

Calculation of collected and treated quantities - Outcome

Background

At the EWRN conference about the recast WEEE directive the new requirements for collection and treatment of WEEE, as they appear from WEEE2, were discussed in one of the working groups.

In the report *“How to report on Waste Electrical and Electronic Equipment (WEEE) according to Commission Decision 2005/369/EC”*, Revision by Eurostat 09th March 2010, Eurostat indicates that there are monitoring differences between Member States.

The purpose of this working group was to identify and propose methods to make registered quantities comparable between Member States. Another purpose was to point out problems that call for solutions in order to state the registered quantities in a true and comparable way.

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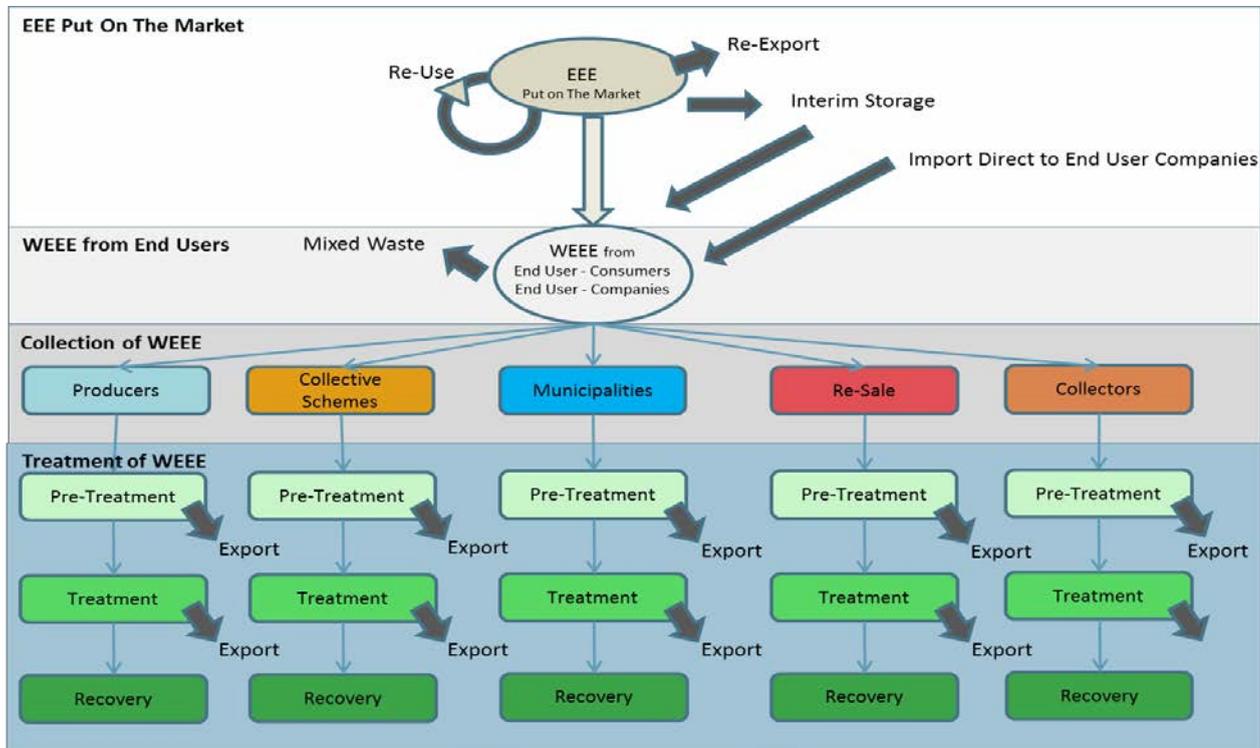
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Introduction

Participants of the working group session “Forms for calculation of collected and treated quantities” recognized that there are several monitoring methods in the different Member States for quantities placed on the market, collected and subsequently recycled. Differences are found in the different points for monitoring applied by the Member States for when equipment is considered placed on the market, collected, and recycled. The monitoring points (different measuring points) lead to different results, which mean that data across the different Member States are not comparable.

