



Brussels, 14.2.2014
COM(2014) 79 final

**REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND
THE COUNCIL**

**on statistics compiled pursuant to Regulation (EC) No 2150/2002 on waste statistics and
their quality**

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1. INTRODUCTION

1.1. Regulation on waste statistics

Article 8(1) of Regulation (EC) No 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics¹ (hereinafter "the Regulation") requires the Commission to submit a report on the implementation of the Regulation to the European Parliament and the Council every three years (following the first report, which was to be submitted within five years of the entry into force of the Regulation). The first report was published in 2008² and the second in 2011³.

Section 7(3) of Annexes I and II to the Regulation stipulates that quality reports from Member States are to be included in the report provided for in Article 8. These reports are available on CIRCABC:

<https://circabc.europa.eu/w/browse/9a7ac3a5-2f59-46b8-b90c-95cd7283ec22>

This report considers the results of the latest data delivery in June 2012 for reference year 2010 and covers 27 EU Member States. It also describes the implementation of the revised annexes to the Waste Statistics Regulation, applicable for reference year 2010.

1.2. Data quality in a multi-method environment

The Regulation defines the data to be submitted and the quality required, but does not stipulate a specific method of drawing up waste statistics, which are thus compiled in a multi-method environment. This enables Member States to keep their data collection systems and to minimise the changes needed to comply with the Regulation.

To minimise the impact of different approaches, Eurostat and the Member States are working in close cooperation on the convergence of methods and the improvement of data quality. A new approach to agree on standardised data validation checks, which started in September 2013, is an important step in this direction.

In their quality reports, Member States describe their data by referring to quality elements commonly used in the European Statistical System⁴ and set out in Regulation (EC) No 1445/2005 on the quality of waste statistics⁵.

1.3. Quality control

Since the first data delivery in 2006, Eurostat has set up an efficient two-step quality control system. The first step is a quick evaluation of data and quality reports. It sends an evaluation report within two months of the reporting deadline.

In this phase, data validation concerns mainly the internal coherence of new data and developments over time. The analysis is made at a highly aggregate level and aims to detect important breaks in series.

The second step is a more in-depth validation with no strict deadline. This analyses the data at a more detailed level (e.g. by economic sector and by waste category) and compares patterns and developments across countries. The validation checks include:

¹ OJ L 332, 9.12.2002, p. 1.

² COM(2008) 355 final, 13.6.2008.

³ COM(2011) 131 final, 17.3.2011.

⁴ Eurostat website on Quality:

http://epp.eurostat.ec.europa.eu/portal/page?_pageid=2273.12273_47140765&_dad=portal&_schema=PORTAL.

⁵ OJ L 229, 6.9.2005, p. 6.

- intra-country comparisons of waste generation with values from previous years for each economic activity;
- cross-country comparisons of the data for each economic activity;
- intra-country comparison of waste generated and waste treated for each waste category;
- cross-checks with waste data from other reporting obligations, such as compliance monitoring, pursuant to other waste-related legislation.

Potential questions are checked against the countries' quality reports and the feedback to the quick evaluation. This may result in a second set of questions being sent to the countries concerned.

2. PUNCTUALITY AND TIMELINESS

Data and quality reports are to be submitted within 18 months after the reference year, i.e. the delivery deadline for reference year 2010 was 30 June 2012. A compliance monitoring routine is in place at Eurostat and reminders are sent to Member States at short intervals, according to a defined schedule.

At time of writing, compliance with the reporting deadline for the reference year 2010 can be summarised as follows:

- 13 countries delivered their data sets on time;
- 6 Member States submitted data within three weeks of the deadline (Denmark, France, Lithuania, Ireland, Cyprus, Hungary);
- 4 Member States delivered data by mid-August so that they could still be considered in the first evaluation round (Belgium, Netherlands, Austria, Romania);
- 4 Member States submitted data more than 3 months after the deadline (Greece, Italy, Latvia, UK). Data were delivered between 25 October (Italy) and 17 November 2012 (UK). Greece and Italy had already incurred serious delays in reporting in previous reporting years.

