2008 Key Figures

Key figures on quantities of electrical and electronic equipment put on the market, quantities of WEEE collected, and costs related to WEEE management

2 January 2010

Introduction

The WEEE Forum is the largest association in Europe of WEEE[1] producer responsibility organisations. In 2008, its 40 members[2] collected approximately 1.5 million tonnes (Mt) of WEEE, this amounts to about half of all officially reported collection in Europe today[3]. Many of its members are experienced in collecting and recovering WEEE for more than five years, and some for 10 or more years. The WEEE Forum is a multi-national centre of competence in the world when it comes to practical experience with the management of WEEE.

One of the organisation's mission statements is to develop tools that allow member organisations to benchmark their key performance indicators with those of other members, and to provide comparable and robust data to stakeholders in general. The "Key Figures" (KF) is such a tool. Early every year, members are asked to provide quantitative data to a web-based software programme where this data is collated, analysed and published. The data is related to (i) the quantities of electrical and electronic equipment that the producers, affiliated to those organisations, put on the market, (ii) the quantities of WEEE that the member organisations collected, and (iii) the costs related to WEEE system management[4]. All data entries are confidential.

All data are stored in a so-called "black box", i.e. member organisations are not in a position to see other members' quantitative data or cost structures. The data is statistically analysed and averages are calculated and minimum/maximum ranges are provided. Each member can use the key figure tool to construct overviews of the type of results it is interested in.

In 2009 a new feature is added to the tool whereby data audits by independent or in-house auditors are scheduled for July-August 2009. Those audits will enhance the robustness of the statistics.

This year, more data has been compiled than ever before, both in overall terms and per category or theme. 34 members delivered data to the KF tool.[5]

This report provides an overview of the 2008 Key Figures and, in so doing, seeks to contribute to the ongoing debate on e-waste management matters.

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[1] WEEE is an acronym for waste electrical and electronic equipment.

[2] The WEEE Forum was founded in April 2002 by 6 organisations in Austria, Belgium, the Netherlands, Norway and Sweden. In 2009, it counts 39 collection and recovery organisations from across Europe. All members are open, non-profit oriented organisations run on behalf of a community of about 17.000 producers. Members in 2009: Amb3E, Appliances Recycling, Asekol, Ecoasimelec, Ecodom, Ecofimatica, Ecolec, Ecologic, Ecoped, Eco-RAEE's, ecoR'it, Eco-systèmes, Ecotic, Eco Tic, EES-Ringlus, ElectroCoord, ElektroEko, Elektrowin, El-Kretsen, el retur (NO), el retur (DK), Envidom, ICT Milieu, Lightcycle, Lumicom, NVMP, Recupel, Re.Media, Repic, Retela, RoRec, SENS, Serty, SEWA, SLRS, SWICO, UFH, WEEE Ireland and Zeos. For a more in-depth profile of the organisations that make up the WEEE Forum, see http://www.weee-forum.org/index.php?section=members&page=members_community.

[3] The European Commission estimates total officially reported WEEE collection in Europe at 3 Mt. The total WEEE arising, including quantities that escape the established collection and recovery organisations is estimated at 9 Mt.

[4] The data have been determined with the same structure since 2003. Data on quantities put on the market were included for the first time in 2007.

[5] For KF reports covering 2006 and 2007, see http://www.weee-forum.org/index.php?section=services&page=services_bench&subpage=services_bench_quantitative.