If we wish to maintain the transparency of the calculation of targets and thereby confidence in data, the introduction of the new and complex collection targets in the recast WEEE directive calls for higher quality of the two primary parameters: Quantities of EEE placed on the market and quantities of WEEE collected.

Illustration of the different options of placing your measuring points



Note: The illustration indicates that depending on where the collection of data takes place varying WEEE flows are monitored and accounted for.

Recommendations from the session on Forms for calculation of collected and treated quantities

To set up a working group under TAC that will put forward recommendations for:

- Standardized measuring points across Member States.
- Standardization of how Member States inform of the measuring points for which they collect data.
- Standardization of how Member States inform of the flows of EEE and WEEE that are not included in the statement.
- That this standardization is included in the Member States' reporting to the Commission.

In the following sections, the experiences and problems that were discussed on background of the discussion paper, at the conference session about “Forms for calculation of collected and treated quantities” are summarized.

Topic 1. Uncertainties in the present statement methods

It has turned out that the present methods for calculation of collected and treated quantities are based on a number of uncertainties meaning that the quantities are not fully comparable between the Member States. Therefore, the discussion in the working group first aimed at identifying the fields that cause particular uncertainties. Two topics called for specific attention:

- a. Access to collecting WEEE
- b. Registration of collected quantities from all sources

In the following the problems that were discussed in the working group are described.

Ad: a. Access to collecting WEEE

In connection with the steep increase in the value of WEEE in recent years it may be problematic to collect all WEEE in the formal and legal collection systems. Valuable WEEE is collected and sold outside the established and legal collection systems. For those types of WEEE that have a particularly low value, by contrast, there may be an incentive to try to sell it as second-hand equipment, for instance to developing countries.

For companies not being part of the producer responsibility systems (freeriders) their collected quantities will not necessarily be part of the official statistics. This goes primarily for companies selling equipment exclusively for use in businesses.

Thus, there is a significant need for supervision and control with the collection systems for WEEE.

Ad: b. Registration of collected quantities from all sources

The first uncertainty in the registration of collected quantities of WEEE consists of defining the sources of collection.

Since the collection systems in the different Member States are different, the sources will vary. The sources mainly mentioned were:

Who collects the WEEE	Who collects the data and secure registration?		
Municipal collection	WEEE collected at municipal collection sites and registered by the municipalities	WEEE collected by the municipalities at municipal collection sites, but registered by the collective schemes.	WEEE collected by the municipalities at municipal collection sites, but registered by recycling companies.
Collected by distributors/retailers	WEEE collected by retailers, but registered by the collective schemes.	WEEE collected by retailers, but registered by the recycling companies.	
Collected by producers	WEEE collected by producers and registered by producers.	WEEE collected by producers, but registered by the collective schemes.	
Collected by the collective schemes	WEEE collected by the collective schemes at their own collection sites.		
Collected by recycling companies	WEEE collected primarily from businesses.		

When WEEE is collected in many different flows it may be difficult to state and register the collected quantity in a central place.

Generally it is difficult to have reliable data for WEEE not coming from households, since the end-user company is often taking care of the environmental treatment of the business equipment and not the company having producer responsibility and duty of reporting. Companies selling only to businesses thereby do not see that they only collect very small quantities of their end-of-life equipment.

To have the correct quantity of collected WEEE, quantities from all sources must be included in the statement of total quantities of collected WEEE. Also, it must be ensured that quantities are not counted twice.

It is important to avoid that equipment collected and exported as used equipment is not also registered as WEEE.

Topic 2. Registration of Actual Collection of WEEE, WEEE Generation, and WEEE Recovery

Subsequently the following three topics were discussed in three small groups:

1. Registration of Actual Collection of WEEE
2. Calculation of WEEE Generated
3. Registration of WEEE Recovery

Ad: 1 Calculation of Actual Collection of WEEE

WEEE is collected in fractions that may vary from one Member State to another. Since collected quantities must be reported in categories it is often necessary to convert fractions into categories. This means that it is important to use valid conversion factors that are based on representative trial tests. Such tests must, among other things, take into consideration geographic, demographic, and seasonal variations that may change from one year to the next.