In summary, compliance with the reporting deadline for 2010 data was below the level of 2008. In addition, some countries reported provisional data and carried out major revisions several months after the deadline, which necessitated renewed validation and delayed the publication process. According to the statements Member States made in their quality reports, the implementation of the latest amendments of the Regulation in 2010 did not cause serious problems and does not explain delays in reporting. Eurostat is taking actions at the adequate level to urge countries to review their production processes and to deliver good quality data within the established delays.

– Publication

The data on waste generation and waste treatment were published in the Eurostat dissemination database on 1 October 2012. Comprehensive updates due to late deliveries or the correction of data were carried out in November 2012, March 2013 and July 2013.

3. COMPLETENESS

The delivery of complete data sets is crucial for the production of EU aggregates. Missing data limit the interpretation and the informative value of waste statistics. Completeness is measured as the number of empty cells that are marked as missing by means of an M-flag.

In the first reporting round for the reference year 2004, six of the 27 EU Member States were able to provide complete data sets on *waste generation* covering all waste categories and all sectors. In all, 21 Member States delivered data sets with some gaps. Overall, the share of missing values on waste generation amounted to about 9 % of the required data.

Over the years, the completeness of data has improved considerably. From 2006 to 2010, the share of missing values ranged between 2 % to 3 % of the required data. With regard to the data on *waste treatment*, the share of missing values at national level amounted to 2.5 % in reference year 2004 and decreased steadily until 2008, when all countries reported complete treatment data.

As a consequence of the revision of the Regulation, the data requirements for 2010 on waste treatment became more comprehensive because of the detailed breakdown into waste categories and the additional treatment category ‘backfilling’. As a result, five of the 27 Member States reported missing data for 2010 and 3.4 % of the treatment data were flagged as missing. More than half of the missing values (1.9 %) referred to the new treatment category ‘backfilling’.

Reporting of statistics to Eurostat has been simplified for Member States by introducing webforms in eDAMIS, Eurostat’s single entry point for data. This has also made data collection fully compliant with the SDMX standard.

4. DATA ACCURACY

4.1. Data coverage

The aim of the Regulation is to produce statistics on waste in accordance with the scope of Directive 2008/98/EC on waste (the Waste Framework Directive)⁶. Statistics on waste generation must be compiled for all economic sectors and for households, and must include waste arising from recovery and disposal operations — what is known as secondary waste. The statistics should also cover waste from small businesses (< 10 employees), though such firms should be exempt from surveys wherever possible.

Statistics on waste treatment cover all waste that is recovered or disposed of within a country, irrespective of the origin of the waste. The underlying concept of the Regulation is to collect data on the final destination of waste. Preparatory treatment operations are not covered.

– Coverage errors and differences in data coverage

The observed coverage errors are mostly due to:

- the distinction between waste and non-waste, and differences in the application of such definitions;
- different methodological approaches and different priorities of national waste management and waste statistics;
- sector-specific coverage problems (e.g. assumed undercoverage of construction and demolition waste in some countries)

Differences in data coverage are assumed to be biggest in the following areas:

- The coverage of extractive wastes (waste from mining and quarrying activities) is seen to have a very high impact on waste statistics. The most serious differences across countries are due to the coverage of overburden, i.e. natural materials that are

⁶ OJ L 312, 22.11.2008, p. 3.

removed to get access to the ore without being processed, and with regard to extractive wastes that are managed at the mine site.

- The distinction between waste and by-products has a significant impact on the waste amounts in NACE A (Agriculture, forestry and fishing) and NACE C (Manufacturing), especially for the waste categories wood waste, animal and vegetal waste, and presumably on slags from metal production.
- The variance of waste generation in the sector NACE F (Construction) indicates differences in data coverage.
- Several countries were not able to report on the new treatment category ‘backfilling’. However, most said they were working on solutions for the next data delivery.