Executive summary

- In 2008, producers affiliated to 33 collection and recovery organisations of the WEEE Forum put more than 5 Mt of electrical and electronic equipment onto the market. The arithmetic mean average and the weighted average market input were 9.8 kg and 14.8 per inhabitant per year respectively.
- Some organisations seem to have experienced a stabilisation of sales, while others experienced, after a steady increase in the past couple of years, a decrease. In some cases this may be explained by a decrease in the number of affiliated producers, but in other cases it may reflect the decrease in overall retail sales because of the negative economic situation in 2008. Overall, some mature organisations, both nationwide organisations and those facing competition within the same national market, still see an increase in market input data compared to 2007.
- 34 organisations collected about 1.4 Mt[6] of WEEE, which is about 50 per cent of all officially reported WEEE collection. Member organisations collected, in weighted average[7] terms, 4.03 kg/inhabitant of WEEE. One organisation reached a collection target of 16.5 kg/inhabitant.
- WEEE systems collected more than two-thirds of their WEEE from municipal collection facilities. This demonstrates that municipal collection facilities continue to be crucial in collection infrastructure.
- The two organisations that collected most in 2007, collected less per capita in 2008. This may be related to the contracting economic situation of the 2nd half of year 2008: as consumers buy less electronics, less waste electronics is being returned.
- 28 organisations have provided data for both 2007 and 2008. 7 of them collected lesser quantities per capita while 21 collected higher.
- Some continued to fail to get hold of valuable WEEE, while others saw a stabilisation in the trend.
- 29 organisations spent a total of about €382,000,000 on the collection, transport, treatment of WEEE, and the administration of the organisation. Those 29 WEEE Forum members collected 1.3 Mt WEEE, which translates to a weighted average of the specific costs of 0.30 €/kg.
- Most organisations managed to lower their operational costs in the past couple of years for nearly all WEEE categories. This mainly results from decreasing treatment costs.
- For quite a few WEEE categories and sub-categories costs of compliance with Annex II of the Directive prevail over possible valuable material.
- Eight organisations reported negative treatment costs, i.e. minus values, for large household appliances. The weighted average is a profit of €40 per tonne.

[6] All 40 member organisations taken together collected approximately 1.5 Mt in 2008 (source: compilation of individual members' figures in January 2009).

[7] A weighted average is an average that takes into account the proportional relevance of each component, rather than treating each component equally.

Quantities of electrical and electronic equipment put on the market

In 2008, producers affiliated to 33 collection and recovery organisations that are members of the WEEE Forum put 5,134,000 tonnes onto the market. The arithmetic mean average market input was 9.8 kg per inhabitant (kg/inhabitant) and the weighted average 14.8 kg/inhabitant. The maximum reported was a market input of 27.4 kg/inhabitant.

From looking at the data, we can draw a number of conclusions:

- While a number of organisations record a stabilisation of sales data, many others experience, after a steady increase the last years, a decreasing market input in 2008 (especially in white goods but also in a few other WEEE categories). In some cases this may be explained by a declining number of affiliated producers, but in other cases it may be the result from the economic situation in the 2nd half of 2008: as consumers buy less electronics, less waste electronics are being returned (less replacement).
- Nevertheless, some organisations, with many years experience in the WEEE market still see an increase in market input data compared to 2007.
- Quite a number of organisations that were recently set up are experiencing initially an increase in the amount collected which can be explained both in terms of the development of producer membership and registration in the country. However, others experienced a drastic decrease of market input data, possibly resulting from market circumstances.

The variation in results on market input data per WEEE system and especially those on individual WEEE categories are influenced by:

- General market dissimilarities for different WEEE categories.
- General economic situation in the current year, for example in relation to purchasing power or GDP.
- The market saturation in terms of quantities of equipment in the homes (influenced by the past).
- The market share of the organisation.
- Criteria for reporting, e.g. whether or not market input data for B2C and B2B appliances are included.

