic and optical products + Manufacture of electrical equipment + Manufacture of machinery and equipment n.e.c. + Manufacture of motor vehicles, trailers and semi-trailers + Manufacture of other transport equipment	8 508	84 484	5 675	41 065	1 125	41 586
C 31-33 Manufacture of furniture + Other manufacturing + Repair and installation of machinery and equipment	3 852	4 943	811	5 423	946	6 919
D 34-35 Electricity, gas, steam and air conditioning supply	2 259	5 697 616	668	6 208 236	1 481	6 018 808



Graph 14. Non-hazardous waste generated in manufacturing, CA (10-33), 2008



Graph 15. Hazardous waste generated in manufacturing, CA (10-33), 2008

Table 2. Generated waste by categories (EWC-STAT), for the divisions covered by the survey¹⁾

Waste categories ²⁾	2008	2009
Hazardous waste, all	8 331 354	10 031 220
01.1 Spent solvents	17	26
01.2 Acid, alkaline or saline waste	105 745	62 238
01.3 Used oils	3 819	4 811
01.4 Spent chemical catalysts	110	2
02 Chemical preparation waste	1 101	912
03.1 Chemical deposits and residues	2 467	1 685
03.2 Industrial effluent sludges	5 026	6 419
05 Health care and biological waste	0	1
06 Metallic waste	37	11
07.1 Glass waste	...	4
07.5 Wood waste (packaging)	5 142	1 712
07.7 Waste containing PCB ³⁾	1 130	64
08 Discarded equipment (excluding 08.1 and 08.41)	170	104
08.1 Discarded vehicles	304	231
08.41 Batteries and accumulators waste	5 607	3 261
10.2 Mixed and undifferentiated materials	48	23
10.3 Sorting residues	1 069	1 068
12 Mineral waste (excluding 12.4 and 12.6)	8 195 507	9 946 232
12.4 Combustion waste (e.g. slags and ashes)	4 053	2 369
12.6 Contaminated soils and polluted dredging spoils	0	46
13 Solidified, stabilized or vitrified waste	2	2
Non-hazardous waste, all	14 339 766	18 630 811
01.2 Acid, alkaline or saline waste	7	57
01.4 Spent chemical catalysts	...	1
02 Chemical preparation waste	4 296	5 506
03.1 Chemical deposits and residues	5 530	6 289
03.2 Industrial effluent sludges	65 566	3 512
05 Health care and biological waste	1	4
06 Metallic waste	257 682	75 346
07.1 Glass waste	15 641	12 935
07.2 Paper and cardboard waste	29 898	24 248
07.3 Rubber waste	747	848
07.4 Plastic waste	8 949	8 553
07.5 Wood waste	28 913	31 278
07.6 Textile waste	1 931	1 251
08 Discarded equipment (excluding 08.1 and 08.41)	579	339
08.1 Discarded vehicles	44	61
08.41 Batteries and accumulators waste	23	14
09 Animal and vegetal waste	220 204	306 498
09.11 Animal waste of food preparation and products	20 988	18 480
09.3 Animal faeces, urine and manure	141	14 129
10.1 Household and similar waste	33 182	28 991
10.2 Mixed and undifferentiated materials	3 326	4 543
10.3 Sorting residues	7 344	8 624
11 Common sludges: liquid substances (excluding 11.3)	6 610	9 819
11.3 Dredging spoils	103	...
12 Mineral waste (excluding 12.4 and 12.6)	7 199 779	11 439 813
12.4 Combustion waste (e.g. slags and ashes)	6 428 283	6 629 671
13 Solidified, stabilized or vitrified waste	...	...

¹⁾ Survey covers CA divisions 05–35²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)³⁾ PCB – polychlorinated biphenyls

Table 3. Waste recovery¹⁾ (R2-R11)

Waste categories ²⁾	t	
	2008	2009
Total	533 931	522 326
Hazardous waste, all	66 397	59 200
01.2 Acid, alkaline or saline waste	60 277	40 146
01.3 Used oils	500	200
08.41 Batteries and accumulators waste	900	13 735
12.4 Combustion waste (e.g. slags and ashes)	4 720	5 119
Non-hazardous waste, all	467 534	463 126
02 Chemical preparation waste	8	13
06 Metallic waste	14 680	200 704
07.2 Paper and cardboard waste	9 000	84 639
07.4 Plastic waste	976	498
07.5 Wood waste	397	135
09 Animal and vegetal waste		95
10.2 Mixed and undifferentiated materials	56	1 880
10.3 Sorting residues	69	350
12 Mineral waste (excluding 12.4 and 12.6)	165 096	33 534
12.4 Combustion waste (e.g. slags and ashes)	277 252	141 279

¹⁾ Survey covers CA divisions 05–35

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 4. Energy recovery¹⁾ (R1) and incineration (D10)

Waste categories ²⁾	t	
	Energy recovery, R1	
	2008	2009
Total	31 553	18 054
Hazardous waste, all	41	382
01.3 Used oils	...	14
01.4 Spent chemical catalysts	...	50
02 Chemical preparation waste	...	0
03.1 Chemical deposits and residues	...	34
07.5 Wood waste	41	257
08 Discarded equipment (excluding 08.1 and 08.41)	...	1
08.41 Batteries and accumulators waste	...	3
12.4 Combustion waste (e.g. slags and ashes)	...	24
Non-hazardous waste, all	31 512	17 671
02 Chemical preparation waste	84	1 026
03.2 Industrial effluent sludges	100	...
07.2 Paper and cardboard waste	43	62
07.3 Rubber waste	6 550	5 252
07.4 Plastic waste	11	10
07.5 Wood waste	11 806	9 434
07.6 Textile waste	71	40
09 Animal and vegetal waste	12 846	1 825
10.1 Household and similar waste	...	0
10.2 Mixed and undifferentiated materials	1	21
	Incineration, D10	
	2008	2009
Total	2 862	111
Hazardous waste, all	2 438	53
01.3 Used oils	6	8
02 Chemical preparation waste	13	26
05 Health care and biological waste	0	1
07.5 Wood waste	2 420	18
08 Discarded equipment (excluding 08.1 and 08.41)	0	0
Non-hazardous waste, all	424	57
01.2 Acid, alkaline or saline waste	...	13
02 Chemical preparation waste	400	...
03.2 Industrial effluent sludges	...	5
07.2 Paper and cardboard waste	5	10
07.3 Rubber waste	...	1
07.4 Plastic waste	2	5
07.5 Wood waste	5	20
07.6 Textile waste	6	...
09 Animal and vegetal waste	6	1
10.1 Household and similar waste	...	2

¹⁾ Survey covers CA divisions 05–35

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 5. Waste disposed¹⁾

Waste categories ²⁾	2008	2009
Total	20 906 254	27 301 979
Hazardous waste, all	8 255 118	9 963 563
01.2 Acid, alkaline or saline waste	60 072	19 865
01.3 Used oils	94	3
01.4 Spent chemical catalysts	35	...
02 Chemical preparation waste	1	...
03.1 Chemical deposits and residues	65	71
03.2 Industrial effluent sludges	1	...
05 Health care and biological waste	0	...
08.41 Batteries and accumulators waste	1	...
10.2 Mixed and undifferentiated materials	25	1
12 Mineral waste (excluding 12.4 and 12.6)	8 194 825	9 943 624
12.4 Combustion waste (e.g. slags and ashes)	0	0
Non-hazardous waste, all	12 651 136	17 338 416
01.2 Acid, alkaline or saline waste	1	...
02 Chemical preparation waste	1	...
03.1 Chemical deposits and residues	1 664	2 155
03.2 Industrial effluent sludges	0	...
06 Metallic waste	625	450
07.2 Paper and cardboard waste	20	...
07.4 Plastic waste	63	17
7.5 Wood waste	29	...
08 Discarded equipment (excluding 08.1 and 08.41)	0	1
09 Animal and vegetal waste	50	4 686
09.11 Animal waste of food preparation and products	5	...
09.3 Animal faeces, urine and manure	...	12 788
10.1 Household and similar waste	30	...
10.2 Mixed and undifferentiated materials	...	0
11 Common sludges: liquid substances (excluding 11.3)	187	139
12 Mineral waste (excluding 12.4 and 12.6)	6 777 257	11 130 898
12.4 Combustion waste (e.g. slags and ashes)	5 871 203	6 187 283

¹⁾ Survey covers CA divisions 05–35

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 6. Waste released into a water body¹⁾

Waste categories ²⁾	2008	2009
Total	1 848	1 354
Hazardous waste, all	63	28
01.2 Acid, alkaline or saline waste	19	14
01.3 Used oils	25	...
02 Chemical preparation waste	0	1
03.1 Chemical deposits and residues	19	12
06 Metallic waste	...	0
Non-hazardous waste, all	1 781	1 326
01.2 Acid, alkaline or saline waste	0	0
0.2 Chemical preparation waste	2	2
03.1 Chemical deposits and residues	220	153
03.2 Industrial effluent sludges	8	8
07.5 Wood waste	2	...
09 Animal and vegetal waste	1 426	975
9.11 Animal waste of food preparation and products	98	90
11 Common sludges: liquid substances (excluding 11.3)	17	89
12 Mineral waste (excluding 12.4 and 12.6)	9	9

¹⁾ Survey covers CA divisions 05–35

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 7. Waste treatment in 2008

t

Division of CA	Recycling	Energy recovery, R1	Incineration, D10	Deposit into or onto land	Release into a water body	Total
Total	533 931	31 553	2 863	20 906 254	1 844	21 476 445
Hazardous waste, all	66 397	41	2 438	8 255 118	63	8 324 057
04-09 Mining and quarrying	...	...	...	8 194 826	...	8 194 826
10-12 Manufacture of food products, beverages and tobacco products	...	17	4	63	14	98
13-15 Manufacture of textiles, wearing apparel, leather and related products	...	...	3	...	0	3
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	...	10	320	...	...	330
17-18 Manufacture of paper and paper products, printing and reproduction of recorded media	...	...	...	...	...	...
19 Manufacture of coke and refined petroleum products	500	...	...	36	1	537
20-22 Manufacture of chemicals and chemical products, basic pharmaceutical products and pharmaceutical preparations, rubber and plastic products	...	...	11	59 620	18	59 649
23 Manufacture of other non-metallic mineral products	60 277	...	...	...	...	60 277
24-25 Manufacture of basic metals, fabricated metal products, except machinery and equipment	5 620	3	...	499	27	6 149
26-30 Manufacture of computer, electronic and optical products + Manufacture of electrical equipment + Manufacture of machinery and equipment n.e.c. + Manufacture of motor vehicles, trailers and semi-trailers + Manufacture of other transport equipment	...	...	0	75	4	79
31-33 Manufacture of furniture + Other manufacturing + Repair and installation of machinery and equipment	...	11	2 100	...	...	2 111
34-35 Electricity, gas, steam and air conditioning supply	...	...	1	...	...	1
Non-hazardous waste, all	467 534	31 512	425	12 651 136	1 781	13 152 387
04-09 Mining and quarrying	54	50	0	6 804 635	9	6 804 749
10-12 Manufacture of food products, beverages and tobacco products	...	12 878	15	1 481	1 512	15 885
13-15 Manufacture of textiles, wearing apparel, leather and related products	...	71	...	322	...	393
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	...	11 394	...	1	...	11 395
17-18 Manufacture of paper and paper products, printing and reproduction of recorded media	9 069	...	...	...	0	9 069
19 Manufacture of coke and refined petroleum products	...	141	...	6	...	147
20-22 Manufacture of chemicals and chemical products, basic pharmaceutical products and pharmaceutical preparations, rubber and plastic products	976	0	...	267	220	1 463
23 Manufacture of other non-metallic mineral products	442 734	6 551	...	702	...	449 988
24-25 Manufacture of basic metals, fabricated metal products, except machinery and equipment	14 692	6	1	177 032	2	191 734
26-30 Manufacture of computer, electronic and optical products + Manufacture of electrical equipment + Manufacture of machinery and equipment n.e.c. + Manufacture of motor vehicles, trailers and semi-trailers + Manufacture of other transport equipment	8	141	1	...	...	150
31-33 Manufacture of furniture + Other manufacturing + Repair and installation of machinery and equipment	...	274	406	...	38	718
34-35 Electricity, gas, steam and air conditioning supply	...	6	1	5 666 689	...	5 666 697

Table 8. Waste treatment in 2009

t

Division of CA	Recycling	Energy recovery, R1	Incineration, D10	Deposit into or onto land	Release into a water body	Total
Total	522 326	18 054	111	27 301 979	1 353	27 843 823
Hazardous waste, all	59 200	382	53	9 963 563	28	10 023 226
04-09 Mining and quarrying	...	...	...	9 943 624	...	9 943 624
10-12 Manufacture of food products, beverages and tobacco products	...	27	7	73	10	117
13-15 Manufacture of textiles, wearing apparel, leather and related products	...	0	2	0	0	3
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	...	229	...	...	...	229
17-18 Manufacture of paper and paper products, printing and reproduction of recorded media	...	...	...	...	1	1
19 Manufacture of coke and refined petroleum products	...	...	...	...	...	...
20-22 Manufacture of chemicals and chemical products, basic pharmaceutical products and pharmaceutical preparations, rubber and plastic products	...	27	25	19 800	12	19 864
23 Manufacture of other non-metallic mineral products	40 146	...	...	...	...	40 146
24-25 Manufacture of basic metals, fabricated metal products, except machinery and equipment	18 854	98	...	65	0	19 018
26-30 Manufacture of computer, electronic and optical products + Manufacture of electrical equipment + Manufacture of machinery and equipment n.e.c. + Manufacture of motor vehicles, trailers and semi-trailers + Manufacture of other transport equipment	200	...	0	1	4	206
31-33 Manufacture of furniture + Other manufacturing + Repair and installation of machinery and equipment	...	...	18	...	...	18
34-35 Electricity, gas, steam and air conditioning supply	...	1	1	...	...	2
Non-hazardous waste, all	463 126	17 671	57	17 338 416	1 326	17 820 596
04-09 Mining and quarrying	...	70	...	11 132 784	9	11 132 863
10-12 Manufacture of food products, beverages and tobacco products	...	1 829	22	19 630	1 141	22 621
13-15 Manufacture of textiles, wearing apparel, leather and related products	...	37	1	50	1	89
16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	...	9 693	...	...	...	9 693
17-18 Manufacture of paper and paper products, printing and reproduction of recorded media	84 989	30	...	...	...	85 019
19 Manufacture of coke and refined petroleum products	...	10	...	...	...	10
20-22 Manufacture of chemicals and chemical products, basic pharmaceutical products and pharmaceutical preparations, rubber and plastic products	593	...	29	...	150	772
23 Manufacture of other non-metallic mineral products	174 948	5 236	...	661	...	180 845
24-25 Manufacture of basic metals, fabricated metal products, except machinery and equipment	202 561	56	...	1 323	0	203 939
26-30 Manufacture of computer, electronic and optical products + Manufacture of electrical equipment + Manufacture of machinery and equipment n.e.c. + Manufacture of motor vehicles, trailers and semi-trailers + Manufacture of other transport equipment	36	28	5	...	...	69
31-33 Manufacture of furniture + Other manufacturing + Repair and installation of machinery and equipment	...	683	...	1	25	708
34-35 Electricity, gas, steam and air conditioning supply	...	...	...	6 183 968	...	6 183 968