The overall impact of coverage errors is hard to assess. Coverage errors may lead to underestimations as well as to overestimations. The impact is assumed to be highest for mineral wastes from NACE B (Mining and quarrying) and from NACE F (Construction), which is one of the reasons why these waste categories are excluded from the indicators on waste generation and landfilling based on the Regulation.

4.2. Breakdown by economic sectors

The Regulation calls on Member States to break down their data by 19 waste generating activities (18 economic sectors and households). The breakdown of economic activities is defined by reference to the Classification of Economic Activities in the European Community (NACE). Correct allocation to generating activities is a prerequisite for:

- the comparability of sector-specific waste amounts;
- the coherence of waste statistics with business statistics.

The way waste is allocated to the generating sector depends on the methods applied for data collection and on the statistical units for which waste statistics are compiled. Comparability and coherence of data is assumed to be best ensured by using business registers for data collection. As the Regulation allows use of either local units or statistical units as the basis for data compilation, there will be differences in the allocation of wastes across countries even where the provisions of the Regulation are properly applied. This problem is not unique for waste statistics, and is also found in other statistical domains that relate to economic activities.

The overall impact of allocation errors on the quality of waste statistics is assumed to be limited. The risk of misallocation is higher for countries where data on waste generation are derived indirectly from waste treatment data. This is because information on the generating company or sector is known only from secondary sources (e.g. waste collector, waste treatment operator) or has to be derived by other means (e.g. by models or by using the European List of Waste (LoW)⁷, which contains information on the origin of waste). The use of administrative data may also lead to misallocations where the reporting units in the administrative data system are not in line with the definition of statistical units in the Regulation.

4.3. Waste classification

The Regulation defines the breakdown by waste category according to the statistical nomenclature EWC-Stat, but does not stipulate a specific classification to be used for data collection. Countries are free to use any waste classification, as long as they can produce the defined formats to the required quality.

⁷ Decision 2000/532/EC as regards the list of wastes, OJ L 226, 6.9.2000, p. 3.

Most countries collect their data according to the LoW, which comprises 839 waste types. Despite some problems in applying the list, the widespread use of this classification ensures a high level of comparability. The overall impact of classification errors on data accuracy is assumed to be small.

5. COMPARABILITY

5.1. Comparability over time

Now that the fourth round of reporting has been completed, it is possible to proceed with a better assessment of the comparability of data over time.

Eurostat's data validation system ensures that breaks in time series are identified and either corrected or explained. In addition, the countries' quality reports have proved to be a useful tool to monitor methodological changes and their impacts in Member States.

Evaluation of national quality reports shows that nearly all Member States have made considerable adjustments to national waste statistics approaches since 2004. Most countries are further improving their data collection with regard to data quality (e.g. closing of data gaps; improvement of coverage) and with regard to the efficiency of their methods.

In 2010, total waste generation in the EU-27 amounted to 2.50 billion tonnes, a very small increase of 0.3% or 8 million tonnes compared to the previous reference year. Significant changes in some economic sectors cancelled each other out when looking at the total waste generation over all sectors.

At national level, the time series of most countries are consistent. Major breaks in total waste generated in some countries may reflect real developments (e.g. Finland, Sweden) or may result from changes in the data collection system (e.g. Denmark, Austria, Belgium) or from combinations of both (United Kingdom).

In Sweden and Finland, waste generation rose enormously from 2008 to 2010, by 31 million tonnes (37%) and by 23 million tonnes (28%) respectively, due to a rise in extraction of ores in the mining sector.

In Denmark and Austria, major breaks in time series between 2008 and 2010 are caused by fundamental changes in the data collection systems. In Denmark, the ISAG system was replaced in 2010 by a new waste data system that is fully compatible with relevant EU classifications. As a result, the total waste reported was 38% higher than in previous years. In Austria, where an electronic data management system for waste has been introduced, the trend was reversed. Reported waste generation fell by 38% compared to the previous year, partly because of the exclusion of by-products from reporting and partly because of coverage gaps that will have to be tackled in future. Belgium reports a considerable increase in waste generation from 2008 to 2010, by 29%, attributed mainly to methodological changes in data collection (e.g. improved coverage of secondary wastes).