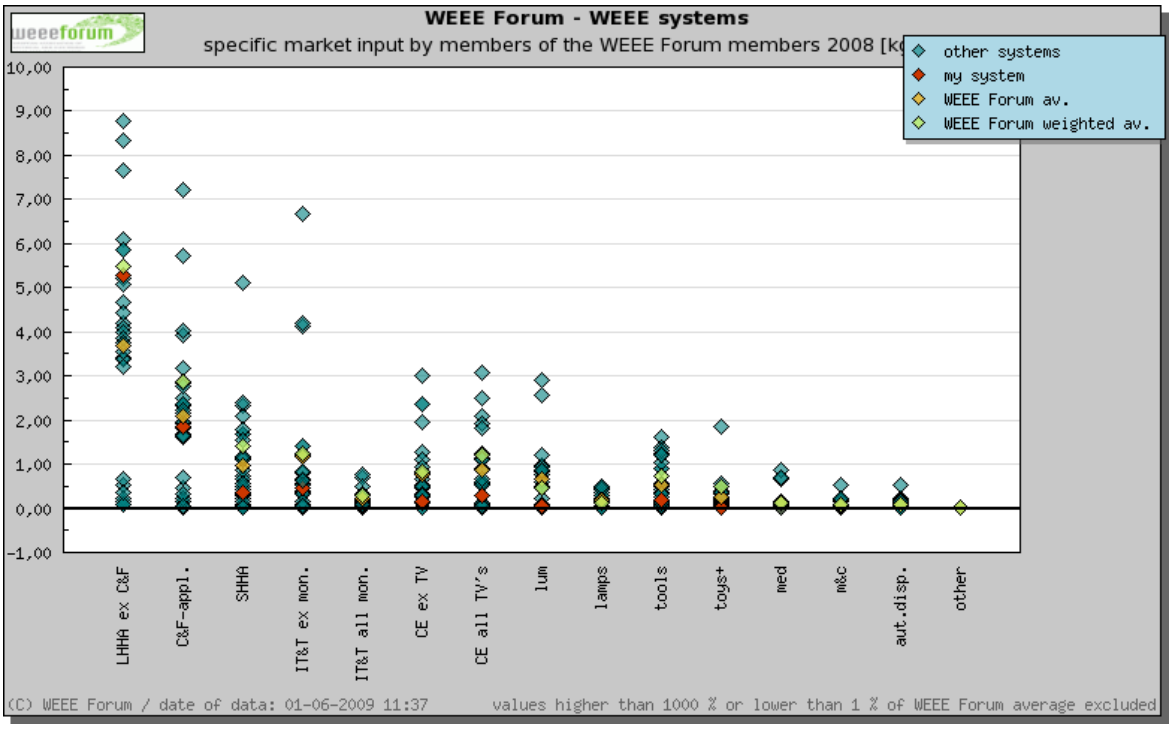

Figure 1 Market input per WEEE category of producers affiliated to WEEE Forum organisations. Units in kg per inhabitant. © WEEE Forum