Table 9. Treatment of various categories of waste according to EWC-STAT, 2008

Waste categories ¹⁾	Generated	Recycling	Energy recovery, R1	Incineration, D10	Deposit into or onto land	Release into a water body
Total	22 671 121	533 931	31 553	2 862	20 906 254	1 844
Hazardous waste, all	8 331 354	66 397	41	2 438	8 255 118	63
01.1 Spent solvents	17	...	...	...	...	...
01.2 ²⁾ Acid, alkaline or saline waste	105 745	60 277	...	...	60 072	19
01.3 Used oils	3 819	500	...	6	94	25
01.4 Spent chemical catalysts	110	...	...	...	35	...
02 Chemical preparation waste	1 101	...	...	13	1	0
03.1 Chemical deposits and residues	2 467	...	...	...	65	19
03.2 Industrial effluent sludges	5 026	...	...	...	1	...
05 Health care and biological waste	0	...	...	0	0	...
06 Metallic waste	37	...	...	...	...	...
07.5 Wood waste	5 142	...	41	2 420	...	...
07.7 Waste containing PCB ³⁾	1 130	...	...	...	...	...
08 Discarded equipment (excluding 08.1 and 08.41)	170	...	...	0	...	...
08.1 Discarded vehicles	304	...	...	...	...	...
08.41 Batteries and accumulators waste	5 607	900	...	...	1	...
10.2 Mixed and undifferentiated materials	48	...	...	...	25	...
10.3 Sorting residues	1 069	...	...	...	...	...
12 Mineral waste (excluding 12.4 and 12.6)	8 195 507	...	...	...	8 194 825	...
12.4 ²⁾ Combustion waste (e.g. slags and ashes)	4 053	4 720	...	...	0	...
12.6 Contaminated soils and polluted dredging spoils	0	...	...	...	...	...
13 Solidified, stabilised or vitrified waste	2	...	...	...	...	...
Non-hazardous waste, all	14 339 767	467 534	31 512	424	12 651 136	1 781
01.2 Acid, alkaline or saline waste	7	...	...	...	1	0
02 Chemical preparation waste	4 296	8	84	400	1	2
03.1 Chemical deposits and residues	5 530	...	...	...	1 664	220
03.2 Industrial effluent sludges	65 566	...	100	...	0	8
05 Health care and biological waste	1	...	...	...	...	...
06 Metallic waste	257 682	14 680	...	...	625	...
07.1 Glass waste	15 641	...	...	...	...	...
07.2 Paper and cardboard waste	29 898	9 000	43	5	20	...
07.3 Rubber waste ²⁾	747	...	6 550	...	...	...
07.4 Plastic waste	8 949	976	11	2	63	...
07.5 Wood waste	28 913	397	11 806	5	29	2
07.6 Textile waste	1 931	...	71	6	...	...
08 Discarded equipment (excluding 08.1 and 08.41)	579	...	...	...	0	...
08.1 Discarded vehicles	44	...	...	...	...	...
08.41 Batteries and accumulators waste	23	...	...	...	...	...
09 Animal and vegetal waste	220 204	...	12 846	6	50	1 426
09.11 Animal waste of food preparation and products	20 988	...	...	...	5	98
09.3 Animal faeces, urine and manure	141	...	...	...	...	...
10.1 Household and similar waste	33 182	...	...	...	30	...
10.2 Mixed and undifferentiated materials	3 326	56	1	...	...	...
10.3 Sorting residues	7 344	69	...	...	...	...
11 Common sludges: liquid substances (excluding 11.3)	6 610	...	...	...	187	17
11.3 Dredging spoils	103	...	...	...	...	...
12.4 Combustion waste (e.g. slags and ashes)	6 428 283	277 252	...	...	5 871 203	...
12 Mineral waste (excluding 12.4 and 12.6)	7 199 779	165 096	...	...	6 777 257	9

¹⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

²⁾ Treated waste quantity also involves overtaken quantities of waste.

³⁾ PCB – polychlorinated biphenyls

Table 10. Treatment of various categories of waste according to EWC-STAT, 2009

Waste categories ¹⁾	Generated	Recycling	Energy recovery, R1	Incineration, D10	Deposit into or onto land	Release into a water body
Total	28 662 031	522 326	18 054	111	27 301 979	1 353
Hazardous waste, all	10 031 220	59 200	382	53	9 963 563	28
01.1 Spent solvents	26	...	...	...	...	...
01.2 Acid, alkaline or saline waste	62 238	40 146	...	...	19 865	14
01.3 Used oils	4 811	200	14	8	3	...
01.4 ²⁾ Spent chemical catalysts	2	...	50	...	...	...
02 Chemical preparation waste	912	...	0	26	...	1
03.1 Chemical deposits and residues	1 685	...	34	...	71	12
03.2 Industrial effluent sludges	6 419	...	...	...	...	...
05 Health care and biological waste	1	...	...	1	...	...
06 Metallic waste	11	...	...	...	...	0
07.1 Glass waste	4	...	...	...	...	...
07.5 Wood waste	1 712	...	257	18	...	...
07.7 Waste containing PCB ³⁾	64	...	...	...	...	...
08 Discarded equipment (excluding 08.1 and 08.41)	104	...	1	0	...	...
08.1 Discarded vehicles	231	...	...	...	...	...
08.41 ⁴⁾ Batteries and accumulators waste	3 261	13 735	3	...	...	...
10.2 Mixed and undifferentiated materials	23	...	...	...	1	...
10.3 Sorting residues	1 068	...	...	...	...	...
12 Mineral waste (excluding 12.4 and 12.6)	9 946 232	...	...	...	9 943 624	...
12.4 ⁴⁾ Combustion waste (slags and ashes)	2 369	5 119	24	...	0	...
12.6 Contaminated soils and polluted dredging spoils	46	...	...	...	...	...
13 Solidified, stabilised or vitrified waste	2	...	...	...	...	...
Non-hazardous waste, all	18 630 811	463 126	17 671	57	17 338 416	1 326
01.2 Acid, alkaline or saline waste	57	...	...	13	...	0
01.4 Spent chemical catalysts	1	...	...	...	...	...
02 Chemical preparation waste	5 506	13	1 026	...	...	2
03.1 Chemical deposits and residues	6 289	...	...	...	2 155	153
03.2 Industrial effluent sludges	3 512	...	...	5	...	8
05 Health care and biological waste	4	...	...	...	...	...
06 ⁴⁾ Metallic waste	75 346	200 704	...	...	450	...
07.1 Glass waste	12 935	...	...	...	...	...
07.2 ⁴⁾ Paper and cardboard waste	24 248	84 639	62	10	...	...
07.3 ⁴⁾ Rubber waste ²⁾	848	...	5 252	1	...	...
07.4 Plastic waste	8 553	498	10	5	17	...
07.5 Wood waste	31 278	135	9 434	20	...	...
07.6 Textile waste	1 251	...	40	...	...	...
08 Discarded equipment (excluding 08.1 and 08.41)	339	...	...	...	1	...
08.1 Discarded vehicles	61	...	...	...	...	...
08.41 Batteries and accumulators waste	14	...	...	...	...	...
09 Animal and vegetal waste	306 498	95	1 825	1	4 686	975
09.11 Animal waste of food preparation and products	18 480	...	...	...	...	90
09.3 Animal faeces, urine and manure	14 129	...	...	...	12 788	...
10.1 Household and similar waste	28 991	...	0	2	...	...
10.2 Mixed and undifferentiated materials	4 543	1 880	21	...	0	...
10.3 Sorting residues	8 624	350	...	...	...	...
11 Common sludges: liquid substances (excluding 11.3)	9 819	...	...	...	139	89
12 Mineral waste (excluding 12.4 and 12.6)	11 439 813	33 534	...	...	11 130 898	9
12.4 Combustion waste (slags and ashes)	6 629 671	141 279	...	...	6 187 283	...

¹⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

²⁾ Treated waste quantity also involves waste from stocks.

³⁾ PCB – polychlorinated biphenyls

⁴⁾ Treated waste quantity also involves overtaken quantities of waste.

Table 11. Waste generated in the CA divisions (05-09)¹⁾

Waste categories ²⁾	t	
	2008	2009
Total	15 009 969	21 109 318
Hazardous waste, all	8 195 230	9 943 964
01.3 Used oils	113	116
03.1 Chemical deposits and residues	29	32
07.7 Waste containing PCB ³⁾	3	1
08 Discarded equipment (excluding 08.1 and 08.41)	0	0
08.1 Discarded vehicles	217	185
08.41 Batteries and accumulators waste	45	6
12 Mineral waste (excluding 12.4 and 12.6)	8 194 823	9 943 624
Non-hazardous waste, all	6 814 739	11 165 354
03.1 Chemical deposits and residues	1 822	2 592
06 Metallic waste	1 197	1 188
07.1 Glass waste	0	...
07.2 Paper and cardboard waste	4	6
07.3 Rubber waste ²⁾	188	438
07.4 Plastic waste	2	2
07.5 Wood waste	550	309
08 Discarded equipment (excluding 08.1 and 08.41)	40	33
08.1 Discarded vehicles	38	12
08.41 Batteries and accumulators waste	1	0
09 Animal and vegetal waste	29	6
10.1 Household and similar waste	50	139
10.2 Mixed and undifferentiated materials	17	41
10.3 Sorting residues	300	...
12 Mineral waste (excluding 12.4 and 12.6)	6 780 227	11 134 310
12.4 Combustion waste	30 273	26 277

¹⁾ Mining and quarrying²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)³⁾ PCB – polychlorinated biphenylsTable 12. Waste treatment in the CA divisions (05-09)¹⁾

Waste categories ²⁾	t	
	2008	2009
Waste recovery, total	54	...
Non-hazardous waste recovery, all	54	...
06 Metallic waste	54	...
Energy recovery (R1), total	50	70
Energy recovery (R1) (non-hazardous waste), all	50	70
07.2 Paper and cardboard waste	...	0
07.5 Wood waste	50	70
10.1 Household and similar waste	...	0
Waste disposed, total	14 999 461	21 076 408
Hazardous waste disposed, all	8 194 826	9 943 624
03.1 Chemical deposits and residues	3	...
12 Mineral waste (excluding 12.4 and 12.6)	8 194 823	9 943 624
Non-hazardous waste disposed, all	6 804 635	11 132 784
03.1 Chemical deposits and residues	1 511	2 150
06 Metallic waste	2	...
07.2 Paper and cardboard waste	2	...
07.4 Plastic waste	1	...
12 Mineral waste (excluding 12.4 and 12.6)	6 776 853	11 130 634
12.4 Combustion waste	26 267	...
Released into a water body, total	9	9
Released into a water body (non-hazardous waste), all	9	9
12 Mineral waste (excluding 12.4 and 12.6)	9	9

¹⁾ Mining and quarrying²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 13. Waste generated in the CA divisions (10-12)¹⁾

Waste categories ²⁾	2008	2009
Total	334 451	365 954
Hazardous waste, all	649	364
01.1 Spent solvents	0	0
01.2 Acid, alkaline or saline waste	290	11
01.3 Used oils	119	79
01.4 Spent chemical catalysts	25	0
02 Chemical preparation waste	8	3
03.1 Chemical deposits and residues	102	106
03.2 Industrial effluent sludges		5
05 Health care and biological waste	0	1
07.5 Wood waste	30	51
07.7 Waste containing PCB ³⁾	12	23
08 Discarded equipment (excluding 08.1 and 08.41)	13	3
08.1 Discarded vehicles	7	0
08.41 Batteries and accumulators waste	34	30
10.2 Mixed and undifferentiated materials	5	7
12 Mineral waste (excluding 12.4 and 12.6)	5	0
12.4 Combustion waste	0	0
12.6 Contaminated soils and polluted dredging spoils	...	45
Non-hazardous waste, all	333 802	365 590
02 Chemical preparation waste	426	883
03.1 Chemical deposits and residues	43	40
03.2 Industrial effluent sludges	917	488
05 Health care and biological waste	1	1
06 Metallic waste	2 940	2 980
07.1 Glass waste	13 227	7 272
07.2 Paper and cardboard waste	11 216	8 583
07.3 Rubber waste	48	34
07.4 Plastic waste	5 241	2 243
07.5 Wood waste	3 271	2 909
07.6 Textile waste	21	150
08 Discarded equipment	1	3
08.1 Discarded vehicles	3	1
08.41 Batteries and accumulators waste	3	7
09 Animal and vegetal waste (excluding 9.11 and 9.3)	219 794	275 074
09.11 Animal waste of food preparation and products	20 929	18 439
09.3 Animal faeces, urine and manure	141	14 129
10.1 Household and similar waste	12 188	17 543
10.2 Mixed and undifferentiated materials	1 184	1 349
10.3 Sorting residues	1	0
11 Common sludges (excluding 11.3)	6 539	9 795
12 Mineral waste (excluding 12.4 and 12.6)	31 579	407
12.4 Combustion waste	4 089	3 260

¹⁾ Manufacture of food products, beverages and tobacco products²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)³⁾ PCB – polychlorinated biphenyls