So far, some Member States have registered the number of collected WEEE units and multiplied by a standard weight per unit. This causes imprecise and non-comparable figures.

It appears from WEEE2 that in connection with collection of WEEE it must be possible to remove products that are suitable for direct reuse. It must be ensured that quantities going for reuse are separated from the quantities of collected WEEE.

The statement of the weight of WEEE also depends on the fact whether the weight is stated before or after waste, which is not WEEE, is removed from the fractions. For instance, the statement of the weight of light sources will be highly affected by the share of packaging material (cardboard around a fluorescent tube) since the light source in itself has a very low weight. Therefore, it is important whether the collected WEEE is weighed on reception from users and citizens, or after the first sorting at a recycling company. In some cases WEEE will be mixed with other waste and will therefore not be calculated in the collected quantity.

For equipment containing batteries it is uncertain whether the weight is stated before or after removal of the batteries.

Ad: 2 WEEE Generated

Calculation of WEEE Generated takes offset in quantities placed on the market. This means that the uncertainty of the statement of both quantities placed on the market and collected quantities are part of the calculation of the share of collection. Therefore, the aggregated uncertainty is very high. Also the existence of freeriders causes uncertainty in the calculation of the quantity of WEEE expected to arise if offset is taken in registered quantities placed on the market. If - due to many freeriders - a very small quantity placed on the market has been registered, it will incorrectly appear as if a very large share of quantities placed on the market is collected.

When a service life of products is to be calculated, this will probably change often, since the service life of a product depends on economics, new trends, and technological innovation, and not only on a technical

service life of the product. Therefore, the service life changes much from one Member State to another. Thereby, results will not be comparable.

There is no available information on products' actual useful life. Therefore, much new knowledge must be found in this field in each Member State, since consumption patterns differ among the Member States. Information to be acquired must be updated often. This causes high costs in the Member States. If the service life is only based on assessments, the calculated quantities will be very uncertain.

It may be difficult to establish objective information for the service life of products. There is a large risk of political incentives for giving products an artificial short or long service life in order to have the most expedient calculations of the generated quantity of WEEE. This will probably be most relevant for equipment with a particularly high or low value. Issues affecting whether a product group has a long or a short service life will also be external decisions that cannot be predicted at the time of sale. Such issues may be shift in TV signals causing that TV sets must be replaced in a given country in order for consumers to receive the signal. Another issue may be a shift in technology, such as the introduction of tablets (e.g. iPad) that has radically changed the consumption pattern for portable PCs.

It is the aim of WEEE2 that in connection with collection of WEEE it must be possible to remove products that are suitable for direct reuse. The criterion for products suitable for reuse will presumably vary much between the Member States. The calculation of WEEE generated must be corrected for the share of WEEE that is reused after collection. Therefore, it must be possible to acquire reliable information about the magnitude of reuse.

Ad: 3 Registration of WEEE Recovery

The main recommendation from the group was an invitation to the Commission to use the authority in art. 11 (3) to set up further provisions for calculation of recovery and recycling targets in art. 11 (2). The group decided this since it sees some uncertainties in WEEE2 as to calculation of recovery and recycling targets. Uncertainties are, among others:

- The Commission must decide which of the below methods should be used:

The recycling rate is different whether you consider e.g.:

- I. The amount of WEEE that enters the plant (intended recycling – quantity measures) or,
 - II. The weight of actually recycled materials coming out of the plant excluding non-recycled material (actual recycling – quality measures).
- WEEE2, art. 11(2) reads that the calculation of recovery and recycling targets must take place "after proper treatment in accordance with article 8 (2)". This means that dangerous substances etc. must be removed in pursuance of Annex VII before calculation of recovery and recycling targets. In order for this to happen on a documented and harmonized basis our group recommended that the Commission sets up provisions to the effect that through weighting (or other registration?) it can be documented that the components to be removed in pursuance of Annex VII have actually been removed.