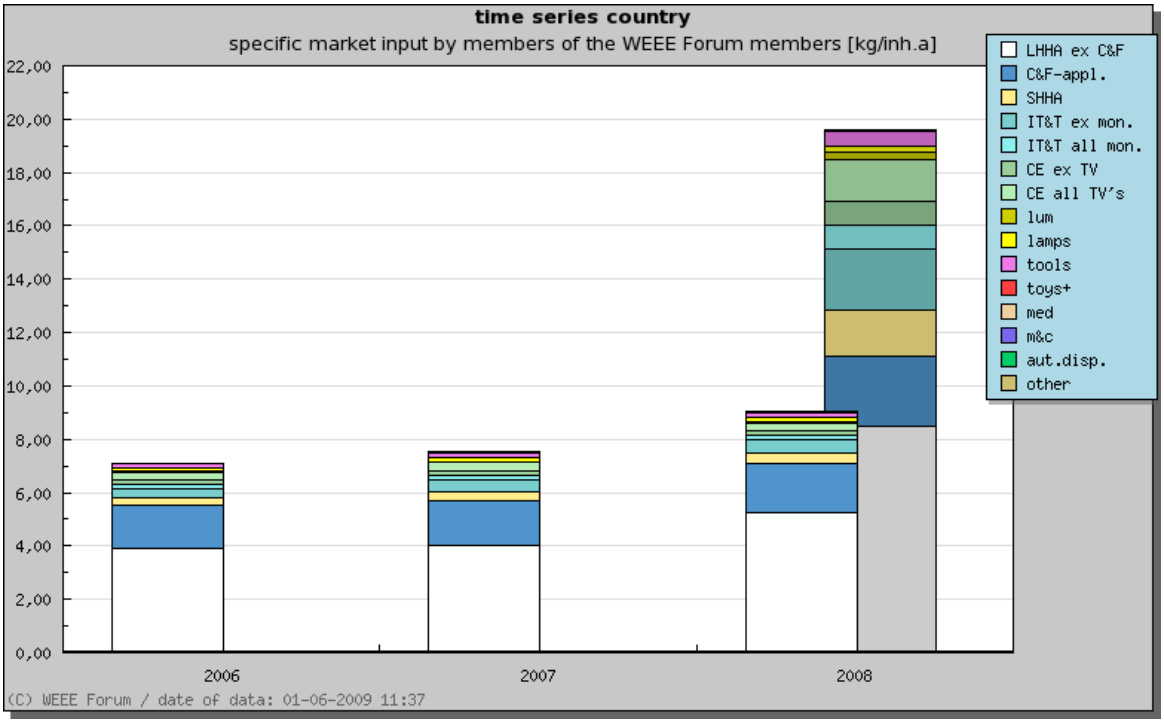

Figure 2 Market input of one WEEE Forum member showing the total market input (shaded) as a comparison for 2008. © WEEE Forum, 2009.

Quantities of WEEE collected

The 34 member organisations[8] that provided data on the collected quantities of WEEE collected in total about 1.4 Mt. Those 34 organisations served 346 million inhabitants. The weighted average of WEEE collected by WEEE Forum members is 4.03 kg/inhabitant. One organisation managed to collect 16.5 kg/inhabitant.

When we talk about WEEE collected per country, data only refer to quantities collected by the member organisations, and should not be interpreted as total quantities collected in one particular state[9].

The Key Figures web-based tool allows for a calculation of amounts collected per organisation or per country. See also Table 1 and Figure 4. It also allows producing time series of WEEE collection for one particular organisation.

The results on quantities collected are influenced by a number of factors.

- Legal ownership of waste established by law. For example, municipal collection facilities may or may not be entitled to sell WEEE to other parties than collection and recovery organisations. This factor seems to be of increasing relevance.
- The legislative and regulatory framework, e.g. related to take back and forwarding obligations for all stakeholders, collection targets, export restrictions, control of other disposal paths, etc.
- The intrinsic, i.e. material value of appliances, e.g. a proportion of valuable WEEE ends up in parallel streams.
- The access to collection facilities; e.g. in competitive markets some parties develop exclusive relationships with collection facilities, denying other parties access to this collection facilities and WEEE.
- The area covered by the collection and recovery organisation, such as the number and distribution of collection facilities served and convenience for collection facilities like minimum amounts for the pick-up service or pick-up time.
- Convenience for consumers and other customers, e.g. with respect to synergies for final users (e.g. collection of other wastes by municipal collection facilities, take back by retailers), number of collection facilities and opening hours of WEEE collection facilities.
- Awareness of the public at large.
- General availability and ease of use of infrastructure like (municipal) waste collection facilities.
- The number of end-of-life appliances in the home, which tends to be related to purchasing power of past years, today's purchasing power and behaviour related to replacement of appliances (as opposed to storage, further use and re-use).
- Residential conditions like storage capacity of households.
- 16 organisations reported that they collected 410,000 tonnes (out of a total of 570,000 tonnes) from municipal collection facilities separately. This means that those WEEE systems collected 72 per cent (up from 67 per cent

[8] All member organisations taken together collected approximately 1.5 Mt in 2008, which is 50 per cent of the total officially reported WEEE collection.

[9] Quantities of WEEE collected (kg/inhabitant) should be set in relation to the collection shares of the systems in a country to come to more comparable data on the total specific amounts of WEEE collected in that country.

in 2007) from municipal collection facilities. In other words, municipal collection facilities remain the main collection channel for most collection organisations.

- 14 organisations provided data on amounts of WEEE collected from business users (representing about one third of the total amount collected by member organisations). They collected about 32,000 tonnes from business users, i.e. 7 per cent of their amounts.

We can draw some other conclusions.

- The two organisations that collected most in 2007 in absolute numbers, collected less per capita in 2008. This may or may not be related to contraction of the economic market in the year 2008.
- From 28 organisations that had provided data for both years 2007 and 2008, 7 collected lower quantities per capita but 21 collected higher quantities per capita.
- For members that had provided data in both years, the arithmetic mean average amount collected increased from 3.76 kg/inhabitant to 4.03 kg/inhabitant (KF 2007 and KF 2008).
- One cannot say in general terms that organisations continued to fail to get hold of valuable WEEE categories (mainly large non-cooling household appliances). For some, the trend continued, for others it did not.