Table 14. Waste treatment in the CA divisions (10-12)¹⁾

Waste categories ²⁾	2008	2009
		t
Energy recovery (R1), total	12 878	1 856
Energy recovery (R1), (hazardous waste), all	...	27
07.5 Wood waste	...	27
Energy recovery (R1), (non-hazardous waste), all	12 878	1 829
07.2 Paper and cardboard waste	20	2
07.4 Plastic waste	11	1
09 Animal and vegetal waste (excluding 9.11 and 9.3)	12 846	1 825
10.2 Mixed and undifferentiated materials	1	1
Incineration (D10), total	19	29
Incineration (D10) (hazardous waste), all	4	7
01.3 Used oils	4	6
05 Health care and biological waste	0	1
Incineration (D10) (non-hazardous waste), all	15	22
07.2 Paper and cardboard waste	3	8
07.4 Plastic waste	2	5
07.5 Wood waste	4	5
09 Animal and vegetal waste (excluding 9.11 and 9.3)	6	1
10.1 Household and similar waste		2
Waste disposed, total	1 544	19 703
Hazardous waste disposed, all	63	73
01.3 Used oils	0	1
03.1 Chemical deposits and residues	62	71
05 Health care and biological waste	0	...
10.2 Mixed and undifferentiated materials	1	1
12.4 Combustion waste	0	0
Non-hazardous waste disposed, all	1 481	19 630
06 Metallic waste	5	...
07.2 Paper and cardboard waste	3	...
07.4 Plastic waste	29	16
08 Discarded equipment	0	...
09 Animal and vegetal waste (excluding 9.11 and 9.3)	50	4 686
09.3 Animal faeces, urine and manure	...	12 788
09.11 Animal waste of food preparation and products	5	...
11 Common sludges (excluding 11.3)	187	139
12 Mineral waste (excluding 12.4 and 12.6)	200	...
12.4 Combustion waste	1 002	2 002
Released into a water body, total	1 525	1 151
Released into a water body (hazardous waste), all	14	10
01.2 Acid, alkaline or saline waste	13	8
02 Chemical preparation waste	...	1
03.1 Chemical deposits and residues	0	0
Released into a water body (non-hazardous waste), all	1 512	1 141
02 Chemical preparation waste	1	1
03.1 Chemical deposits and residues	...	3
03.2 Industrial effluent sludges	8	8
09 Animal and vegetal waste (excluding 9.11 and 9.3)	1 426	975
09.11 Animal waste of food preparation and products	60	65
11 Common sludges (excluding 11.3)	17	89

¹⁾ Manufacture of food products, beverages and tobacco products.²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 15. Waste generated in the CA divisions (13 – 15)¹⁾

Waste categories ²⁾	2008	2009
Total	4 202	3 078
Hazardous waste, all	6	529
01.3 Used oils	2	1
02 Chemical preparation waste	3	81
07.7 Waste containing PCB ³⁾	1	...
08 Discarded equipment	...	0
12.4 Combustion waste	...	448
Non-hazardous waste, all	4 196	2 549
02 Chemical preparation waste	1	22
03.1 Chemical deposits and residues	472	4
06 Metallic waste	264	392
07.2 Paper and cardboard waste	399	284
07.3 Rubber waste	...	0
07.4 Plastic waste	17	22
07.5 Wood waste	84	132
07.6 Textile waste	1 348	782
08.41 Batteries and accumulators waste	...	1
09 Animal and vegetal waste (excluding 9.11 and 9.3)	1	1
10.1 Household and similar waste	287	210
10.2 Mixed and undifferentiated materials	25	101
12.4 Combustion waste	1 299	599

¹⁾ Manufacture of textiles, wearing apparel, leather and related products

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

³⁾ PCB – polychlorinated biphenyls

Table 16. Waste treatment in the CA divisions (13-15)¹⁾

Waste categories ²⁾	2008	2009
Energy recovery (R1), total	71	38
Energy recovery (R1), (hazardous waste), all	...	0
02 Chemical preparation waste	...	0
Energy recovery (R1), (non-hazardous waste), all	71	37
07.6 Textile waste	71	37
Incineration (D10), total	3	3
Incineration (D10) (hazardous waste), all	3	2
01.3 Used oils	1	0
02 Chemical preparation waste	2	1
Incineration (D10) (non-hazardous waste), all	...	1
07.2 Paper and cardboard waste	...	1
Waste disposed, total	322	50
Hazardous waste disposed, all	...	0
01.3 Used oils	...	0
Non-hazardous waste disposed, all	322	50
10.1 Household and similar waste	2	...
12.4 Combustion waste	320	50
Released into a water body, total	0	1
Released into a water body (hazardous waste), all	0	0
02 Chemical preparation waste	0	0
Released into a water body (non-hazardous waste), all	0	1
02 Chemical preparation waste	0	1

¹⁾ Manufacture of textiles, wearing apparel, leather and related products

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 17. Waste generated in the CA division (16)¹⁾

Waste categories ²⁾		t	
		2008	2009
Total		21 606	18 716
Hazardous waste, all		1 310	819
01.3	Used oils	3	0
02	Chemical preparation waste	0	...
07.5	Wood waste	1 298	810
08.41	Batteries and accumulators waste	9	9
Non-hazardous waste, all		20 787	17 406
02	Chemical preparation waste	1 547	43
06	Metallic waste	315	11
07.2	Paper and cardboard waste	49	45
07.3	Rubber waste	0	3
07.4	Plastic waste	0	9
07.5	Wood waste	18 220	17 200
09	Animal and vegetal waste (excluding 9.11 and 9.3)	638	52
10.1	Household and similar waste	18	38
10.3	Sorting residues	...	5

¹⁾ Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 18. Waste treatment in the CA division (16)¹⁾

Waste categories ²⁾		t	
		2008	2009
Energy recovery (R1), total		11 404	9 922
Energy recovery (R1), (hazardous waste), all		10	229
07.5	Wood waste	10	229
Energy recovery (R1), (non-hazardous waste), all		11 394	9 693
02	Chemical preparation waste	26	1 000
07.2	Paper and cardboard waste	1	0
07.5	Wood waste	11 367	8 692
Incineration (D10), total		320	...
Incineration (D10) (hazardous waste), all		320	...
07.5	Wood waste	320	...
Waste disposed, total		1	...
Non-hazardous waste disposed, all		1	...
02	Chemical preparation waste	1	...

¹⁾ Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 19. Waste generated in the CA divisions (17-18)¹⁾

Waste categories ²⁾	2008	2009
Total	23 844	24 183
Hazardous waste, all	380	1 331
01.2 Acid, alkaline or saline waste	14	1 113
01.3 Used oils	5	4
02 Chemical preparation waste	339	196
03.1 Chemical deposits and residues	20	19
06 Metallic waste	0	0
08 Discarded equipment	0	0
12 Mineral waste (excluding 12.4 and 12.6)	1	0
Non-hazardous waste, all	23 465	22 852
02 Chemical preparation waste	55	4
03.1 Chemical deposits and residues	0	3
03.2 Industrial effluent sludges	143	73
06 Metallic waste	253	69
07.1 Glass waste	0	3
07.2 Paper and cardboard waste	14 860	12 801
07.3 Rubber waste	1	1
07.4 Plastic waste	72	83
07.5 Wood waste	16	11
08 Discarded equipment	0	0
08.41 Batteries and accumulators waste	4	0
10.1 Household and similar waste	733	801
10.2 Mixed and undifferentiated materials	442	452
10.3 Sorting residues	6 886	8 550
12 Mineral waste (excluding 12.4 and 12.6)	0	0

¹⁾ Manufacture of paper and paper products, printing and reproduction of recorded media

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 20. Waste treatment in the CA divisions (17-18)¹⁾

Waste categories ²⁾	2008	2009
Waste recovery, total	9 069	84 989
Non-hazardous waste recovery, all	9 069	84 989
07.2 Paper and cardboard waste	9 000	84 639
10.3 Sorting residues	69	350
Energy recovery (R1), total	...	30
Energy recovery (R1), (non-hazardous waste), all	...	30
07.2 Paper and cardboard waste	...	30
Released into a water body, total	0	1
Released into a water body (hazardous waste), all	...	1
01.2 Acid, alkaline or saline waste	...	1
02 Chemical preparation waste	...	0
06 Metallic waste	...	0
Released into a water body (non-hazardous waste), all	0	...
02 Chemical preparation waste	0	...

¹⁾ Manufacture of paper and paper products, printing and reproduction of recorded media

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 21. Waste generated in the CA division (19)¹⁾

Waste categories ²⁾	2008	2009
Total	2 214	2 360
Hazardous waste, all	753	1 485
01.2 Acid, alkaline or saline waste		0
01.3 Used oils	12	981
01.4 Spent chemical catalysts	35	
02 Chemical preparation waste	1	0
03.1 Chemical deposits and residues	506	435
03.2 Industrial effluent sludges	100	20
07.7 Waste containing PCB ³⁾	37	7
08 Discarded equipment	0	0
08.1 Discarded vehicles	60	40
08.41 Batteries and accumulators waste	1	1
12.6 Contaminated soils and polluted dredging spoils	0	0
Non-hazardous waste, all	1 461	875
01.2 Acid, alkaline or saline waste	2	2
02 Chemical preparation waste	1	3
03.1 Chemical deposits and residues	5	0
03.2 Industrial effluent sludges	302	142
06 Metallic waste	623	340
07.1 Glass waste	1	1
07.2 Paper and cardboard waste	51	45
07.3 Rubber waste	2	2
07.4 Plastic waste	57	11
07.5 Wood waste	46	49
08.41 Batteries and accumulators waste	0	0
09 Animal and vegetal waste (excluding 9.11 and 9.3)	5	4
10.1 Household and similar waste	68	63
11 Common sludges (excluding 11.3)	1	...
11.3 Dredging spoils	50	...
12 Mineral waste (excluding 12.4 and 12.6)	247	213

¹⁾ Manufacture of coke and refined petroleum products

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

³⁾ PCB – polychlorinated biphenyls

Table 22. Waste treatment in the CA division (19)¹⁾

Waste categories ²⁾	2008	2009
Waste recovery, total	500	...
Hazardous waste recovery, all	500	...
01.3 Used oils	500	...
Energy recovery (R1), total	141	10
Energy recovery (R1), (non-hazardous waste), all	141	10
03.2 Industrial effluent sludges	100	...
07.5 Wood waste	41	10
Waste disposed, total	41	...
Hazardous waste disposed, all	36	...
01.3 Used oils	0	...
01.4 Spent chemical catalysts	35	...
03.1 Chemical deposits and residues	0	...
08.41 Batteries and accumulators waste	1	...
Non-hazardous waste disposed, all	6	...
01.2 Acid, alkaline or saline waste	1	...
03.1 Chemical deposits and residues	5	...
03.2 Industrial effluent sludges	0	...
07.5 Wood waste	0	...
Released into a water body, total	1	...
Released into a water body (hazardous waste), all	1	...
03.1 Chemical deposits and residues	1	...

¹⁾ Manufacture of coke and refined petroleum products

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 23. Waste generated in the CA divisions (20-22)¹⁾

Waste categories ²⁾	2008	2009
Total	131 877	95 963
Hazardous waste, all	110 134	67 820
01.1 Spent solvents	9	16
01.2 Acid, alkaline or saline waste	104 602	60 510
01.3 Used oils	173	149
01.4 Spent chemical catalysts	...	2
02 Chemical preparation waste	466	423
03.1 Chemical deposits and residues	156	101
03.2 Industrial effluent sludges	4 680	5 433
07.5 Wood waste	...	83
07.7 Waste containing PCB ³⁾	...	8
08 Discarded equipment	4	9
08.41 Batteries and accumulators waste	20	13
10.2 Mixed and undifferentiated materials	18	5
12 Mineral waste (excluding 12.4 and 12.6)	6	1 069
Non-hazardous waste, all	21 743	28 143
01.2 Acid, alkaline or saline waste	3	51
01.4 Spent chemical catalysts	...	1
02 Chemical preparation waste	20	23
03.1 Chemical deposits and residues	3 100	2 127
03.2 Industrial effluent sludges	0	2 602
06 Metallic waste	1 313	1 309
07.1 Glass waste	2	7
07.2 Paper and cardboard waste	1 192	1 047
07.3 Rubber waste	338	213
07.4 Plastic waste	1 780	2 639
07.5 Wood waste	1 992	6 748
07.6 Textile waste	2	2
08 Discarded equipment	3	60
08.1 Discarded vehicles	3	1
08.41 Batteries and accumulators waste	6	...
09 Animal and vegetal waste (excluding 09.11 and 09.3)	213	14
10.1 Household and similar waste	4 602	5 202
10.2 Mixed and undifferentiated materials	278	424
10.3 Sorting residues	54	56
11 Common sludges (excluding 11.3)	20	10
11.3 Dredging spoils	53	...
12 Mineral waste (excluding 12.4 and 12.6)	195	191
12.4 Combustion waste	6 574	5 417

¹⁾ Manufacture of chemicals and chemical products, basic pharmaceutical products and pharmaceutical preparations, rubber and plastic products

²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

³⁾ PCB – polychlorinated biphenyls

Table 24 Waste treatment in the CA divisions (20-22)¹

Waste categories ²⁾	2008	2009
		t
Waste recovery, total	976	593
Non-hazardous waste recovery, all	976	593
07.4 Plastic waste	976	498
09 Animal and vegetal waste (excluding 09.11 and 09.3)	...	95
Energy recovery (R1), total	0	27
Energy recovery (R1), (hazardous waste), all	...	27
03.1 Chemical deposits and residues	...	27
Energy recovery (R1), (non-hazardous waste), all	0	...
07.2 Paper and cardboard waste	0	...
07.4 Plastic waste	0	...
Incineration (D10), total	11	54
Incineration (D10) (hazardous waste), all	11	25
02 Chemical preparation waste	11	25
Incineration (D10) (non-hazardous waste), all	...	29
01.2 Acid, alkaline or saline waste	...	13
07.2 Paper and cardboard waste	...	0
07.3 Rubber waste	...	1
07.4 Plastic waste	...	0
07.5 Wood waste	...	15
Waste disposed, total	59 887	19 800
Hazardous waste disposed, all	59 620	19 800
01.2 Acid, alkaline or saline waste	59 597	19 800
01.3 Used oils	20	...
02 Chemical preparation waste	1	...
12 Mineral waste (excluding 12.4 and 12.6)	2	...
Non-hazardous waste disposed, all	267	...
03.1 Chemical deposits and residues	148	...
06 Metallic waste	13	...
07.2 Paper and cardboard waste	16	...
07.4 Plastic waste	33	...
07.5 Wood waste	29	...
10.1 Household and similar waste	28	...
Released into a water body, total	238	162
Released into a water body (hazardous waste), all	18	12
03.1 Chemical deposits and residues	18	12
Released into a water body (non-hazardous waste), all	220	150
03.1 Chemical deposits and residues	220	150