- The Commission has just prepared guidance on interpretation of key provisions in the Waste Directive, including recovery, recycling etc. - see this link:
http://ec.europa.eu/environment/waste/framework/pdf/guidance_doc.pdf . So far so good. However, the problem is - and this is what the group wants the Commission to clarify - that the definition of recycling in WEEE2 is different from that in the above guidance. This is the cause of confusion and should be clarified.
- The last issue discussed in the group is this sentence found in WEEE2 art. 11(2):
"Preliminary activities including sorting and storage prior to recovery shall not count towards the achievement of these targets." The wording is fine since it ensures that focus is on "correct recycling" and not just pre-treatment. However, it is a wording that may call for further explanation and clarification in order that Member States use it according to its intention in their calculation of targets. Therefore, the group suggested that also this problem is included and explained in the Commission's decisions on further provisions for calculation of recycling and recovery targets.
- The group only briefly discussed the challenges associated with the fact that as a novelty WEEE prepared for reuse should also be included in the targets. What should be included? How should it be stated and documented? This will be a challenge for the Member States.

Therefore, the group wants the Commission to include it in the further work on provisions for calculation of recycling and recovery targets.

Annex

Common approach - formats for calculation of targets as outcome of the revised WEEE Directive (WEEE2) - Discussion paper

Introduction

If we want to compare and learn from each other, in order to improve our national systems – a prerequisite is that the data we compare are actually comparable.

The new directive, WEEE2, sets collection targets based on the assumed WEEE arising. It's under discussion how to calculate the assumed WEEE arising. Depending on the number of assumptions and level of uncertainty of input data, the new calculation model will be able to give flexible results.

The present directive, WEEE1, sets collection targets based on the collection of WEEE. Eurostat publish the national reports here:

<http://epp.eurostat.ec.europa.eu/portal/page/portal/waste/data/wastestreams/weee>

When assessing the data published by Eurostat, it becomes clear that there are significant differences between countries on all subjects of reported Key Performance Indicators, such as WEEE collected and WEEE recycled. These differences are only partly explained by differences of e.g. population and Gross Domestic Product (GDP). **Eurostat noticed that the calculation methods differed from one country to another, and that the data were therefore not fully comparable.**

The new target for WEEE arising in WEEE2, will include a number of flexible parameters, such as perceived lifespan of equipment. Whereas the collected volumes of WEEE is considered to be a fact. The basis data for the present target (WEEE1) and the new target, WEEE arising (WEEE2) are the collected volumes of WEEE. Therefore, it is relevant to reach a common understanding of the different methods Member States apply in order to develop a suggestion for a common methodology to establish the data for collected WEEE.

- A first question is therefore, in what ways are we computing our data for collected amounts? And can we suggest a common method to improve comparability?
- After improvement of comparability of the base data for collected WEEE, which kind of other parameters is to be applied for the calculation of the WEEE arising target?

Legal basis from WEEE1 and WEEE2

WEEE1 – Article 12 - requires Member States every second year to transmit to the Commission information on:

- quantities and categories of EEE put on their market,
- quantities and categories of EEE collected through all routes,
- quantities and categories of EEE reused, recycled and recovered,
- collected waste exported, by weight or, if this is not possible, by number.

WEEE1 – Article 5 – sets a target for separate collection of WEEE from private households.

WEEE1 – Article 7 – also sets targets for "recovery" and for "reuse and recycling" for each category of WEEE.

All this information has to be reported by Member States in a fixed format found via the link here: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:119:0013:0016:EN:PDF>

WEEE2 – Article 16.5 and 16.4 – requires Member States to send reports at three-year intervals on:

- quantities and categories of EEE placed on their market,
- quantities and categories of EEE collected through all routes,
- quantities and categories of EEE prepared for re-use, recycled and recovered,
- separately collected WEEE exported, by weight.

WEEE2 – Article 7 - sets targets for the WEEE collection rate.

WEEE2 – Article 11 and Annex V – also sets targets for "recovery" and "recycling" for each category of WEEE.