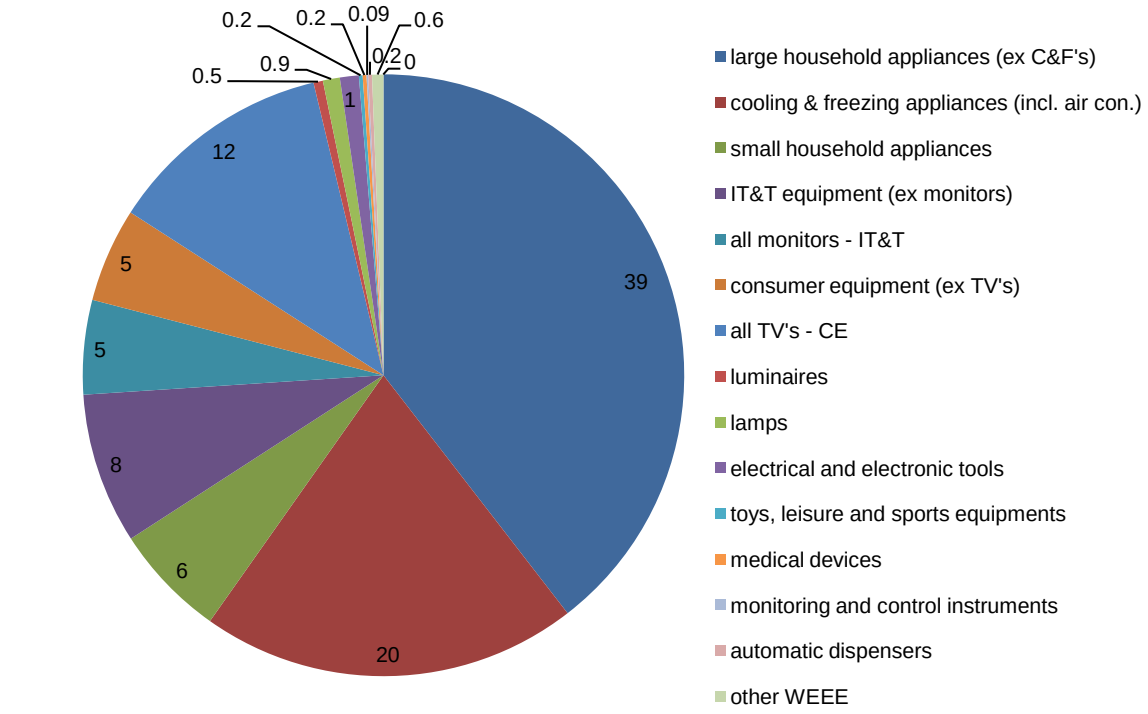

Figure 3 The share of amounts of WEEE collected by WEEE Forum members in 2008. © WEEE Forum, 2009.