¹⁾ Manufacture of chemicals and chemical products, basic pharmaceutical products and pharmaceutical preparations, rubber and plastic products²⁾ Statistical waste classification, ver.3, in compliance with Regulation 2150/2002 – (EWC-Stat/Ver.3)

Table 25. Waste generated in the CA division (23)¹⁾

Waste categories ²⁾	2008	2009
Total	55 434	58 582
Hazardous waste, all	215	215
01.2 Acid, alkaline or saline waste	60	
01.3 Used oils	36	41
02 Chemical preparation waste	4	4
03.1 Chemical deposits and residues	55	26
05 Health care and biological care waste	0	0
06 Metallic waste	17	...
07.5 Wood waste	0	17
07.7 Waste containing PCB ³⁾	6	0
08 Discarded equipment	1	3
08.1 Discarded vehicles	10	...
08.41 Batteries and accumulators waste	20	4
12 Mineral waste (excluding 12.4 and 12.6)	6	120
Non-hazardous waste, all	55 220	58 367
03.1 Chemical deposits and residues	27	1 454
03.2 Industrial effluent sludges	1 570	...
06 Metallic waste	7 798	2 628
07.1 Glass waste	2 124	5 351
07.2 Paper and cardboard waste	312	240
07.3 Rubber waste	80	30
07.4 Plastic waste	211	136
07.5 Wood waste	232	150
08 Discarded equipment	117	74
08.1 Discarded vehicles	...	18
08.41 Batteries and accumulators waste	2	0
09 Animal and vegetal waste (excluding 09.11 and 09.3)	9	12
10.1 Household and similar waste	395	402
10.2 Mixed and undifferentiated materials	44	12
12 Mineral waste (excluding 12.4 and 12.6)	41 209	47 723
12.4 Combustion waste	1 091	137

¹⁾ Manufacture of other non-metallic minerals

²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)

³⁾ PCB – polychlorinated biphenyls

Table 26. Waste treatment in the CA division (23)¹⁾

Waste categories ²⁾	2008	2009
Waste recovery, total	503 011	215 094
Hazardous waste recovery, all	60 277	40 146
01.2 Acid, alkaline or saline waste	60 277	40 146
Non-hazardous waste recovery, all	442 734	174 948
07.5 Wood waste	397	135
12 Mineral waste (excluding 12.4 and 12.6)	165 096	33 534
12.4 Combustion waste	277 242	141 279
Energy recovery (R1), total	6 551	5 236
Energy recovery (R1) (non-hazardous waste), all		
07.2 Paper and cardboard waste	...	0
07.3 Rubber waste	6 544	5 234
07.5 Wood waste	7	2
Waste disposal, total	702	661
Non-hazardous waste disposed of, all		
06 Metallic waste	559	420
12 Mineral waste (excluding 12.4 and 12.6)	144	241

¹⁾ Manufacture of other non-metallic minerals

²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)

Table 27. Waste generated in the CA divisions (24–25)¹⁾

Waste categories ²⁾	2008	2009
Total	1 288 738	688 483
Hazardous waste, all	8 059	7 538
01.1 Spent solvents	7	7
01.2 Acid, alkaline or saline waste	718	576
01.3 Used oils	2 597	2 249
01.4 Spent chemical catalysts	50	0
02 Chemical preparation waste	42	21
03.1 Chemical deposits and residues	718	544
03.2 Industrial effluent sludges	124	936
06 Metallic waste	5	1
07.5 Wood waste	3	1
07.7 Waste containing PCB ³⁾	70	3
08 Discarded equipment	11	63
08.1 Discarded vehicles	3	3
08.41 Batteries and accumulators waste	12	22
10.2 Mixed and undifferentiated materials	25	5
12 Mineral waste (excluding 12.4 and 12.6)	505	1 237
12.4 Combustion waste	3 166	1 868
13 Solidified, stabilised or vitrified waste	2	2
Non-hazardous waste, all	1 280 679	680 945
01.2 Acid, alkaline or saline waste	0	0
02 Chemical preparation waste	130	152
03.1 Chemical deposits and residues	1	3
03.2 Industrial effluent sludges	62 393	39
06 Metallic waste	184 024	37 428
07.1 Glass waste	242	248
07.2 Paper and cardboard waste	135	130
07.3 Rubber waste	47	70
07.4 Plastic waste	590	2 792
07.5 Wood waste	876	795
07.6 Textile waste	486	124
08 Discarded equipment	107	2
8.41 Batteries and accumulators waste	0	0
09 Animal and vegetal waste (excluding 09.11 and 09.3)	40	34
10.1 Household and similar waste	4 741	1 893
10.2 Mixed and undifferentiated materials	537	570
10.3 Sorting residues	13	0
11 Common sludges: liquid substances (excluding 11.3)	30	
12 Mineral waste (excluding 12.4 and 12.6)	329 460	248 449
12.4 Combustion waste	696 829	388 215

¹⁾ Manufacture basic metals and fabricated metal products, except machinery²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)³⁾ PCB – polychlorinated biphenyls

Table 28. Waste treatment in the CA divisions (24–25)¹⁾

Waste categories ²⁾	2008	2009
		t
Waste recovery, total	20 312	221 415
Hazardous waste recovery, all	5 620	18 854
08.41 Batteries and accumulators waste	900	13 735
12.4 Combustion waste	4 720	5 119
Non-hazardous waste recovery, all	14 692	202 561
06 Metallic waste	14 626	200 681
10.2 Mixed and undifferentiated materials	56	1 880
12.4 Combustion waste	10	...
Energy recovery (R1), total	9	154
Energy recovery (R1) (hazardous waste), all	3	98
01.3 Used oils	...	13
01.4 Spent chemical catalysts	...	50
03.1 Chemical deposits and residues	...	7
07.5 Wood waste	3	1
08 Discarded waste	...	1
08.41 Batteries and accumulators waste	...	3
12.4 Combustion waste	...	24
Energy recovery (R1) (non-hazardous waste), all	6	56
07.2 Paper and cardboard waste	2	2
07.3 Rubber waste	...	18
07.4 Plastic waste	0	9
07.5 Wood waste	4	4
07.6 Metallic waste	...	3
10.2 Mixed and undifferentiated materials	...	20
Incineration (D10), total	1	...
Incineration (D10) (non-hazardous waste), all		
07.2 Paper and cardboard waste	1	...
Waste disposed of, total	177 531	1 388
Hazardous waste disposed of, all	499	65
01.2 Acid, alkaline or saline waste	475	65
10.2 Mixed and undifferentiated materials	24	...
Non-hazardous waste disposed of	177 032	1 323
06 Metallic waste	47	30
10.2 Mixed and undifferentiated materials	...	0
12 Mineral waste (excluding 12.4 and 12.6)	60	23
12.4 Combustion waste	176 925	1 269
Released into a water body, except seas/oceans, total	2	1
Released into a water body, except seas/oceans (hazardous waste), all	...	0
01.2 Acid, alkaline or saline waste	...	0
Acid, alkaline or saline waste (non-hazardous waste), all	2	0
01.2 Acid, alkaline or saline waste	...	0
02 Chemical preparation waste	0	0
07.5 Wood waste	2	...

¹⁾ Manufacture basic metals and fabricated metal products, except machinery²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)

Table 29. Waste generated in the CA divisions (26–30)¹⁾

Waste categories ²⁾	2008	2009
Total	92 991	46 739
Hazardous waste, all	8 508	5 675
01.1 Spent solvents	2	2
01.2 Acid, alkaline or saline waste	60	28
01.3 Used oils	616	980
02 Chemical preparation waste	209	121
03.1 Chemical deposits and residues	65	216
03.2 Industrial effluent sludges	76	10
07.1 Glass waste	...	4
07.7 Waste containing PCB ³⁾	0	2
08 Discarded equipment	0	2
08.41 Batteries and accumulators waste	5 430	3 159
10.2 Mixed and undifferentiated materials	0	6
10.3 Sorting residues	1 069	1 068
12 Mineral waste (excluding 12.4 and 12.6)	95	23
12.4 Combustion waste	886	52
Non-hazardous waste, all	84 484	41 065
01.2 Acid, alkaline or saline waste	2	4
02 Chemical preparation waste	722	376
03.1 Chemical deposits and residues	3	1
03.2 Industrial effluent sludges	241	168
05 Health care and biological waste	...	3
06 Metallic waste	49 382	17 839
07.1 Glass waste	45	53
07.2 Paper and cardboard waste	1 261	391
07.3 Rubber waste	23	39
07.4 Plastic waste	788	277
07.5 Wood waste	3 230	755
07.6 Textile waste	66	74
08 Discarded equipment	5	92
08.1 Discarded vehicles	...	12
08.41 Batteries and accumulators waste	2	1
09 Animal and vegetal waste (excluding 09.11 and 09.3)	34	54
10.1 Household and similar waste	9 821	2 210
10.2 Mixed and undifferentiated materials	435	1 022
10.3 Sorting waste	85	15
11 Common sludges: liquid substances (excluding 11.3)	6	14
12 Mineral waste (excluding 12.4 and 12.6)	16 614	8 133
12.4 Combustion waste	1 720	9 533

¹⁾ Manufacture of computer, electronic and optical products; Manufacture of electrical equipment; Manufacture of machinery and equipment, n.e.c.; Manufacture motor vehicles, trailers and semi-trailers + Manufacture of other transport equipment

²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)

³⁾ PCB – polychlorinated biphenyls

Table 30. Water treatment in the CA divisions (26–30)¹⁾

Waste categories ²⁾	t	
	2008	2009
Waste recovery, total	8	236
Hazardous waste recovery, all	...	200
01.3 Used oils	...	200
Non-hazardous waste recovery, all	8	36
02 Chemical preparation waste	8	13
06 Metallic waste	...	23
Energy recovery (R1), total	141	28
Energy recovery (R1) (non-hazardous waste), all	141	28
02 Chemical preparation waste	32	...
07.2 Paper and cardboard waste	20	28
07.5 Wood waste	90	...
Incineration (D10), total	1	5
Incineration (D10) (hazardous waste), all	...	0
01.3 Used oils	...	0
08 Discarded equipment	...	0
Incineration (D10) (non-hazardous waste), all	1	5
03.2 Chemical preparation waste	...	5
07.2 Paper and cardboard waste	1	0
08 Discarded equipment	0	...
Waste disposal, total	75	1
Hazardous waste disposal, all	75	1
01.3 Used oils	75	1
Released into a water body, except seas/oceans, total	4	4
Released into a water body, except seas/oceans (hazardous waste), all	4	4
01.2 Acid, alkaline or saline waste	4	4
02 Chemical preparation waste	0	0

¹⁾ Manufacture of computer, electronic and optical products; Manufacture of electrical equipment; Manufacture of machinery and equipment, n.e.c.; Manufacture motor vehicles, trailers and semi-trailers + Manufacture of other transport equipment

²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)

Table 31. Waste generated in the CA divisions (31–33)¹⁾

Waste categories ²⁾	t	
	2008	2009
Total	8 795	6 235
Hazardous waste, all	3 852	811
01.1 Spent solvents	...	1
01.3 Used oils	8	2
02 Chemical preparation waste	29	54
03.1 Chemical deposits and residues	3	7
07.5 Wood waste	3 811	747
08 Discarded equipment	0	0
12 Mineral waste (excluding 12.4 and 12.6)	...	0
Non-hazardous waste, all	4 943	5 423
02 Chemical preparation waste	2 898	2 495
03.1 Chemical deposits and residues	...	34
05 Health care and biological waste	0	0
06 Metallic waste	583	231
07.1 Glass waste	0	0
07.2 Paper and cardboard waste	401	652
07.3 Rubber waste	1	2
07.4 Plastic waste	173	343
07.5 Wood waste	590	846
07.6 Textile waste	7	119
08 Discarded equipment	4	1
08.41 Batteries and accumulators waste	0	2
09 Animal and vegetal waste (excluding 09.11 and 09.3)	14	36
09.11 Animal waste of food preparation and products	59	41
10.1 Household and similar waste	30	330
10.2 Mixed and undifferentiated materials	164	172
11 Common sludges: liquid substances (excluding 11.3)	15	...
12 Mineral waste (excluding 12.4 and 12.6)	1	...
12.4 Combustion waste	3	120

¹⁾ Manufacture of furniture + Other manufacturing + Repair and installation of machinery and equipment

²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)

Table 32. Waste treatment in the CA divisions (31–33)¹⁾

Waste categories ²⁾	t	
	2008	2009
Energy recovery (R1), total	285	683
Energy recovery (R1)		
(hazardous waste), all	11	...
07.5 Wood waste	11	...
Energy recovery (R1)		
(non-hazardous waste), all	274	683
02 Chemical preparation waste	26	26
07.5 Wood waste	248	657
Incineration (D10), total	2 506	18
Incineration (D10) (hazardous waste), all	2 100	18
07.5 Wood waste	2 100	18
Incineration (D10) (non-hazardous waste), all	406	...
02 Chemical preparation waste	400	...
07.6 Textile waste	6	...
Waste disposed of, total	...	1
Non-hazardous waste disposed of, all	...	1
08 Discarded equipment	...	1
Released into a water body, except seas/oceans, total	38	25
Released into a water body, except seas/oceans (non-hazardous waste), all	38	25
09.11 Animal waste of food preparation and products	38	25

¹⁾ Manufacture of furniture + Other manufacturing + Repair and installation of machinery and equipment

²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)

