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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

Regulation (EC) No 2150/2002 of the European Parliament and of the Council of 25 November 2002 on waste statistics[1] ('the Regulation') establishes a framework for producing statistics on waste in the European Union. Article 8(1) of the Regulation requires that the Commission submits every three years a report to the European Parliament and the Council on the implementation of the Regulation (except for the first report, which was to be submitted within five years of the entry into force of the Regulation). The previous reports were published in 2008[2], 2011[3], 2014[4], 2016[5] and 2020[6].

This report refers to the quality of the data on the waste produced and treated in 2018, for which the data collection took place in 2020. At the time of writing, the results of the 2022 data collection exercise are not yet available. According to the Regulation, data must be collected every other year, in even years, on:

- waste generation,
- waste treatment, and
- waste treatment plants disaggregated to NUTS 2 level.

2. WASTE STATISTICS REGULATION

The Regulation sets out the statistical data the Member States have to submit and the quality required for these data. Definitions are set out in Directive 2008/98/EC on waste (the Waste Framework Directive)[7]. Member States can decide on the specific method to use for drawing up waste statistics. They can therefore use existing data collection systems, which minimises the administrative burden of complying with the Regulation. The Regulation provides primary statistics, i.e. data collected directly or via administrative sources, but not derived from other statistics.

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 COM(2014) 79 final, 14.2.2014.
5 COM(2016) 701 final, 3.11.2016.
6 COM(2020) 54 final, 14.2.2020.
7 OJ L 312, 22.11.2008, p. 3.

The Regulation (Annex I, Section 7) requires that Member States submit a quality report along with the data. In these reports, Member States must refer to quality elements commonly used in the European Statistical System[8] and set out in Commission Regulation (EC) No 1445/2005 on the quality of waste statistics[9].

Since its adoption, the Regulation has been amended several times. In September 2010 it received a technical update by Commission Regulation (EU) No 849/2010[10], mainly to introduce a change in the classification of waste streams (EWC-Stat) and to delimit the recovery operations 'recycling' and 'backfilling'.

In 2018, Directive (EU) 2018/851 of the European Parliament and of the Council amended the Waste Framework Directive, and set a deadline of 5 July 2020 for transposing its contents into national legislation. This amendment does not have an impact on the waste statistics data collection covered by this report.

Statistics on policy topics, such as the circular economy, use data gathered in accordance with the Regulation as input. In March 2020, the Commission adopted its Circular Economy Action Plan[11] which includes measures to monitor the EU's progress towards a circular economy. To that end, the Commission has developed a monitoring framework with 10 indicators, which provides policy makers and the public with easy access to the relevant data. The Commission (Eurostat) publishes and maintains this monitoring framework[12]. The framework's indicators *waste generation, food waste, recycling rate, specific waste streams* and *circular material use rate* are fully or partially based on data collected under the Regulation.

Data based on the Regulation are also used to monitor the EU's progress towards the Sustainable Development Goals. The Commission (Eurostat) issues a report accompanied by an online information package[13] every year. The indicators *circular material use rate* and *generation of waste excluding major mineral wastes* in SDG goal 12 are used for this reporting.

3. TIMELINESS AND PUNCTUALITY

Data reception

8 Eurostat webpage on quality reporting: https://ec.europa.eu/eurostat/web/quality/overview.
9 OJ L 229, 6.9.2005, p. 6.
10 OJ L 253, 28.9.2010, p. 2.
11 https://ec.europa.eu/environment/circular-economy/index_en.htm
12 https://ec.europa.eu/eurostat/web/circular-economy/indicators
13 https://ec.europa.eu/eurostat/web/sdi

Data and quality reports are to be submitted to the Commission (Eurostat) every two years within 18 months of the end of the reference year[14].

Compliance with the reporting deadline for the data collection exercise of reference year 2018 has not changed compared to previous years. In total, 22 Member States and one EFTA country reported complete datasets and quality reports on time. Three Member States submitted some of their data less than one month after the deadline. Two Member States and two EFTA countries submitted both data and quality reports more than one month after the deadline. One EFTA country submitted datasets more than six months after the deadline.

Six Western Balkan countries also submitted data, on a voluntary basis. Two of them submitted the full datasets and quality reports on time, and one submitted waste generation and waste treatment data on time. The other three countries submitted waste generation data only and more than two months after the deadline.

The Commission (Eurostat) is taking steps to urge Member States to review their statistical production processes and deliver good-quality data within the set deadlines. The relevant Member States were asked to explain why the data was reported late. For 2020 (reference data 2018), it appears that the exceptional late reporting was mainly due to a serious disruption of statistical activities caused by the COVID-19 pandemic.