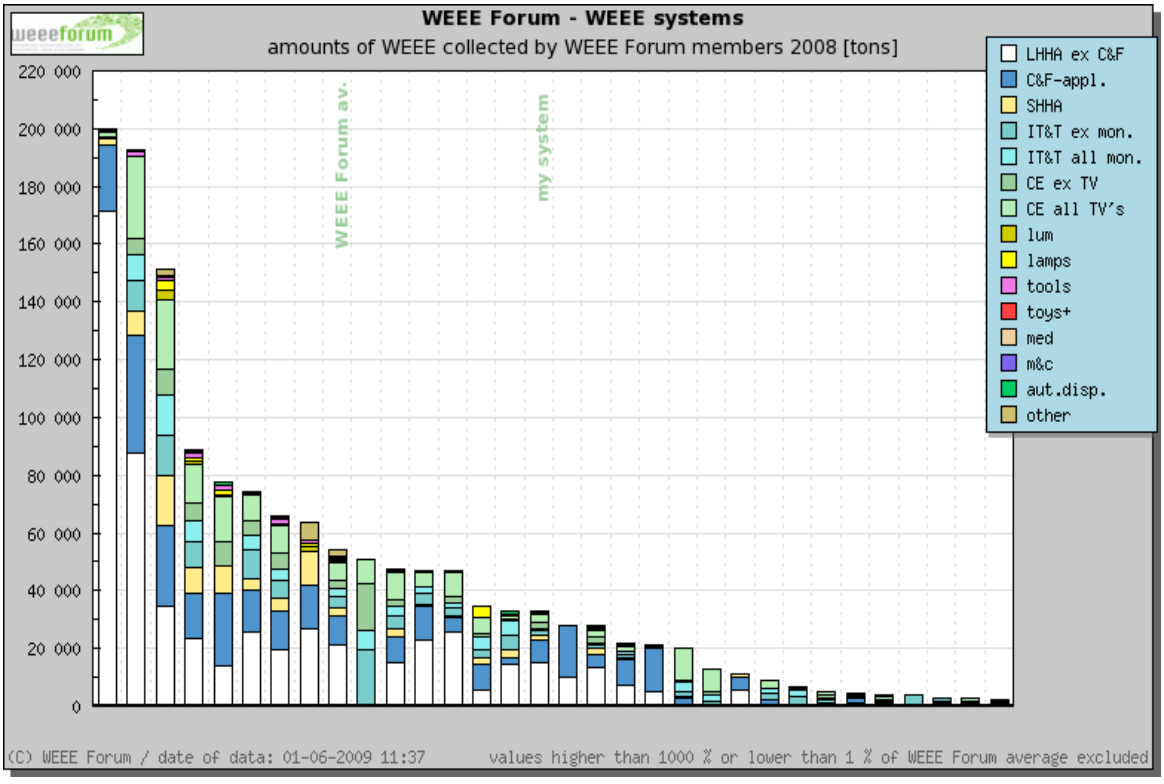

Figure 4 Amount of WEEE collected in tonnes (t) by each of the WEEE Forum members in 2008. The three largest organisations account for one-third of all WEEE collected by WEEE Forum as a total. © WEEE Forum, 2009.