Table 33. Waste generated in the CA division (35)¹⁾

Waste categories ²⁾	2008	2009
Total	5 699 875	6 208 904
Hazardous waste, all	2 259	668
01.1 Spent solvents	...	0
01.3 Used oils	135	208
02 Chemical preparation waste	0	8
03.1 Chemical deposits and residues	812	200
03.2 Industrial effluent sludges	46	16
06 Metallic waste	15	10
07.5 Wood waste	...	3
07.7 Waste containing PCB ³⁾	1 000	20
08 Discarded equipment	139	25
08.1 Discarded vehicles	7	3
08.41 Batteries and accumulators waste	38	18
12 Mineral waste (excluding 12.4 and 12.6)	66	158
Non-hazardous, all	5 697 616	6 208 236
02 Chemical preparation waste	...	0
03.1 Chemical deposits and residues	57	33
06 Metallic waste	9 294	10 628
07.1 Glass waste	0	0
07.2 Paper and cardboard waste	21	20
07.3 Rubber waste	15	20
07.4 Plastic waste	9	5
07.5 Wood waste	828	354
07.6 Textile waste	1	0
08 Discarded equipment	304	74
08.1 Discarded vehicles	0	17
08.41 Batteries and accumulators waste	5	2
09 Animal and vegetal waste (excluding 09.11 and 09.3)	...	0
10.1 Household and similar waste	228	180
10.2 Mixed and undifferentiated materials	200	399
10.3 Sorting waste	...	2
12 Mineral waste (excluding 12.4 and 12.6)	247	387
12.4 Combustion waste	5 686 406	6 196 114

¹⁾ Electricity, gas, steam and air conditioning supply

²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)

³⁾ PCB – polychlorinated biphenyls

Table 34. Waste treatment in the CA division (35)¹⁾

Waste categories ²⁾	2008	2009
Energy recovery (R1), total	6	1
Energy recovery (hazardous waste) (R1), all	...	1
01.3 Used oils	...	1
Energy recovery (non-hazardous waste) (R1), all	6	...
07.3 Rubber waste	6	...
Incineration (D10), total	2	1
Incineration (D10) (hazardous waste), all	1	1
01.3 Used oils	1	1
Incineration (D10) (non-hazardous waste), all	1	...
07.2 Paper and cardboard waste	1	...
07.5 Wood waste	0	...
Waste disposed of, total	5 666 689	6 183 968
Incineration (D10) (non-hazardous waste), all	5 666 689	6 183 968
03.1 Chemical deposits and residues	...	5
07.4 Plastic waste	...	1
12.4 Combustion waste	5 666 689	6 183 962

¹⁾ Electricity, gas, steam and air conditioning supply

²⁾ Statistical Waste Classification, version 3, according with the Regulation number 2150/2002 – (EWC-Stat/Ver.3)

Table 35. Generation of hazardous and non-hazardous waste by regions, CA divisions (05–35)

NST ¹⁾	Hazardous waste		Non-hazardous waste	
	2008	2009	2008	2009
REPUBLIC OF SERBIA	8 331 354	10 031 220	14 339 765	18 630 810
SERBIA – NORTH	13 360	12 752	4 531 299	4 789 794
Region of Belgrade	3 622	3 263	4 148 797	4 360 901
Area of Belgrade	3 622	3 263	4 148 797	4 360 901
Region of Vojvodina	9 738	9 489	382 502	428 894
Area of West Bačka	7 394	4 273	38 572	113 009
Area of South Banat	883	2 982	14 816	15 463
Area of South Bačka	338	495	73 617	68 908
Area of North Banat	653	278	192 030	161 692
Area of North Bačka	331	1 023	16 672	15 968
Area of Central Banat	104	46	9 459	38 945
Area of Srem	36	391	37 336	14 909
SERBIA – SOUTH	8 317 994	10 018 468	9 808 466	13 841 016
Region of Sumadija and West Serbia	17 106	12 185	124 207	106 655
Area of Zlatibor	2 572	1 431	10 064	11 421
Area of Kolubara	477	59	11 153	10 510
Area of Mačva	1 737	2 293	18 881	13 791
Area Moravica	4 904	6 214	13 593	10 335
Area of Pomoravlje	169	261	14 518	26 083
Area of Rasina	1 119	1 150	32 953	18 631
Area of Raška	4 808	661	2 688	3 605
Area of Šumadija	1 321	117	20 358	12 278
Region of South and East Serbia	8 300 888	10 006 283	9 684 258	13 734 362
Area of Bor	8 293 569	10 002 551	6 886 880	11 278 101
Area of Braničevo	71	344	1 628 746	1 912 320
Area of Zaječar	725	743	17 038	24 021
Area of Jablanica	3 199	58	6 682	6 288
Area of Niš	571	99	6 536	6 794
Area of Pirot	175	62	6 351	5 628
Area of Podunavlje	2 437	2 340	1 067 170	493 699
Area of Pčinj	142	80	64 626	7 198
Area of Toplica	0	6	228	314
Region of Kosovo and Metohija	...	...	...	...

¹⁾ Nomenclature of Statistical Territorial Units

Table 36. Total generated waste by regions, CA divisions (05–35)

<i>NST¹⁾</i>	2008	2009	2010
REPUBLIC OF SERBIA	22 671 119	28 662 030	33 721 344
SERBIA – NORTH	4 544 659	4 802 546	4 842 999
Region of Belgrade	4 152 419	4 364 164	4 502 360
Area of Belgrade	4 152 419	4 364 164	4 502 360
Region of Vojvodina	392 240	438 382	340 639
Area of West Bačka	45 966	117 282	40 644
Area of South Banat	15 698	18 446	28 103
Area of South Bačka	73 955	69 403	77 672
Area of North Banat	192 682	161 970	143 345
Area of North Bačka	17 004	16 991	15 537
Area of Central Banat	9 563	38 991	23 466
Area of Srem	37 372	15 300	11 873
SERBIA – SOUTH	18 126 460	23 859 484	28 878 346
Region of Sumadija and West Serbia	141 314	118 840	122 230
Area of Zlatibor	12 635	12 853	11 410
Area of Kolubara	11 629	10 569	10 227
Area of Mačva	20 618	16 084	24 950
Area Moravica	18 498	16 549	23 495
Area of Pomoravlje	14 687	26 344	11 853
Area of Rasina	34 072	19 781	9 736
Area of Raška	7 496	4 266	3 610
Area of Šumadija	21 678	12 394	26 948
Region of South and East Serbia	17 985 146	23 740 644	28 756 116
Area of Bor	15 180 449	21 280 652	26 531 921
Area of Braničevo	1 628 816	1 912 664	1 588 789
Area of Zaječar	17 763	24 763	55 040
Area of Jablanica	9 881	6 346	7 016
Area of Niš	7 107	6 893	3 852
Area of Pirot	6 526	5 690	6 410
Area of Podunavlje	1 069 607	496 039	484 100
Area of Pčinj	64 768	7 278	78 979
Area of Toplica	228	320	108
Region of Kosovo and Metohija	...	...	...

¹⁾ Nomenclature of Statistical Territorial Units.

Table 37. Waste generated¹⁾ according to the Waste Catalogue²⁾ and by regions, 2008

Waste groups according to the Waste Catalogue	Republic of Serbia ³⁾				
	total	Serbia – North		Serbia - South	
		Area of Belgrade	Area of Vojvodina	Region of Šumadija and West Serbia	Region of South and East Serbia
Total	22 671 119	4 152 419	392 240	141 314	17 985 146
Hazardous waste, all	8 331 354	3 622	9 738	17 106	8 300 888
1 Waste resulting from exploration, mining, quarrying, physical and chemical treatment of minerals	8 194 823	...	...	...	8 194 823
3 Waste from wood processing and the production of panels and furniture, pulp, paper and cardboard	5 142	...	330	1 014	3 798
4 Waste from the leather, fur and textile industries	3	...	...	3	0
5 Waste from petroleum refining, natural gas purification and pyrolytic treatment of coal	6	1	1	...	3
6 Waste from inorganic chemical processes	110 139	1 463	287	9 939	98 449
7 Waste from organic processes	287	50	172	8	57
8 Waste from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), sealants and printing inks	782	367	0	409	5
9 Waste from photographic industry	15	13	...	1	...
10 Waste from thermal processes	4 625	257	1 607	2 291	470
11 Waste from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy	403	49	5	296	53
12 Waste from shaping and physical and mechanical surface treatment of metals and plastics	2 624	41	31	130	2 423
13 Oil waste and waste of liquid fuels (except edible oils, 05 and 12 and those from chapters 05, 12 and 19)	2 829	635	471	1 388	335
14 Waste organic solvents, refrigerants and propellants (except 07 and 08)	7	...	...	7	...
15 Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified	296	65	38	120	74
16 Waste not otherwise specified in the catalogue	7 363	73	5 625	1 350	315
17 Construction and demolition waste (including excavated oil from contaminated sites)	197	...	91	50	55
18 Waste from human or animal health care and/or related research (except Waste from human or animal health care and/or related research (except kitchen and restaurant waste not arising from immediate health care))	0	0	...	0	...
19 Waste from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use	1 767	600	1 068	93	5
20 Municipal waste (household waste and similar commercial, industrial and institutional waste) including separately collected fractions	49	8	11	6	24
Non-hazardous waste, all	14 339 765	4 148 797	382 502	124 207	9 684 258
1 Waste resulting from exploration, mining, quarrying, physical and chemical treatment of minerals	6 779 277	...	...	2 411	6 776 866
2 Waste from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing	276 210	17 055	238 761	15 301	5 094
3 Waste from wood processing and the production of panels and furniture, pulp, paper and cardboard	28 854	4 206	18 150	5 566	933
4 Waste from the leather, fur and textile industries	1 902	37	1 116	558	190
5 Waste from petroleum refining, natural gas purification and pyrolytic treatment of coal	2 115	101	203	1 800	11
6 Waste from inorganic chemical processes	30	2	1	25	1
7 Waste from organic processes	4 136	222	884	528	2 503
8 Waste from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), sealants and printing inks	203	11	2	144	47
9 Waste from photographic industry	63	63	...	...	...
10 Waste from thermal processes	7 038 037	4 079 850	50 952	35 487	2 871 749
11 Waste from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy	192	...	0	189	3
12 Waste from shaping and physical and mechanical surface treatment of metals and plastics	39 351	3 112	4 773	24 042	7 423
15 Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified	51 939	19 523	12 338	15 100	4 978
16 Waste not otherwise specified in the catalogue	9 270	740	757	1 708	6 065
17 Construction and demolition waste (including excavated oil from contaminated sites)	53 528	10 317	36 080	4 626	2 505
18 Waste from human or animal health care and/or related research (except Waste from human or animal health care and/or related research (except kitchen and restaurant waste not arising from immediate health care))	21	1	0	20	0
19 Waste from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use	8 577	2 473	1 152	2 453	2 499
20 Municipal waste (household waste and similar commercial, industrial and institutional waste) including separately collected fractions	46 060	11 085	17 332	14 251	3 392

¹⁾ Covered are the following sections: Mining and quarrying, Manufacturing and Electricity, gas, steam and air conditioning supply (CA 05–35).

²⁾ Rulebook on Categories, Testing and Waste Classification ("Official Gazette of the RS", number 56/10)

³⁾ Excluding data for AP Kosovo and Metohija.

Table 38. Waste generated¹⁾ according to the Waste Catalogue²⁾ and by regions, 2009

Waste groups according to the Waste Catalogue	Republic of Serbia ³⁾				
	Total	Serbia – North		Serbia - South	
		Area of Belgrade	Area of Vojvodina	Region of Sumadija and West Serbia	Region of South and East Serbia
Total	28 662 030	4 364 164	438 382	118 840	23 740 644
Hazardous waste, all	10 031 220	3 263	9 489	12 185	10 006 283
1 Waste resulting from exploration, mining, quarrying, physical and chemical treatment of minerals	9 943 624	...	...	...	9 943 624
3 Waste from wood processing and the production of panels and furniture, pulp, paper and cardboard	1 626	...	828	51	747
4 Waste from the leather, fur and textile industries	81	...	78	2	0
5 Waste from petroleum refining, natural gas purification and pyrolytic treatment of coal	1 087	0	1 086	...	1
6 Waste from inorganic chemical processes	66 128	1 124	25	6 232	58 747
7 Waste from organic processes	337	46	272	11	9
8 Waste from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), sealants and printing inks	454	245	43	145	22
9 Waste from photographic industry	1 113	1 110	1	2	...
10 Waste from thermal processes	3 592	159	1 152	2 279	2
11 Waste from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy	653	11	21	616	5
12 Waste from shaping and physical and mechanical surface treatment of metals and plastics	2 249	16	2	23	2 209
13 Oil waste and waste of liquid fuels (except edible oils, 05 and 12 and those from chapters 05, 12 and 19)	2 752	221	421	1 813	297
14 Waste organic solvents, refrigerants and propellants (except 07 and 08)	8	0	1	7	...
15 Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified	286	56	77	62	91
16 Waste not otherwise specified in the catalogue	3 695	26	3 226	274	169
17 Construction and demolition waste (including excavated oil from contaminated sites)	1 425	0	1 072	1	352
18 Waste from human or animal health care and/or related research (except Waste from human or animal health care and/or related research (except kitchen and restaurant waste not arising from immediate health care))	1	1	...	0	...
19 Waste from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use	2 002	240	1 096	664	3
20 Municipal waste (household waste and similar commercial, industrial and institutional waste) including separately collected fractions	107	9	89	4	5
Non-hazardous, all	18 630 810	4 360 901	428 894	106 655	13 734 362
1 Waste resulting from exploration, mining, quarrying, physical and chemical treatment of minerals	11 133 290	...	...	2 644	11 130 646
2 Waste from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing	349 399	12 648	314 320	14 256	8 175
3 Waste from wood processing and the production of panels and furniture, pulp, paper and cardboard	37 071	5 836	20 359	8 157	2 718
4 Waste from the leather, fur and textile industries	1 049	10	497	125	417
5 Waste from petroleum refining, natural gas purification and pyrolytic treatment of coal	2 723	...	145	2 568	10
6 Waste from inorganic chemical processes	1 537	26	3	68	1 440
7 Waste from organic processes	3 171	202	1 389	182	1 397
8 Waste from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), sealants and printing inks	116	9	8	94	5
9 Waste from photographic industry	45	45	...	1	...
10 Waste from thermal processes	6 932 436	4 307 789	45 893	18 970	2 559 785
11 Waste from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy	250	...	0	223	28
12 Waste from shaping and physical and mechanical surface treatment of metals and plastics	34 252	4 522	3 954	16 872	8 904
15 Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified	37 075	11 577	10 214	11 020	4 263
16 Waste not otherwise specified in the catalogue	7 689	632	1 209	780	5 069
17 Construction and demolition waste (including excavated oil from contaminated sites)	35 785	8 979	2 368	19 155	5 284
18 Waste from human or animal health care and/or related research (except Waste from human or animal health care and/or related research (except kitchen and restaurant waste not arising from immediate health care))	13	1	...	9	3
19 Waste from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use	14 303	1 998	3 099	5 314	3 893
20 Municipal waste (household waste and similar commercial, industrial and institutional waste) including separately collected fractions	40 606	6 626	25 437	6 217	2 326

¹⁾ Covered are the following sections: Mining and quarrying, Manufacturing and Electricity, gas, steam and air conditioning supply (CA 05–35).