WEEE2 states – Article 11.3 - that "the Commission may establish additional rules on the calculation methods for the application of the minimum targets" in accordance with the examination procedure (Regulation (EU) 182/2011).

In both cases (old and new Directive), the National Registers are responsible for collecting and sometimes processing the information. Therefore, EWRN can assist the Commission and Member States in this work.

Discussion in the session in Copenhagen

The idea is to get into the current definitions and computing methods of the different data and rates that the Member states (MS) send to the Commission every 2 years.

Examples:

The collection rate is different whether you consider:

- | | |
|----|--|
| 1a | The total weight of "WEEE" collected, including waste that is not WEEE but was disposed of on a WEEE container, or |
| 1b | The weight of WEEE collected, after separation of waste that is not WEEE. |
| 2a | WEEE collected via producer responsibility flows, or |
| 2b | WEEE collected via ALL flows including via producer responsibility flows. |
| 3a | Estimated collection of WEEE, or |
| 3b | Actual weighing of WEEE, or |
| 3c | Number of collected units multiplied with an average weight if the units. |
| 4a | Collection of WEEE in other categories than those from the directive with the result that the Member State must transform mixed fractions into the categories in the directive. If very different allocation keys are used this can also distort the data. |

In France and Denmark as examples, the collection rate reported to the Commission is computed by method 2a, 3b, and 4a. The difference between France and Denmark is that France applies method **1b** and Denmark **1a**.

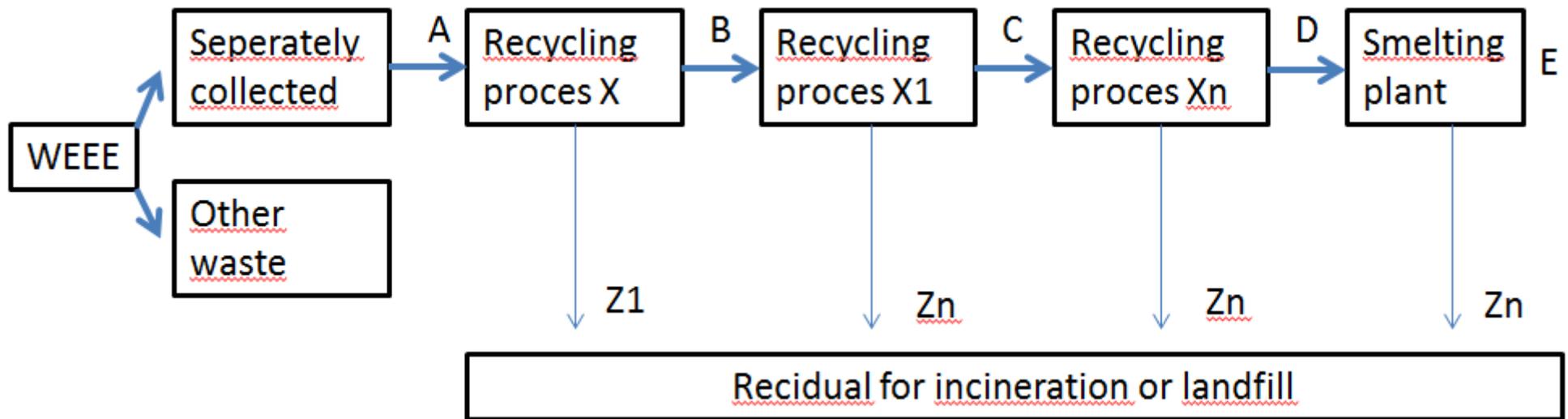
The recycling rate is different whether you consider e.g.:

- i. The amount of WEEE that enters the plant (intended recycling – quantity measures) or,
- ii. The weight of actually recycled materials coming out of the plant excluding non-recycled material (actual recycling – quality measures).

How are your reports to the Commission on collected WEEE computed?

We suggest that participants bring with them the reports sent by their Member State in 2008 and 2010. These reports consist of the 2 tables shown in the annex of present document plus the methodological note. During the session, we will exchange information on the current practice and try to identify a common future method.