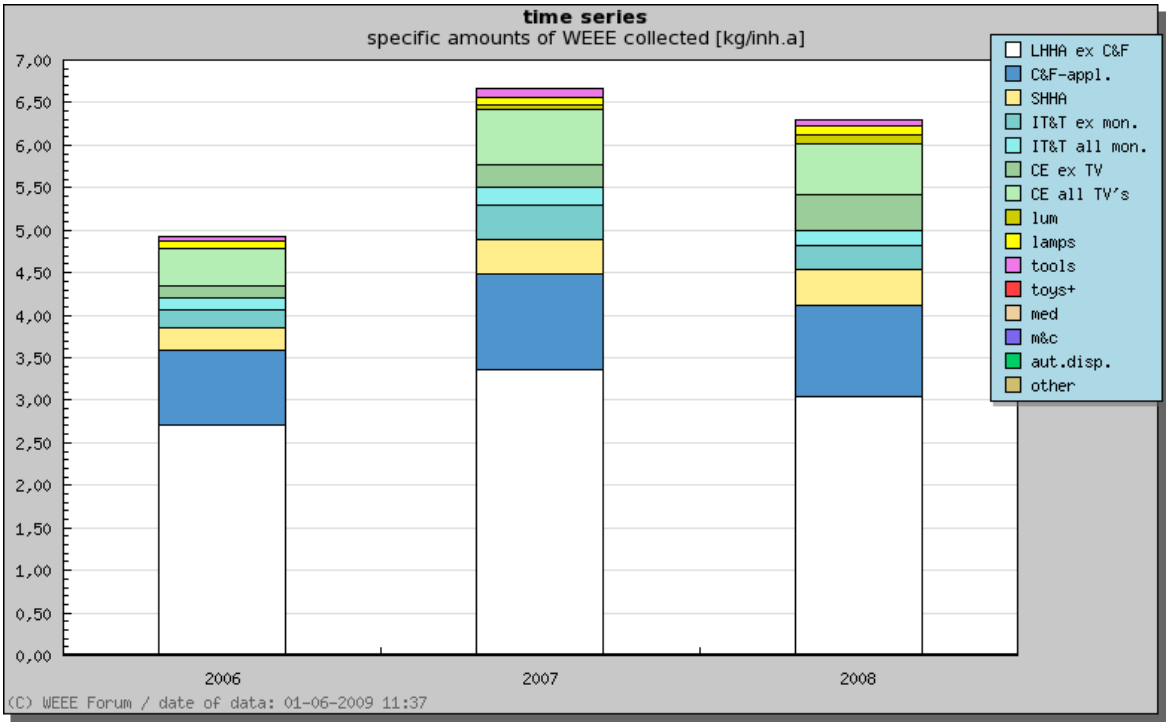

Figure 5 Amount of WEEE collected in each of the WEEE categories by one WEEE Forum member. This chart shows the development over time of the collection rates in kg/inhabitant. © WEEE Forum, 2009.

	amounts of WEEE collected [tons]	2006		2007		2008	
	WEEE.cat.	sum	num data	sum	num data	sum	num data
		[t]	[#]	[t]	[#]	[t]	[#]
1a	large household appliances (ex C&F's)	316.764	17	477.320	22	548.267	26
1b	cooling and freezing appliances (incl air con)	156.263	20	222.384	25	278.089	28
2	small household appliances	58.964	18	76.581	24	85.369	30
3a	IT&T equipment (ex monitors)	74.625	22	96.034	27	109.479	28
3b	all monitors - IT&T	48.078	19	70.285	24	76.125	25
4a	consumer equipment (ex TV's)	49.153	18	60.642	25	69.903	27
4b	all television sets - CE	80.381	19	121.610	24	173.013	27
5a	luminaires	7.390	9	3.274	14	7.456	16
5b	lamps	8.680	12	11.950	15	12.752	16
6	electrical and electronic tools	6.300	15	13.312	21	13.563	27
7	toys, leisure and sports equipment	3.065	16	6.362	18	2.798	23
8	medical devices	1.243	14	1.796	20	2.150	19
9	monitoring and control instruments	587	14	1.044	17	1.240	23
10	automatic dispensers	1.404	6	2.484	9	3.242	14
	other WEEE	6.150	2	3.110	2	8.345	4
	total	**819.409**	**27**	**1.173.851**	**31**	**1.395.407**	**33**
	values higher than 1000 % or lower than 1 % of WEEE Forum average excluded						

Table 1 Amount of WEEE collected by member organisations from 2006 to 2008 in tonnes (t) showing the quantity collected and the number of organisations that collected the WEEE. This table shows the increase in number of members of the WEEE Forum and the increase in the amount of WEEE collected over this time period. © WEEE Forum, 2009.