²⁾ Rulebook on Categories, Testing and Waste Classification ("Official Gazette of the RS", number 56/10)

³⁾ Excluding data for AP Kosovo and Metohija.

Table 39. Imports and exports of non-hazardous waste

Republic of Serbia		t					
EWC-Stat	Waste categories	2008		2009		2010	
		Exports	Imports	Exports	Imports	Exports	Imports
01-05	Chemical and health care waste	146	...	325	...	114	...
06	Metallic waste	362 899	56 353	348 123	20 921	447 645	23 343
07.1	Glass waste	11 545	...	4 891	53	14 905	1
07.2	Paper and cardboard waste	72 232	11 935	58 626	10 862	63 467	47 008
07.4	Plastic waste	2 306	2 370	2 653	1 247	2 387	915
07.6	Textile waste	90	1 370	167	133	70	1 106
08.0 (excluding 08.1 and 08.41)	Discarded equipment	276	3	304	11	432	...
08.41	Batteries and accumulators waste	...	...	...	283	346	3 369
11 (excluding 11.3)	Common sludges	...	...	...	3	...	...

Table 40.1. Waste generated in EU member countries, 2008¹⁾

EU member countries	Number of population	Mining and quarrying, t	Quantities of waste per capita, kg	Manufacturing, t	Quantities of waste per capita, kg	Electricity, gas, steam and air conditioning supply, t	Quantities of waste per capita, kg
Total							
Belgium	10 666 866	503 487	47	10 090 329	942	1 086 721	101
Bulgaria	7 640 238	267 558 647	35 097	3 447 006	452	7 654 555	1 004
Czech Republic	10 381 130	166 949	16	5 292 547	508	1 919 860	184
Denmark	5 475 791	2 430	0	1 454 489	265	1 358 230	247
Germany	82 217 837	28 287 600	345	52 322 458	637	11 707 971	143
Estonia	1 340 935	7 197 790	5 369	3 771 574	2 813	5 423 863	4 046
Ireland	4 401 335	2 061 293	466	4 025 624	910	291 726	66
Greece	11 171 740	38 151 604	3 395	5 702 706	507	11 180 698	995
Spain	45 283 259	25 716 298	3 395	19 368 659	425	4 872 159	107
France	64 007 193	1 195 220	19	21 640 260	337	1 004 080	16
Italy	59 619 290	1 262 823	21	43 085 764	720	3 089 900	52
Cyprus	789 269	504 686	636	137 925	174	2 110	3
Latvia	2 270 894	2 585	1	501 287	221	20 161	9
Lithuania	3 366 357	3 367	1	2 757 738	821	50 645	15
Luxembourg	483 799	9 738	20	672 899	1 377	1 393	3
Hungary	10 066 158	272 490 ²⁾	27 ²⁾	4 788 947	477	3 050 228 ²⁾	304 ²⁾
Malta	410 290	0	0	17 236	42	0	0
Netherlands	16 405 399	269 658	16	15 823 638	962	1 317 733	80
Austria	8 318 592	677 937	81	13 076 830	1 569	568 962	68
Poland	38 115 641	33 665 852	883	56 745 692	1 488	19 541 445	513
Portugal	10 617 575	1 890 925	178	9 001 304	847	255 144	24
Romania	21 565 119	140 677 024	6 539	11 064 033	514	7 058 116	328
Slovenia	2 010 377	54 519	27	1 734 777	858	353 639	175
Slovakia	5 400 998	150 860	28	4 469 017	827	1 150 662	213
Finland	5 300 484	31 796 383	5 984	16 948 362	3 190	1 531 317	288
Sweden	9 182 927	58 701 928	6 367	11 926 805	1 294	1 508 043	164
Great Britain	61 191 951	85 962 590	1 400	22 837 155	372	4 884 533	80
EU - 27	497 686 132	726 740 000	1 457	342 710 000	687	90 880 000	182

¹⁾ Source: Eurostat²⁾ Eurostat estimation

Table 40.2. Waste generated in EU member countries, 2008¹⁾

EU member countries	Mining and quarrying, t	Quantities of waste per capita, kg	Manufacturing, t	Quantities of waste per capita, kg	Electricity, gas, steam and air conditioning supply, t	Quantities of waste per capita, kg
Hazardous waste						
Belgium	1 730	0	1 255 969	117	11 373	1
Bulgaria	12 279 833	1 611	750 339	98	1 982	0
Czech Republic	28 987	3	658 201	63	27 581	3
Denmark	79	0	224 018	41	71 817	13
Germany	60 788	1	5 841 655	71	516 245	6
Estonia	2 165	2	2 072 184	1 546	5 335 869	3 980
Ireland	3 683	1	244 873	55	1 755	0
Greece	511	0	88 947	8	10 768	1
Spain	6 511	0	1 639 206	36	30 957	1
France	96 240	1	2 685 990	42	38 200	1
Italy	37 643	1	3 488 046	58	117 904	2
Cyprus	204	0	2 532	3	1 361	2
Latvia	3	0	21 060	9	330	0
Lithuania	344	0	18 918	6	571	0
Luxembourg	935	2	60 702	124	312	1
Hungary	25379 ²⁾	3 ²⁾	276 505	28	12253 ²⁾	1 ²⁾
Malta	0	0	0	0	0	0
Netherlands	14 983	1	813 457	49	8 974	1
Austria	10 042	1	526 320	63	29 019	3
Poland	5 130	0	703 829	18	15 065	0
Portugal	92 666	9	398 591	38	9 695	1
Romania	31 117	1	385 373	18	2 193	0
Slovenia	186	0	77 285	38	688	0
Slovakia	567	0	326 439	60	9 871	2
Finland	1 118 268	210	831 948	157	13 130	2
Sweden	3 177	0	538 170	58	234 769	25
Great Britain	58 941	1	1 625 776	26	108 784	2
EU - 27	13 880 000	28	25 560 000	51	6 610 000	13
Non-hazardous waste						
Belgium	501 758	47	8 834 359	825	1 075 348	100
Bulgaria	255 278 814	33 486	2 696 667	354	7 652 573	1 004
Czech Republic	137 962	13	4 634 346	445	1 892 280	182
Denmark	2 351	0	1 230 471	224	1 286 413	234
Germany	28 226 812	344	46 480 803	566	11 191 726	136
Estonia	7 195 625	5 367	1 699 390	1 268	87 994	66
Ireland	2 057 610	465	3 780 751	854	289 971	66
Greece	38 151 092	3 395	5 613 759	500	11 169 930	994
Spain	25 709 787	564	17 729 453	389	4 841 202	994
France	1 098 980	17	18 954 270	295	965 880	15
Italy	1 225 180	20	39 597 719	662	2 971 996	50
Cyprus	504 483	636	135 393	171	749	1
Latvia	2 582	1	480 227	212	19 831	9
Lithuania	3 023	1	2 738 820	816	50 074	15
Luxembourg	8 803	18	612 197	1 253	1 081	2
Hungary	247111 ²⁾	25 ²⁾	4 512 442	450	3037975 ²⁾	303 ²⁾
Malta	0	0	17 236	42	0	0
Netherlands	254 675	15	15 010 181	913	1 308 759	80
Austria	667 895	80	12 550 510	1 505	539 944	65
Poland	33 660 721	883	56 041 863	1 470	19 526 380	512
Portugal	1 798 259	169	8 602 712	810	245 449	23
Romania	140 645 907	6 538	10 678 660	496	7 055 923	328
Slovenia	54 333	27	1 657 492	820	352 952	175
Slovakia	150 293	28	4 142 578	766	1 140 791	211
Finland	30 678 115	5 774	16 116 414	3 033	1 518 187	286
Sweden	58 698 751	6 367	11 388 635	1 235	1 273 274	138
Great Britain	85 903 648	1 399	21 211 378	345	4 775 749	78
EU - 27	712 860 000	1 429	317 150 000	636	84 270 000	169

¹⁾ Source: Eurostat²⁾ Eurostat estimation

Table 41.1. Waste generated in the countries of the region, 2008¹⁾

Countries of the region	Number of population	Mining and quarrying, t	Quantities of waste per capita, kg	Manufacturing, t	Quantities of waste per capita, kg	Electricity, gas, steam and air conditioning supply, t	Quantities of waste per capita, kg
Total							
Bulgaria	7 640 238	267 558 647	35 097	3 447 006	452	7 654 555	1 004
Greece	11 171 740	38 151 604	3 395	5 702 706	507	11 180 698	995
Hungary	10 066 158	272 490 ³⁾	27 ³⁾	4 788 947	477	3 050 228 ³⁾	304 ³⁾
Romania	21 565 119	140 677 024	6 539	11 064 033	514	7 058 116	328
Slovenia	2 010 377	54 519	27	1 734 777	858	353 639	175
Croatia	4 441 238	34 225	8	1 726 759	389	136 461	31
Macedonia	2 041 941	...	...	1 362 466	666	...	...
Republic of Serbia²⁾	7 365 507	15 009 969	2 038	1 961 276	266	5 699 875	774

¹⁾ Source: Eurostat

²⁾ Source: Statistical Office of the Republic of Serbia (SORS)

³⁾ Eurostat estimation

Table 41.2. Waste generated in the countries of the region, 2008¹⁾

Countries of the region	Mining and quarrying, t	Quantities of waste per capita, kg	Manufacturing, t	Quantities of waste per capita, kg	Electricity, gas, steam and air conditioning supply, t	Quantities of waste per capita, kg
Hazardous waste						
Bulgaria	12 279 833	1 611	750 339	98	1 982	0
Greece	511	0	88 947	8	10 768	1
Hungary	25 379 ³⁾	3 ³⁾	276 505	28	12 253 ³⁾	1 ³⁾
Romania	31 117	1	385 373	18	2 193	0
Slovenia	186	0	77 285	38	688	0
Croatia	487	0	212 431	48	472	0
Macedonia	...	...	6 441	3	...	...
Republic of Serbia²⁾	8 195 230	1 113	133 865	18	2 259	0
Non-hazardous waste						
Bulgaria	255 278 814	33 486	2 696 667	354	7 652 573	1 004
Greece	38 151 092	3 395	5 613 759	500	11 169 930	994
Hungary	247 111 ³⁾	25 ³⁾	4 512 442	450	3 037 975 ³⁾	303 ³⁾
Romania	140 645 907	6 538	10 678 660	496	7 055 923	328
Slovenia	54 333	27	1 657 492	820	352 952	175
Croatia	33 738	8	1 514 328	341	135 989	31
Macedonia	...	...	1 356 025	662	...	...
Republic of Serbia²⁾	6 814 739	925	1 827 411	248	5 697 616	774

¹⁾ Source: Eurostat

²⁾ Source: Statistical Office of the Republic of Serbia (SORS)

³⁾ Eurostat estimation

Annex 2

Nomenclatures and classifications

Waste Survey

Requirements according to the Regulation on Waste Statistics

Table 2.1. Classification of waste according to EWC-Stat Rev. 3

EWC-Stat Rev.3 ²⁾	Description	Waste categories ¹⁾
01.1	Spent solvents	H
01.2	Acid, alkaline or saline waste	NH
01.2	Acid, alkaline or saline waste	H
01.3	Used oils	H
01.4	Spent chemical catalysts	NH
01.4	Spent chemical catalysts	H
02	Chemical preparation waste	NH
02	Chemical preparation waste	H
03.1	Chemical deposits and residues	NH
03.1	Chemical deposits and residues	H
03.2	Industrial effluent sludges	NH
03.2	Industrial industrial sludges	H
05	Health care and biological waste	NH
05	Health care and biological waste	H
06	Metallic waste	NH
06	Metallic waste	H
07.1	Glass waste	NH
07.1	Glass waste	H
07.2	Paper and cardboard waste	NH
07.3	Rubber waste	NH
07.4	Plastic waste	NH
07.5	Wood waste	NH
07.5	Wood waste	H
07.6	Textile waste	NH
07.7	Wastes containing PCB ³⁾	H
08	Discarded equipment (excluding 08.1 and 08.41)	NH
08	Discarded equipment (excluding 08.1 and 08.41)	H
08.1	Discarded vehicles	NH
08.1	Discarded vehicles	H
08.41	Batteries and accumulators waste	NH
08.41	Batteries and accumulators waste	H
09	Animal and vegetal waste (excluding 09.11 and 09.3)	NH
09.11	Animal waste of food preparation and products	NH
09.3	Animal faeces, urine and manure	NH
10.1	Household and similar waste	NH
10.2	Mixed and undifferentiated materials	NH
10.2	Mixed and undifferentiated materials	H
10.3	Sorting residues	NH
10.3	Sorting residues	H
11	Common sludges: liquid substances (excluding 11.3)	NH
11.3	Dredging spoils	NH
12	Mineral waste (excluding 12.4 and 12.6)	NH
12	Mineral waste (excluding 12.4 and 12.6)	H
12.4	Combustion waste	NH
12.4	Combustion waste	H
12.6	Contaminated soils and polluted dredging spoils	H
13	Solidified, stabilised or vitrified waste	NH
13	Solidified, stabilised or vitrified waste	H