Illustration of WEEE flow through recycling processes



The result of the calculations depend on whether the measuring point (data collection) is conducted at point A, B, C, D or E and whether the residual volumes are included or excluded from the calculations.

Annex – Eurostat format for Reports by Member States

Can also be found here: <http://epp.eurostat.ec.europa.eu/portal/page/portal/waste/data/wastestreams/weee>

Column number	1	2	3	4	5	6	7
Product category	Put on the market	Collected from private households	Collected other than from private households	Total WEEE collected	Treated in the Member State	Treated in another Member State	Treated outside the EU
	Total weight (t) tonnes	Total weight tonnes	Total weight tonnes	Total weight tonnes	Total weight tonnes	Total weight tonnes	Total weight tonnes
1. Large household appliances							
2. Small household appliances							
3. IT and telecommunications equipment							
4. Consumer equipment							
5. Lighting equipment							
5a. Gas discharge lamps							
6. Electrical and electronic tools							
7. Toys, leisure and sports equipment							
8. Medical devices							
9. Monitor and control instruments							
10. Automatic dispensers							

(t) If this is not possible, by numbers.

Column number	1	2	3	4	5
Product category	Recovery	Recovery rate	Reuse and recycling	Reuse and recycling rate	WEEE reused as whole appliance
	Total weight (t) tonnes	%	Total weight tonnes	%	Total weight tonnes
1. Large household appliances					
2. Small household appliances					
3. IT and telecommunications equipment					
4. Consumer equipment					
5. Lighting equipment					
5a. Gas discharge lamps	n/a	n/a			
6. Electrical and electronic tools					
7. Toys, leisure and sports equipment					
8. Medical devices					
9. Monitor and control instruments					
10. Automatic dispensers					

NB: Grey boxes mean that the data need only be reported on a voluntary basis.

(t) If this is not possible, by numbers.

Additional items for discussion in Copenhagen

A document was published by Eurostat to help Member states with their reporting: **“How to report on Waste Electrical and Electronic Equipment (WEEE) according to Commission Decision 2005/369/EC” (Revision by Eurostat 09th March 2010)**

This document and the tables bring several remarks / questions: p. 1, Chapter 1 “Experts are invited to provide comments so that the document can be improved”.

EWRN could send some proposals.

p. 5, Table 1 “Collected from private households”. This item covers all WEEE collected by municipalities and resellers, excluding WEEE collected directly from companies. Hence, it covers not only WEEE from households but also from independent workers or SMEs.

P. 5, “As a mixed approach generates non-comparability between the countries it would be desirable that all countries provide the figures in tonnes.”

=> I think we could all agree on this.

p. 6, “Accordingly, the total amount sent for treatment (sum of column (#5) + (#6) + (#7) of Table 1) shall be taken into account as denominator. This total amount sent for treatment should also be very close to (column (#4) of table 1). According to Article 5(4) of the Directive, the difference between the total amount sent for treatment (sum of column (#5) + (#6) + (#7) of Table 1) and the amount collected (column (#4) of table 1) should only be the amount of appliances reused as a whole.”

=> This is not true (as stated in the same document on page 7!). The total amount of WEEE collected includes : WEEE treated, WEEE temporarily stored before treatment and WEEE reused (if EEE reused are considered as WEEE).

I think that storage is mentioned in the Batteries documents.

I would therefore suggest the following modifications of Table 1 :

Column number	1	2	3	4	5	6	7
<i>Product category</i>	Put on the market	Collected from private households	Collected other than from private households	Total WEEE collected (2)+(3)	Treated in the Member State	Treated in another Member State	Treated outside the EU

Modified:

<i>Product category</i>	Put on the market	Collected in public places?	Collected from private businesses?	Total WEEE collected (2)+(3)	WEEE stored / de-stored	WEEE re-used as whole appliance	Total WEEE treated (5)+(6)+(7)	Treated in the Member State	Treated in another Member State	Treated outside the EU
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