Publication

The Commission (Eurostat) validated the waste generation and waste treatment data reported by the Member States and published the results for the reference year 2018 on 14 September 2020 in Eurostat's online database[15]. Data on waste treatment facilities by regions were published two days later, on 16 September 2020. The datasets were accompanied by online 'Statistics Explained' articles and other dissemination products.

4. COMPLETENESS

The number of non-reported values in the questionnaires as well as the number of Member States and EFTA countries with such partial non-response in waste generation data decreased considerably between reference years 2010 and 2018. For reference year 2010, eight countries reported missing values, but this dropped to only one country for reference year 2018. The total number of missing values fell from 1 668 in reference year 2010 to only one in reference year 2018.

A similar improvement is seen for waste treatment data. Only six missing waste treatment values were reported for reference year 2018 compared to 263 missing values for reference year 2010.

14 Regulation (EC) 2150/2002, Section 7(2) of Annexes I and II.

15 https://ec.europa.eu/eurostat/data/database

Some countries report confidential data, which must not be published by the Commission (Eurostat). This triggers additional secondary confidentiality treatment, i.e. further data are not published to avoid that any user could derive or deduce the confidential national data. To reduce the share of data that cannot be published due to secondary confidentiality, the Commission (Eurostat) discontinued the publication of a number of statistical aggregates such as on animal and vegetal waste.

5. DATA VALIDATION BY THE COMMISSION (EUROSTAT)

The Commission (Eurostat) continues to improve and refine the data quality control system and to update the methodological guidance documents for Member States. The latter are available on Eurostat's website.

Since the first data collection under the Regulation in 2004, the Commission (Eurostat) set up an efficient two-step quality control system to check the data received from the Member States.

In a first step, the Commission (Eurostat) performs in two months a quick evaluation of the submitted data and quality reports. In this step, data validation focuses mainly on the internal coherence of new data and developments over time. The analysis is performed at a highly aggregated level and aims to detect major breaks in series and to confirm that the data are fit for publication. The Commission (Eurostat) then sends back individual evaluation reports to the Member States. These evaluation reports may request explanations and/or data revisions, as necessary. The Commission (Eurostat) publishes the data validated.

The second step is an in-depth validation. This involves analysing the data at a more detailed level (e.g. by economic sector and by waste category) and comparing patterns and developments across countries. The purpose of this in-depth validation is not only to detect inconsistencies, but also to improve the quality of the data in the long run. The validation checks include:

- intra-country comparisons of waste generation for each economic activity with values from previous years;
- comparisons of the data for each economic activity across countries;
- an 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 under other waste-related legislation.

The results are checked against: (i) the countries' quality reports; (ii) the feedback from the first evaluation step; and (iii) any other available documents, e.g. reporting documentation from previous years. The results are then discussed with the reporting Member State.

6. COVERAGE

Data coverage

Member States must compile statistics on waste generation for all economic sectors and for households. These statistics must include waste arising from recovery and disposal operations, also known as secondary waste. It must also cover waste from small businesses (fewer than 10 employees), although based on Article 3(2) of the Regulation such small businesses should be exempt from surveys wherever possible, unless they contribute significantly to the generation of waste. In case small businesses are not surveyed, data are either gathered from administrative sources or are covered by estimations.

Statistics on waste treatment and waste facilities must be compiled for all treatment facility operators. Some big enterprises run own waste treatment plants and have to report as well.

Two important findings of the validation of the statistics from reference year 2018 are the following:

- Some Member States are not yet able to report on the treatment category 'backfilling'[16] and report 'missing'. Some use the backfilling category to report landfilling, and, thus, pretend less landfill and more recovery. This problem was detected during validation. The Commission (Eurostat) urged the Member States concerned to improve this situation in order to report fully correct data sets.
- For the waste category 'healthcare and biological waste' the distinction between hazardous and non-hazardous waste depends on national legislation. For example human remains or medicines are treated differently and these differences cannot be estimated properly which creates comparability issues between Member States for this waste category.

Breakdown by economic sector

Validation results show that the identification of the economic sector generating the waste is considered sufficiently accurate. Implausible allocation cases are infrequent. They are generally detected during validation and thus would be explained or corrected. An exception is the generation of discarded vehicles. Households and small enterprises often do not deregister their discarded vehicles themselves, rather they are deregistered by a garage or a car dealer and thus registered under a category of economic activity (NACE Rev. 2 class) different from that of the car holder. This issue is improving very slowly as most Member States rely on administrative data for discarded vehicles.

Categories of waste

[16] According to Article 3(17a) of Directive 2008/98/EC backfilling 'means any recovery operation where suitable non-hazardous waste is used for purposes of reclamation in excavated areas or for engineering purposes in landscaping'.