¹⁾ H – hazardous waste / NH – non-hazardous waste

²⁾ Commission Regulation (EC) No 574/2004 amending Annexes I to Regulation (EC) No 2150/2002 of the European Parliament and of the Council on waste statistics

³⁾ PCB – polychlorinated biphenyls

Table 2.2. Sources of waste generation according to the Regulation on Waste Statistics (2150/2002 EC)

Number	CA – codes	CA – divisions	Description
1	A	01–03	Agriculture, forestry and fishing
2	B	04–09	Mining and quarrying
3	C	10–12	Manufacture of food products, beverages and tobacco products
4	C	13–15	Production of textiles, wearing apparel, leather and related products
5	C	16	Manufacture of wood and of products of wood and cork, except furniture
6	C	17–18	Manufacture of paper and paper products, printing and reproduction of recorded media
7	C	19	Manufacture of coke and refined petroleum products
8	C	20–22	Manufacture of chemicals and chemical products, basic pharmaceutical products, pharmaceutical preparations and rubber and plastic products
9	C	23	Manufacture of other non-metallic mineral products
10	C	24–25	Manufacture of basic metals, fabricated metal products, except machinery and equipment
11	C	26–30	Manufacture of computer, electronic and optical products + Manufacture of electrical equipment + Manufacture of machinery and equipment, n.e.c. + Manufacture motor vehicles, trailers and semi-trailers + Manufacture of other transport equipment
12	C	31–33	Manufacture of furniture + Other manufacturing + Repair and installation of machinery and equipment
13	D	34–35	Electricity, gas, steam and air conditioning supply
14	E	36+37+39	Water collection, treatment and supply + Sewerage + Remediation activities and other waste management activities
15	E	38	Waste collection, treatment and disposal activities; materials recovery
16	F	41–43	Construction
17	G–U	45–99	Sections from G–U (excluding G 46.77)
18	46.77	46.77	Wholesale of waste and scraps
19		HH	Household waste

Table 2.3. Operations of recovery and disposal of waste included in the Regulation on Waste Statistics (2150/2002 EC)

Number	Code ¹⁾	Methods of waste recovery and disposal
		Incineration
1	R1	Use principally as a fuel or other means to generate energy
2	D10	Incineration on land
		Waste recovery operations (excluding energy generation)
3	R2	Solvent reclamation/regeneration
	R3	Recycling/reclamation of organic substances which are not use as solvents (including composting and other biological transformation processes)
	R4	Recycling/reclamation of metals and metal compounds
	R5	Recycling/reclamation of other inorganic substances
	R6	Regeneration of acids and basis
	R7	Recovery of components used for pollution abatement
	R8	Recovery of components from catalysts
	R9	Oil re-refining and other reuses of oil
	R10	Land treatment resulting in benefit to agriculture or ecological improvement
	R11	Use of waste from any of the mentioned operations numbered R1 to R10
		Disposal operations
4	D1	Deposit into or onto land (e.g. landfills)
	D3	Deep injection (e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories, etc.)
	D4	Surface impoundment (e.g. placement of liquid or sludgy discards into pits, ponds or lagoons, etc.)
	D5	Specially engineered landfills (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.)
	D12	Permanent storage (e.g. emplacement of containers in a mine, etc.)
5	D2	Land treatment (e.g. biodegradation of liquid and sludgy discards in soils, etc.)
	D6	Release into a water body, except seas/oceans

¹⁾ The codes refer to the codes in the Annexes to Directive 75/442/EEC

Table 2.4. Disposal operations (D list) according to Waste Framework Directive 2008/98/EC

Code	Description of waste
D1	Deposit into or onto land (e.g. landfills)
D2	Land treatment (e.g. biodegradation of liquid and sludgy discards in soils, etc.)
D3	Deep injection (e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories, etc.)
D4	Surface impoundment (e.g. placement of liquid or sludgy discards into pits, ponds or lagoons, etc.)
D5	Specially engineered landfills (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.)
D6	Release into a water body, except seas/oceans
D7	Release to seas/oceans, including sea-bed insertion
D8	Biological treatment not elsewhere in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12
D9	Physico-chemical treatment not elsewhere specified in this Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12 (e.g. evaporation, drying, calcification, etc.)
D10	Incineration on land
D11	Incineration at sea *
D12	Permanent storage (e.g. emplacement of containers in a mine, etc.)
D13	Blending and mixing prior to submission to any of the operations numbered D1 to D12**
D14	Repackaging prior to submission to any of the operations numbered D1 to D13
D15	Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)

(*) This operation is prohibited by EU legislation and international conventions.

(**) If there is no other D code appropriate, this can include preliminary operations prior to disposal including pre-processing such as, inter alia, sorting, compacting, pelletising, drying, shredding, conditioning or separating prior to submission to any of the operations numbered D1 to D2.

Table 2.5. Recovery operations (R list) according to Waste Framework Directive 2008/98/EC

Code	Description of waste
R1	Use principally as a fuel or other means to generate energy *
R2	Solvent reclamation/regeneration
R3	Recycling/reclamation of organic substances which are not use as solvents (including composting and other biological transformation processes)**
R4	Recycling/reclamation of metals and metal compounds
R5	Recycling/reclamation of other inorganic substances ***
R6	Regeneration of acids and basis
R7	Recovery of components used for pollution abatement
R8	Recovery of components from catalysts
R9	Oil re-refining and other reuses of oil
R10	Land treatment resulting in benefit to agriculture or ecological improvement
R11	Use of waste from any of the mentioned operations numbered R1 to R10
R12	Exchange of waste for submission to any of the operations numbered R1 to R11****
R13	Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where the waste is produced)

(*) This include incineration facilities dedicated to the processing of municipal waste only if their energy efficiency is equal to or above:
- 0,60 for installations in operation and permitted before 1st January 2009,
- 0,65 for installations permitted after 31st December 2008.

Energy efficiency is calculated according to the following formula:

$$\text{Energy efficiency} = (E_p - (E_f + E_i)) / (0,97 \times (E_w + E_f)),$$

where:

E_p – annual energy produced as heat or electricity. It is calculated as energy in the form of electricity multiplied by 2,6 and heat produced for commercial use multiplied by 1,1 (annual energy in GJ)

E_f – annual energy input to the system from fuels contributing to the production of steam (annual energy in GJ)

E_w – annual energy contained in the treated waste calculated by using the net calorific value of waste (annual energy in GJ)

E_i – annual imported energy, excluding E_w and E_f (annual energy in GJ)

0,97 – factor accounting for energy losses due to bottom ash and radiation

This formula is applied in accordance with reference documents on Best Available Techniques for waste incineration.

(**) This includes gasification and pyrolysis using the components as chemicals.

(***) This includes soil cleaning resulting in recovery of the soil and recycling inorganic construction materials.

(****) If there is no other appropriate R code, this can include preliminary operations prior to recovery including pre-processing such as, inter alia, dismantling, sorting, crushing, compactin, pelletising, drying, shredding, conditioning, repackaging, separating, blending or mixing prior to submission to any of the operations numbered R1 to R11.

Table 2.6. Summary of methods applied for data compilation

Number	CA – codes	CA – divisions	Description	Method applied in the survey
1	A	01–03	Agriculture, forestry and fishing	No survey
2	B	04–09	Mining and quarrying	Annual survey, questionnaire since 2008
3	C	10–12	Manufacture of food products, beverages and tobacco products	Annual survey, questionnaire since 2008
4	C	13–15	Production of textiles, wearing apparel, leather and related products	Annual survey, questionnaire since 2008
5	C	16	Manufacture of wood and of products of wood and cork, except furniture	Annual survey, questionnaire since 2008
6	C	17–18	Manufacture of paper and paper products, printing and reproduction of recorded media	Annual survey, questionnaire since 2008
7	C	19	Manufacture of coke and refined petroleum products	Annual survey, questionnaire since 2008
8	C	20–22	Manufacture of chemicals and chemical products, basic pharmaceutical products, pharmaceutical preparations and rubber and plastic products	Annual survey, questionnaire since 2008
9	C	23	Manufacture of other non-metallic mineral products	Annual survey, questionnaire since 2008
10	C	24–25	Manufacture of basic metals, fabricated metal products, except machinery and equipment	Annual survey, questionnaire since 2008
11	C	26–30	Manufacture of computer, electronic and optical products + Manufacture of electrical equipment + Manufacture of machinery and equipment, n.e.c. + Manufacture motor vehicles, trailers and semi-trailers + Manufacture of other transport equipment	Annual survey, questionnaire since 2008
12	C	31–33	Manufacture of furniture + Other manufacturing + Repair and installation of machinery and equipment	Annual survey, questionnaire since 2008
13	D	34–35	Electricity, gas, steam and air conditioning supply	Annual survey, questionnaire since 2008
14	E	36+37+39	Water collection, treatment and supply + Sewerage + Remediation activities and other waste management activities	Pilot survey for 2010
15	E	38	Waste collection, treatment and disposal activities; materials recovery	
16	F	41–43	Construction	No survey
17	G - U	45–99	Sections from G–U (excluding G 46.77)	No survey
18	G	46.77	Wholesale of waste and scraps	No survey
19		HH	Household waste	No survey

Table 2.7. Abbreviations of the Classification of Activities

Section	Division	
A	1	AGRICULTURE, FORESTRY, FISHING
	2	Crop and animal production, hunting and related service activities
	3	Forestry and logging
B	3	Fishing and aquaculture
		MINING AND QUARRYING
	5	Mining of coal and lignite
	6	Extraction of crude petroleum and natural gas
	7	Mining of metal ores
C	8	Other mining and quarrying
	9	Mining support service activities
		MANUFACTURING
	10	Manufacture of food products
	11	Manufacture of beverages
	12	Manufacture of tobacco products
	13	Manufacture of textile
	14	Manufacture of wearing apparel
	15	Manufacture of leather and related products
	16	Manufacture of wood and of products of wood and cork, except furniture
	17	Manufacture of paper and paper products
	18	Printing and reproduction of recorded media
	19	Manufacture of coke and petroleum products
	20	Manufacture of chemicals and chemical products
	21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
	22	Manufacture of rubber and plastic products
	23	Manufacture of other non-metallic mineral products
	24	Manufacture of basic metals
	25	Manufacture of fabricated metal products, except machinery and equipment
	26	Manufacture of computer, electronic and optical products
	27	Manufacture of electrical equipment
	28	Manufacture of machinery and equipment, n.e.c
	29	Manufacture of motor vehicles, trailers and semi-trailers
	30	Manufacture of other transport equipment
	31	Manufacture of furniture
	32	Other manufacturing
	33	Repair and installation of machinery and equipment

Table 2.7. Abbreviations of the Classification of Activities (continued)

Section	Division	
D	35	ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY Electricity, gas, steam and air conditioning supply
E	36	WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES Water collection, treatment and supply
	37	Sewerage
	38	Waste collection, treatment and disposal activities; materials recovery
	39	Remediation activities and other waste management activities
F	41	CONSTRUCTION Construction of building
	42	Civil engineering
	43	Specialised construction activities
G	45	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES Wholesale and retail trade and repair of motor vehicles and motorcycles
	46	Wholesale trade, except of motor vehicles and motorcycles
	47	Retail trade, except of motor vehicles and motorcycles
H	49	TRANSPORTATION AND STORAGE Land transport and transport via pipeline
	50	Water transport
	51	Air transport
	52	Warehousing and support activities for transportation
	53	Postal and courier activities
I	55	ACCOMMODATION AND FOOD SERVICE ACTIVITIES Accommodation
	56	Food and beverage service activities
J	58	INFORMATION AND COMMUNICATION Publishing activities
	59	Motion picture, video and television programme production, sound recording and music publishing activities
	60	Programming and broadcasting activities
	61	Telecommunications
	62	Computer programming, consultancy activities and related activities
	63	Information service activities
K	64	FINANCIAL AND INSURANCE ACTIVITIES Financial service activities, except insurance and pension funding
	65	Insurance, reinsurance and pension funding
	66	Activities auxiliary to financial services and insurance activities
L	68	REAL ESTATE ACTIVITIES Real estate activities
M	69	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES Legal and accounting activities
	70	Activities of head offices; management consultancy activities
	71	Architectural and engineering activities; technical testing analysis
	72	Scientific and development activities
	73	Advertising and market research
	74	Other professional, scientific and technical activities
	75	Veterinary activities
N	77	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES Renting and leasing activities
	78	Employment activities
	79	Travel agencies, tour operators and reservation-booking activities
	80	Protection and research activities
	81	Building and environment maintenance
	82	Office and support activities
O	84	PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY Public administration and defence; compulsory social security
P	85	EDUCATION Education
Q	86	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES Human health activities
	87	Residential care activities
	88	Social work activities without accommodation
R	90	ARTS, ENTERTAINMENT AND RECREATION Creative, arts and entertainment activities
	91	Libraries, archives, museums and other cultural activities
	92	Gambling and betting activities
	93	Sports activities and amusement and recreation activities
S	94	OTHER SERVICE ACTIVITIES Activities of membership organisations
	95	Repair of computers and personal and household goods
	96	Other personal service activities
T	97	ACTIVITIES OF HOUSEHOLDS AS EMPLOYERS; UNDIFFERENTIATED GOODS AND SERVICES PRODUCING ACTIVITIES OF HOUSEHOLDS FOR OWN USE Activities of households as employers of domestic personnel
	98	Undifferentiated goods and services producing activities of households for own goods
U	99	ACTIVITIES OF EXTRATERRITORIAL ORGANISATIONS AND BODIES Activities of extraterritorial organizations and bodies

Annex 3

Definitions

1. Definitions according to the Regulation 2150/2002 and Framework Waste Directive

Waste refers to materials that are not prime products (that is products produced for the market) for which the generator has no further use in terms of his/her own purposes of production, transformation or consumption, and for which he/she wants to dispose (OECD/Eurostat Joint Questionnaire on Waste).

Waste means “any substance or object which the holder discards or intends or is required to discard” (Framework Waste Directive).

Municipal waste includes waste from: households, commerce, businesses and institutions (schools, hospitals, government administration). It includes also bulky waste (e.g. white goods, old furniture, mattresses) and waste generated by selected municipal services, e.g. park and garden maintenance, street cleaning services (which includes street sweeping, content of litter containers, market cleansing waste) (OECD/Eurostat Joint Questionnaire on Waste).