The United Kingdom reports an enormous decrease in waste from the mining sector, by 63 million tonnes (73%), mainly due to methodological reasons (adaptation of out-dated factors for the model-based estimation approach), but this is also assumed to reflect the economic downturn in the mining sector.

5.2. Comparability across countries

Thanks to common definitions and classifications, the comparability of data across countries is fairly high for most sectors and waste types. It has become easier to explain differences between countries with regard to totals generated and treated.

However, there are still serious problems for data comparability with regard to the differences in data coverage described under section 4.1. These problems are being tackled, for instance, by means of workshops where possibilities for harmonisation of data coverage are discussed with the countries. Workshops were held on mining waste in October 2011 and on construction and demolition waste in October 2012. A further workshop on data validation was held in September 2013 as a first step towards defining common standards for validation. In addition, thorough data analysis, by means of sector-specific indicators, ensures steady improvement in comparability across countries.

6. BURDEN ON BUSINESSES

The Regulation requires Member States to reduce the burden on respondents by providing access to administrative data and to exclude small firms with fewer than 10 employees from surveys unless they contribute significantly to waste generation.

Member States' statements in their quality reports show a high level of awareness about the aim of keeping the burden as low as possible. This is reflected by the increasing number of Member States which collect information on the reporting burden in physical terms and which are able to quantify the average time respondents need to complete questionnaires or reporting forms. Compared with the reference year 2008, the number of countries that provided such quantitative information has risen from seven to 10 Member States. The information was gathered from respondents via questionnaires or determined by specific studies.

Seven of the 10 countries estimated that the average time needed to complete the questionnaire or reporting form ranged between 20 minutes and three hours. Time expenditure of more than three hours was reported by Ireland, Poland and Sweden. The highest time was reported by Poland (one to 40 hours per respondent) where, during a transition period, waste holders are burdened with double reporting (administrative and statistical reporting) until the statistical survey is phased out.

The best way to help companies is to avoid double reporting by using administrative data and/or by coordinating waste surveys among the institutions concerned (statistical offices, ministries of the environment, environmental agencies). For 15 Member States, administrative data are the main source for waste statistics. Other countries use administrative data as one of many data sources.

The number of countries that have implemented or plan to implement electronic reporting systems is growing. Electronic reporting tools for some or all waste data are now available in Belgium (Flanders), Denmark, Ireland, Lithuania, Hungary, Austria, Poland, Slovenia and the United Kingdom.

The exemption of small companies from surveys is handled in different ways. Some countries cover small companies by sample surveys and extrapolate the results. Most, though, exclude them completely. The figures are either ignored or extrapolated by factor-based estimation models. Countries have established different exclusion thresholds, defined mostly by the number of employees or by the amount of waste generated per year. Some countries combine the two criteria to make sure that even small companies are covered by data collection when they exceed the defined waste generation threshold.

7. REVISION OF THE WASTE STATISTICS REGULATION

After the first two reporting periods, some deficiencies had become obvious and areas for improvement were identified in the first report to the European Parliament and Council (COM (2008) 355). In addition, the revision of the Waste Framework Directive (2008/98/EC)

established new information needs and amended definitions. For these reasons, also the Regulation had to be amended (by Commission Regulation (EU) No 849/2010/EU⁸). The amended version was applicable for the reference year 2010. The main changes are summarised as follows:

- The most important change is the harmonisation of the breakdown by waste category in section 2 of Annexes I and II to the Regulation. Since reference year 2010, waste generation and waste treatment have to be reported according to the same 51 waste categories.
- Some waste categories have been reorganised or new ones introduced to improve the usability of data, e.g. for the monitoring of waste policies. They include:
 - separate waste categories for mineral waste from construction and demolition, for soils and for dredging spoil;
 - separate waste categories for liquid and mineral wastes from waste treatment (secondary wastes);
 - reorganisation of the categories animal and vegetal waste and metal wastes;
 - aggregation of different chemical wastes in one category.
- Furthermore, waste treatment categories were reorganised:
 - The definition of the treatment category ‘deposit into or onto land’ was harmonised with the definition of landfilling in Council Directive 1999/31/EC on the landfill of waste⁹ to integrate the collection of data on the number and capacity of landfills that are so far collected under that directive¹⁰.
 - The treatment category ‘backfilling’ was introduced to bring the Regulation in line with the definitions of the revised Waste Framework Directive.

The Manual for the Implementation of the Waste Statistics Regulation was adapted in 2010 and again in 2013.

Taking into account statements from the Member States, the implementation of the revised waste categories and the regrouping of the treatment operation ‘deposit into or onto land’ went smoothly and did not cause any problems. Some countries explicitly welcomed the changes from the technical point of view.

Problems with the introduction of the new treatment category ‘backfilling’ were reported by numerous countries, mainly because the list of recovery operations in Annex II of the Waste Framework Directive does not provide a specific entry (R-code) for ‘backfilling’. Furthermore, the definition of the term ‘backfilling’ was criticised as not being sufficiently clear, and this was seen as a problem for data collection.

Altogether, the amended Regulation was successfully implemented and one of the aims of the revision, to align waste statistics with definitions and reporting requirements of other waste legislation, has been achieved.

However, the presentation and analysis of the time series has become more difficult, due to the breaks caused by the redefinition of waste categories and treatment operations. Eurostat is

⁸ OJ L 253, 28.9.2010, p. 2.

⁹ OJ L 182, 16.7.1999, p. 1.

¹⁰ Commission Decision 2000/738/EC of 17 November 2000 concerning a questionnaire for Member States' reports on the implementation of Directive 1999/31/EC on the landfill of waste (OJ L 298, 25.11.2000, p. 24).

currently working on improving data presentation to users so that the second important aim of the revision of the Regulation, to improve the usability of waste statistics, will also be achieved.

8. ACHIEVEMENTS AND OUTLOOK

Significant progress has been achieved with regard to the compilation of waste statistics since reporting started in 2006. The completeness of data delivery by Member States has steadily improved. Waste statistics have reached a fairly high degree of comparability across countries for most waste categories and sectors and considerable progress is being made towards full data coverage. Overall, the data are of appropriate quality for most countries. However, in order to help achieving EU environment, industrial and raw materials policy objectives, further improvement is needed.

The harmonisation of data is furthered by a set of methodological guidance documents that are available from the website of the [Environmental Data Centre on Waste](#) and by workshops addressing areas in which there are serious differences in data coverage. Errors and methodological deficits are identified by the quality control system.

As a new approach to improving data quality, Eurostat is setting up a programme that aims to support countries in which there are serious shortcomings by means of bilateral meetings to enable discussion of such issues, and options for improvement.

With the data delivery for 2010, data on waste generation and treatment are now available for four reference years, i.e. for the period from 2004 to 2010. With the extension of the time series, the data is becoming increasingly useful, e.g. for building indicators and for use in the field of Environmental Accounts.

At the same time, methodological changes in individual countries may still have a significant impact on the time series, at national level and at the level of the EU-27 aggregate. Developments over time should thus still be interpreted with caution and after careful analysis of the underlying data. Also, the effect of new concepts introduced by the revised Waste Framework Directive, i.e. end-of-waste criteria, on waste statistics will have to be monitored.

Indicators on ‘generation of waste excluding major mineral wastes’ (tsdpc210) and on ‘generation of hazardous waste, by economic activity’ (tsdpc250) are established and are both part of the set of Sustainable Development Indicators. A new indicator on ‘landfilling of waste excluding major mineral wastes’ has been developed and the plan is to include it in the set of Resource Efficiency Indicators. The development of indicators on other treatment categories, including recycling, is ongoing.