The Regulation sets out the categories of waste for reporting to the Commission (Eurostat). The categories follow the European Waste Classification for Statistics[17] (EWC-Stat). The Regulation does not stipulate that a specific classification be used for national data collection.

Most Member States collect their data according to the European list of waste[18], which comprises 839 waste types. Commission Regulation (EU) 849/2010[19] includes a conversion table between the codes of the European list of waste and the classification EWC-Stat. The widespread use of these two classifications ensures a high level of comparability, at least at the aggregated level that is requested in the Regulation. The Commission (Eurostat) considers the overall data accuracy impact of classification errors to be small. If classification errors resulted in major impacts, they would be detected during the first validation and immediately corrected. One such error occurred in 2014. In 2016 and 2018 no such errors were observed.

Waste generation in the EU exceeds waste treatment

The total amounts of waste generated and waste treated differ between Member States.

The difference between the amount of waste generated in the EU and the amount of waste treated has stood at around 200 million tonnes since 2008. This corresponds to approximately 10% of all waste generated. The gap has been stable since 2008: more waste is generated than treated in the EU. Among categories of waste, the difference is highest for sludge and liquid waste from waste treatment (approximately 70%) and lowest (nearly 0%) for soil.

There are several reasons for the difference:

- Not all waste is treated in the country where it is generated. Imports and exports of waste are not collected under the Regulation, so differences arising from imports and exports cannot be quantified based on the Regulation data. Estimates based on external trade data show that this effect explains about one fifth of the difference for the whole EU. For individual countries this effect may be higher.
- The water content of waste also plays a role. All waste categories except sludges are reported in normal wet weight. During the pre-treatment process, such as the preparatory treatment operations for disposal (treatment of liquid waste, e.g. leachate or emulsion of oil/water), water weight is lost and waste enters final treatment with a significant weight reduction.
- Some operations are excluded from the scope of Annex II of the Regulation, such as co-incineration plants that use only particular biomass waste as fuel.

17 Current version EWC-Stat Rev. 4, which has 51 categories, laid down by Commission Regulation (EU) 849/2010.

18 Laid down by Commission Decision 2000/532/EC, last amended by Commission Decision 2014/955/EU. The European Waste Classification for Statistics (EWC-Stat) is purely classified by waste material. The European list of waste is much more disaggregated than the EWC-Stat and is based on material, use of the material, and origin of waste.

19 OJ L 253, 28.9.2010, p. 2.

- Not all waste is generated and treated in the same year. Waste generated in year t may be treated in year t+1. There are calendar effects in December/January and some waste is temporarily stored.
- Waste treatment may create new types of waste and thus add to the waste generated, e.g. ash from waste incineration may also be waste. To make a quantitative assessment of this effect, the Commission (Eurostat) estimates 'secondary waste', which aggregates waste that is produced by waste treatment.
- Discarded vehicles or equipment are reported as such only under waste generation statistics. A vehicle is composed of different materials, e.g. metal and plastic. These materials are reported finally under waste treatment statistics. Waste treatment is measured at the end of the treatment chain, i.e. after discarding and sorting. Hence, vehicles and similar equipment are only reported under waste treatment statistics in exceptional cases.

In conclusion, the difference between waste generation and waste treatment is not the result of the statistics for these two categories being of different quality. Instead, it reflects differences in the purpose of – and in the concepts used for – these two categories. However, depending on the waste class, the difference should be within certain limits. If these limits are exceeded, the Commission (Eurostat) will ask the relevant Member State for an explanation.

Since the 2022 data collection exercise, Eurostat has extended the questionnaire to include voluntary categories for Member States, with the purpose of reconciling waste generation and treatment with data on waste imports/exports, water losses of waste, etc. Eurostat intends to update its guidance to ask Member States to report this information. The additional categories will increase the quality of the estimates and also provide relevant information in the context of the circular economy.

7. COMPARABILITY

Comparability over time

Quality reports submitted by Member States are a useful tool to monitor methodological changes and their impact on data comparability. These quality reports show that nearly all Member States have made considerable improvements to their approaches to national waste statistics since 2004. Most Member States continue to improve: (i) data quality through their data collection (e.g. closing data gaps and improving coverage); and (ii) the efficiency of their methods.

Improved data collection over the years has created breaks in the time series. Member States revise the datasets for previous years to limit these breaks, and users are informed about these revisions. The Commission (Eurostat) flags the discontinuity of the time series in the disseminated datasets.