2. Definitions according to the Law on Waste Management („Official Gazette of the RS“, No 36/09, 88/10)

Waste is any material or object contained in the list of waste categories (Q list) which the holder discards, intends to or is required to discard. Any material from manufacturing, service or other activities, objects out of use as well as waste materials from consumption which, for producers and consumers are no longer fit for use – are considered waste which must be discarded.

Anaerobic digestion is the process in which biodegradable material breakdown in the absence of oxygen.

Biodegradable waste is the waste which is suitable for anaerobic or aerobic breakdown, such as food, garden waste, paper and paperboard.

Collection centre is the site designated by decision of the municipality, town, i.e. City of Belgrade (hereinafter: local self-management unit) where population discards mainly bulky objects, such as furniture and white goods, garden waste and recyclable materials.

Decontamination includes all operations allowing re-use, recycling or safe disposal of equipment, objects, materials or liquids contaminated by hazardous substances, as well as replacement, i.e. all operations by means of which hazardous substances may be replaced by liquids with proper less hazardous substances.

Landfill is a waste disposal site for the deposit of the waste onto or into land, including: internal waste disposal sites (landfill where a producer of waste is carrying out its own waste disposal at the place of production), permanent sites (more than a year) which are used for temporary waste storage, except transfer station and waste storage prior to treatment or recovery (less than three years), or waste disposal (less than a year).

Permit is an official document which is issued by a competent body to a legal or physical person that collects, transports, imports, exports, transfers in transit, stores, treats or disposes of waste, and which defines the rules on waste management so as to minimize risks to human health and environment.

Industrial waste is waste from any industrial operation or from several locations where the industrial activity is carried out, except waste and related mineral raw materials from mines and quarries.

Inert waste is waste that does not undergo any physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it enters into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of leachate must be within set up limits, and in particular must not endanger the quality of surface water and/or groundwater.

Waste characterisation is the process by which physical, chemical and biological properties and composition of waste are analysed, i.e. which defines whether waste contains or not one or more hazardous properties.

Waste classification is the process of classifying waste into one or more waste lists, laid down in a specific regulation, by its origin, composition and further use.

Commercial waste is waste generated by enterprises, institutions, etc. which deal entirely or partially with trade, services, office business, sports, recreation or leisure, excluding household and industrial waste.

Municipal waste is waste from households (domestic waste) as well as other waste, which because of its nature or composition, is similar to waste from households.

Mobile waste management facility is a facility for waste use or treatment on the location where waste is generated, which stays for a limited period of time at one location, is not attached to foundations or a building and can be moved from one location to another.

Non-hazardous waste means waste which displays non-hazardous properties.

Waste disposal is any operation or method, where waste regeneration, recycling, treatment, direct re-use or use of alternative energy sources according to the D list are impossible.

Waste is any substance or object contained in the waste categories list (Q list) which the holder discards, intends to or is required to discard by.

Hazardous waste is waste which, by its origin, composition or contents of hazardous substances, may pose a threat to the environment and human health and displays any hazardous property defined by specific regulations, including packaging holding hazardous waste.

Operator is any physical or legal person which, in line with regulations, is responsible for the management or control of a facility or is authorised to make economic decisions related to the technical functioning of the facility and who is issued a waste management permit.

PCB means polychlorinated biphenyls, polychlorinated terphenyls (PCT), monomethyl-tetrachloridephenylmethanes, monomethyl-dichlorodiphenylmethanes, monomethyl-dibromodiphenylmethanes or any mixture containing more than 0,005% of any of the mentioned substances; PCB waste is waste, including appliances, facilities, materials or liquids which contain, are made of or contaminated by PCB.

Waste recovery is any operation or method which ensures the re-use of waste according to the R list.

Specific waste streams are waste movements (used batteries and accumulators, used oils, used tyres, electrical and electronic waste, used vehicles, etc.) starting from the place of generation, via collection, transport, treatment ending with disposal to landfills.

Waste management facility is a stationary technical unit for waste storage, treatment or disposal, which makes a single technological entity with the building.

Transboundary waste movement is waste movement from one area which is under the jurisdiction of one country or through an area which is not under national jurisdiction of any country provided that at least two countries are involved in waste movement.

Waste producer is a company, enterprise or any legal entity, i.e. unincorporated enterprise which activities produce waste and/or which carries out processing, mixing or other operations resulting in a change in the nature or composition of this waste.

Waste management region is a spatial whole covering several neighbouring self-management units which, according to their mutual agreement, are jointly engaged in waste management in view of establishing a sustainable waste management system.

Recycling is the re-processing of waste materials in the manufacturing process for original or other purposes, excluding energy.

Waste collection is the systematic gathering, sorting and/or mixing of waste for transport purposes.

Waste collector is a physical or legal person which collects waste.

Waste storage is temporary waste storage on the producer's or holder's site as well as the operator's operation in the facility equipped and registered for temporary waste storage.

Incineration is a thermal treatment of waste in a stationary or mobile facility with or without the use of energy produced by combustion, which primary purpose is waste thermal treatment and which covers pyrolysis, gasification and combustion in plasma.

Co-incineration is a thermal treatment of waste in a stationary or mobile facility which primary purpose is the production of energy or material products, and which uses waste as basic or additional fuel or in which waste is thermally treated for disposal purposes.

Transfer station is a place where waste is brought and temporarily stored for sorting or transshipment prior to transport for treatment or disposal purposes.

Waste transport is the shipment of waste from the facility, which covers waste loading, transport (as well as transshipment) and unloading.

Waste treatment covers physical, thermal, chemical or biological processes, including waste sorting which changes its properties in view of changing its weight, volume of hazardous properties. It includes waste recovery and recycling.

Waste management is the implementation of measures for waste management which covers collection, transport, storage, treatment and disposal of waste, including the supervision of such operations and after-care in waste management facilities.

Waste holder is the producer of waste or the person participating in waste movement as the direct waste holder or legal or physical person in possession of the waste.

Annex 4

Regulatory documents

NATIONAL STRATEGIES, LAWS, RULEBOOKS AND REGULATIONS APPLIED, EUROPEAN REGULATIONS AND GUIDELINES

▪ Strategies

- National Waste Management Strategy, 2010-2019 (“Official Gazette of RS”, No. 29/10)
- Decision on establishing National Program of Environmental Protection (“Official Gazette of RS”, No. 12/10)
- National Program for Integration of the Republic of Serbia into the European Union (NPI) (Decision of the Government of the Republic of Serbia 05, No. 0118137/2007-10)
- National Sustainable Development Strategy (“Official Gazette of RS”, No. 57/08)
- Energy Development Strategy in the Republic of Serbia by 2015 (“Official Gazette of RS”, No. 44/05)
- Regional Development Strategy of the Republic of Serbia, 2007- 2012 (“Official Gazette of RS”, No. 21/07)
- Strategy of Introducing Cleaner Production in the Republic of Serbia (“Official Gazette of RS”, No. 17/09)
- Development Strategy of the Official Statistics in the Republic of Serbia, 2009-2012
- Program of Official Statistics, 2011 – 2015 (“Official Gazette of RS”, No. 6/11)

▪ Laws

- Law on Environmental Protection (“Official Gazette of RS”, No. 135/04)
- Law Amending the Law on Environmental Protection (“Official Gazette of RS”, No. 36/09)
- Law on Waste Management (“Official Gazette of RS”, No. 36/09 and 88/10)
- Law on Packaging and Packaging Waste (“Official Gazette of RS”, No. 36/09)
- Law on Official Statistics (“Official Gazette of RS”, No. 104/09)

▪ Rulebooks

- Rulebook on the form of document on issuing permits for storage, treatment and disposal of waste (“Official Gazette of RS”, No. 72/09)
- Rulebook on the form of document on hazardous waste stream, with instructions for filling in (“Official Gazette of RS”, No. 72/09)
- Rulebook on the criteria for determining whether something is packaging, with examples for criteria application and the list of Serbian standards regarding basic conditions packaging must fulfill to be placed on the market; Rulebook on the types of durable packaging (“Official Gazette of RS”, No. 70/09)
- Rulebook on categories, testing and classification of waste (“Official Gazette of RS” No. 56/10)
- Rulebook on the form of report on packaging and packaging waste management (“Official Gazette of RS”, No. 21/10)
- Rulebook on the forms of daily records and annual reports on waste, with instructions to complete it (“Official Gazette of RS”, No. 95/10)
- Rulebook on methodology for establishing national and local register of pollution sources, as well as on methodology for types, methods and deadlines of data collecting (“Official Gazette of RS”, No. 91/10)
- Rulebook on the types of durable packaging (“Official Gazette of RS”, No. 70/09)
- Rulebook on the type and annual quantity of packaging used for the packaged products placed on the market, for which the producer, importer, packer/filler and supplier are not obliged to ensure packaging waste management (“Official Gazette of RS”, No. 70/09)

▪ Regulations

- Regulation on products that after use become specific waste streams, form of daily records on type and quantity of manufactured and imported products and annual report, methods and deadlines for submission of annual reports, taxpayers, criteria for calculation, amount and method of calculation and payment of fee (“Official Gazette of RS”, No. 54/10)
- Regulation on establishing the Plan for packaging waste reduction for the period 2010 - 2014 (“Official Gazette of RS”, No. 88/09)
- Regulation on the lists of wastes for transboundary movement, content and appearance of documents accompanying transboundary movement of waste with instructions for filling in (“Official Gazette of RS”, No. 60/09)
- Regulation on establishing Plan of Official Statistics for 2011 (“Official Gazette of RS”, No. 47/11)
- Regulation on establishing Program of Realization of Energy Development Strategy in the Republic of Serbia by 2015, for the period 2007-2012 (“Official Gazette of RS”, No. 17/07, 73/07 and 99/09)
- Regulation on methodology of data collecting for National inventory of accidentally released durable organic pollutants (“Official Gazette of RS”, No. 76/10)
- Regulation on waste disposal in landfills (“Official Gazette of RS”, No. 92/10)

- **European regulations**
 - Regulation on waste statistics, (EC) No. 2150/2002
 - Commission Regulation on waste statistics No. 849/2010, amending Regulation (EC) No. 2150/2002
 - Framework Directive on waste and repealing Directives, (EC) No. 98/2008
 - Regulation on shipments of waste, (EC) No. 1013/2006
 - European List of Waste (LoW), (EC) No. 532/2000
 - European Pollutant Release and Transfer Register (E-PRTR), Regulation (EC) No. 166/2006
 - Commission Regulation amending Annexes I and III to Regulation (EC) No. 2150/2002 on waste statistics, (EC) No. 574/2004
 - Commission Regulation amending Annex II to Regulation (EC) No. 2150/2002 on waste statistics, (EC) No. 783/2005
 - Thematic Strategy on the prevention and recycling of waste, 2005/DC/0666
 - Community strategy for Waste management COM 96/399

- **Guidelines**
 - Methodological guidelines with Annual Report on Industrial Waste OT- ind (Statistical Office of the Republic of Serbia, October 2009)
 - Guidelines for determining marks for recovery (R) and disposal (D) activities
 - Lists of Waste in compliance with the Rulebook on categories, testing and classification of waste ("Official Gazette of RS" No. 56/10)
 - Limit values of hazardous components' concentration in waste that determine characteristics of waste

Annex 5

Abbreviations and references

ABBREVIATIONS

CLRTAP	Convention on Long-Range Transboundary Air Pollution
EC	European Commission
EEA	European Environment Agency
EIONET	European Environment Information and Observation Network
E-PRTR	European Pollutant Release and Transfer Register
EU	European Union
EUROSTAT	Statistical Office of the European Union
EWC-Stat	European Waste Classification for Statistics
GIO	Annual Report on Waste
GIS	Geographic Information System
CA	Classification of Activities
KOM-1	Annual Report on Municipal Waste Management
LoW	The list of wastes, formally European Waste Catalogue
NSTJ	Nomenclature of Statistical Territorial Units
OECD	Organization for Economic Co-operation and Development
OT-ind	Annual Report on Industrial Waste
PAH	Polycyclic hydrocarbons
PRTR	Pollutant Release and Transfer Register
SIDA	Swedish International Development Cooperation Agency
SCB	Statistics Sweden
SWA–Tool	Development of a Methodological Tool to enhance the Precision & Comparability of Solid Waste Analysis Data
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

REFERENCES

1. Avfall and Sverige 2006 (Naturvardsverket, Stockholm 2008)
2. Eco-bulletin, 2007–2008, Statistical Office of the Republic of Serbia, Belgrade, 2010
3. Eco-bulletin, 2009, Statistical Office of the Republic of Serbia, Belgrade, 2010
Report on state of the environment in 2005 in the Republic of Serbia (Ministry of Science and Environment of the Republic of Serbia, Belgrade 2006)
4. Report on state of the environment in 2010 in the Republic of Serbia (Ministry of Environment, Mining and Spatial Planning of the Republic of Serbia, Belgrade 2011)
5. Integral cadastre of polluters (Republic of Serbia, Ministry of Environment and Environmental Protection Agency, Belgrade 2007)
6. Project „Determining waste composition and quantity estimation with the aim to define strategy for secondary raw materials management in scope of sustainable development of the Republic of Serbia (Faculty of Technical Sciences, Novi Sad, Department for environmental protection engineering, Novi Sad, 2009)
7. Statistical Release ZS60 – Industrial waste, 2008, Statistical Office of the Republic of Serbia, Belgrade, 2010
8. Statistical Release ZS60 – Industrial waste, 2009, Statistical Office of the Republic of Serbia, Belgrade, 2011
9. Statistical Release ZS60 – Industrial waste, 2010, Statistical Office of the Republic of Serbia, Belgrade, 2011
10. Statistical data base
11. Statistical Yearbook of Serbia, 2009 – Chapter 2, Climate and Environment, Statistical Office of the Republic of Serbia, Belgrade, 2010
12. Statistical Yearbook of Serbia, 2010 – Chapter 11, Environment, Statistical Office of the Republic of Serbia, Belgrade, 2011

Waste statistics and waste management in the Republic of Serbia, 2008–2010.

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управљање отпадом у Републици Србији. -
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Statistics'." --> Preface. - Tiraž 200. -
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а) Отпадне материје - Управљање - Србија
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