Comparability across countries

The comparability of data across countries is high for most sectors and waste types, due to common definitions and classifications. However, as mentioned in Section 6, some problems in comparing hazardous waste data in the waste category 'healthcare and biological waste' across countries still arise as 'hazardousness' is defined in national legislation. The biggest waste category in terms of weight is mineral waste, since it accounts on average for two thirds of the total waste. This makes it difficult to compare the total waste generated between countries. To increase comparability, Eurostat publishes data for the indicator 'Waste excluding major mineral waste'.

8. IMPROVEMENT MEASURES

In 2022, the Manual on waste statistics was revised, the previous version dating from 2013[20]. The 2022 version[21] was made available to Member States for the data collection exercise that took place in summer 2022. In 2023, the manual will receive an update on how to reconcile waste treatment and waste generation. Once this is finished, the revised manual will be published. The most important revisions until March 2022 concerned:

- Likely and unlikely treatment operations of waste streams. The validation sometimes reveals unlikely treatments such as backfilling of discarded vehicles or incineration of metals which need to be corrected. The revision will speed up the validation and publication of data as it will reduce the number of corrections needed.
- Allocation of discarded vehicles to economic activities and households.
- Calculation of dry and wet matter.
- For glass, iron, steel, aluminium scrap and copper scrap, specific end-of-waste criteria were adopted and had to be integrated into the manual.
- A more precise delimitation of backfilling, landfilling and permanent storage.
- Legal revisions since the last version (2010) were integrated.

Most of the revisions were already implemented by the Member States. They were drafted as guidance documents and then discussed by the Eurostat expert group on waste statistics. These guidance documents were integrated into the revised manual, making all methodology available in a single document.

20 https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/KS-RA-13-015

21 https://circabc.europa.eu/ui/group/b01d2930-990e-44fb-9121-a9a6b00a1283/library/7fbe72b2-edfe-471a-bdd1-303bf1b2eb7f/details

9. COST AND BURDEN

Member States show in their quality reports a commitment to keep the reporting burden on businesses as low as possible. This is reflected in the increasing number of countries that collect information on the reporting burden. The information is collected from respondents via questionnaires or determined by specific studies. Around half of the Member States use administrative data as their main source for waste statistics, and thus avoid burdening data providers with additional questionnaires. Other countries use administrative data as one among many data sources. Small companies are exempt from surveys in different ways[22].

A growing number of Member States have implemented – or plan to implement – electronic reporting systems. In such systems, the data required under the waste legislation are forwarded automatically from waste treatment facilities to the national statistical authorities.

10. ACHIEVEMENTS AND OUTLOOK

The completeness of Member States data submissions has steadily improved over the years. Waste statistics have reached a high degree of comparability across countries for waste categories and sectors. For Member States and EFTA countries, full data coverage has been achieved. Overall, the data are of good quality for all Member States and the EFTA countries. Two Western Balkan countries provide data in appropriate quality, the others are catching up.

The legislation on waste[23] revised under the Circular Economy Action Plan includes more precise rules on the measurement of waste treatment operations and more precise definitions. The 2018 amendment of the Waste Framework Directive is expected to have a limited impact on the waste statistics data collection exercise currently under way for reference year 2020:

- The calculation point for final waste treatment is defined more precisely. However, the improvement to data quality is expected to be low since most Member States have already implemented this concept.

- For 2018, seven countries reported backfilling of hazardous waste. From July 2020 onwards hazardous waste cannot be used in backfilling operations. As the change does not

[22] The exemption of small companies from surveys is handled in different ways. Some countries cover small companies by sample surveys and extrapolate the results. However, most countries exclude small companies completely in accordance with Article 3(2) of the Regulation which allows to exclude enterprises of less than 10 employees from surveys, unless they contribute significantly to the generation of waste. Alternatively, the figures may be extrapolated by factor-based estimation models. Countries have set different exclusion thresholds, determined 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.

[23] https://ec.europa.eu/environment/waste/target_review.htm

apply from the beginning of the year, for the reporting year 2020 it will not be possible to quantify the impact of the changed definition in terms of weight.

The Commission (Eurostat) updated the Manual on waste statistics in order to reflect these more precise rules and to integrate guidance on several waste streams. These guidance points have already been implemented by the Member States, so the purpose of the manual update is to centralise the rules in one place. The Commission continues to work with Member States also with other measures, for example seminars and exchanges of best practices.

The Commission (Eurostat) cooperates with several Member States to map the waste flows between waste generation and final waste treatment, with the aim of making pre-treatment operations visible, as described in Section 6.

Data on waste generation and treatment are now available for eight reference years, i.e. every second year from 2004 to 2018. As time series become longer, the data become more useful, providing input for circular economy-related indicators, for example, or for climate-related analyses.