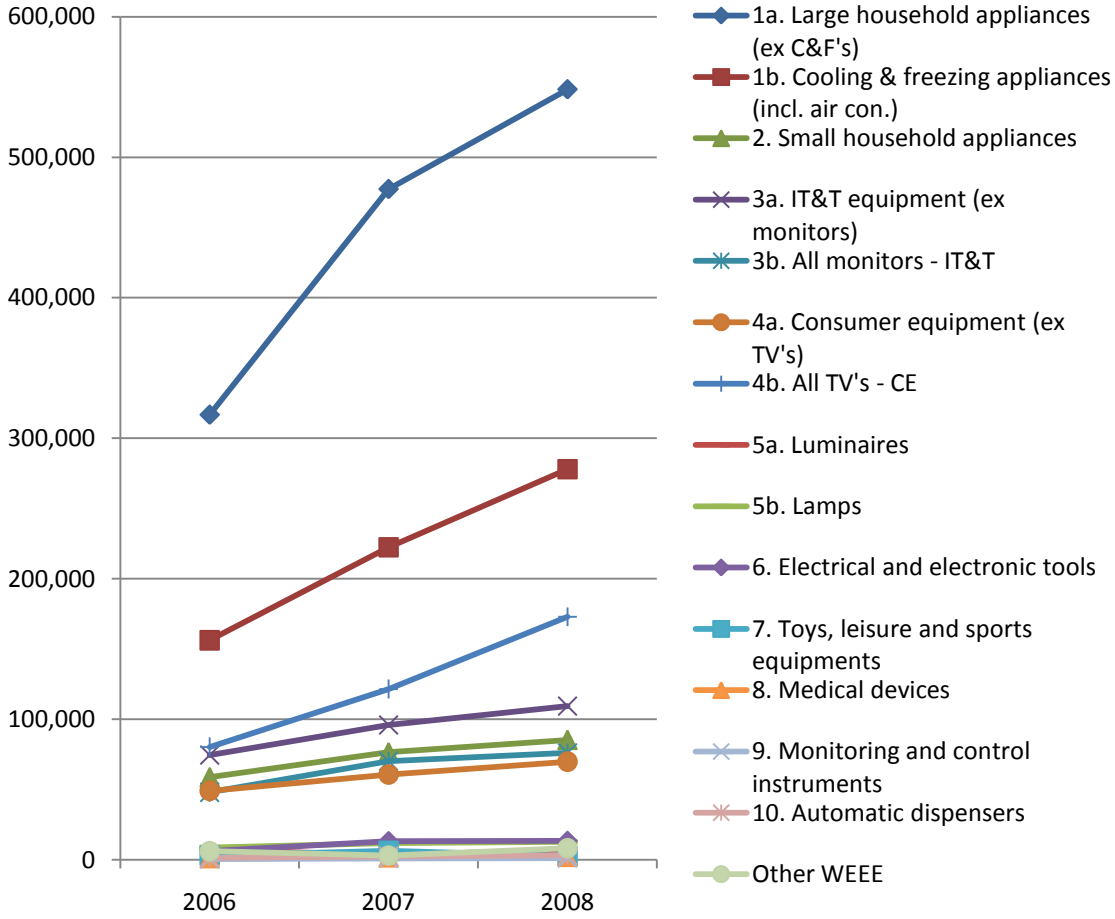

Figure 6 Amount of WEEE collected by member organisations from 2006 to 2008 in tonnes (t) showing the quantity collected and the number of organisations that collected the WEEE. This chart shows the increase in number of members of the WEEE Forum and the increase in the amount of WEEE collected over this time period. © WEEE Forum, 2009.

Costs related to WEEE management

31 WEEE Forum members provided information on total costs, of which 29 provided information on allocated costs. Of those 29[10], a total of about €382,000,000 was spent on collection, transport and treatment of WEEE and in the administration of the organisation in 2008 (see Figure 7) – in 2007, the costs of 26 organisations amounted to €303,000,000. The 29 organisations collected 1.3 Mt, which means a weighted average specific cost of 0.30 €/kg (compared to 0.28 €/kg in 2007).

In principle, however, costs ought to be compared only at the level of WEEE categories or sub-categories. Requirements related to collection, transport and treatment tend to differ and therefore cause different costs per kilogram. Costs per kg are calculated automatically on the basis of allocated costs for each WEEE category and sub-category which will be divided by data on amounts collected given for each category and sub-category.

The structure of cost determination used by the WEEE Forum distinguishes between operational costs for collection, containers, transport and treatment, on the one hand, and additional costs on organisations' responsibilities taken over, on the other. It is worth mentioning that the distribution of different types of costs, treatment costs for example, differ quite considerably among organisations.

In general operational costs are influenced by:

- The requirement to pay for collection at collection facilities, or the legal requirement to collect.
- Metal prices and the obligation to pay for the material value, which in turn is related to the question of ownership of WEEE and the value of appliances.
- The area coverage required from collection organisations, which influences collection costs and logistic costs.
- The amount of WEEE collected and treated on behalf of the collection and recovery organisations, influencing economies of scale and options to negotiate prices.
- Treatment standards, for example established by national authorities.
- Infrastructure in place.

Most organisations managed to lower their operational costs in the past couple of years for nearly all WEEE categories covered. This mainly results from decreasing treatment costs and experience.

Standards and compliance with the requirements of Annex II of the Directive are such that costs related to treatment will continue to dominate overall costs in the medium term perspective for quite a few WEEE categories and sub-categories. Put differently, unscrupulous persons who deliberately do not comply with standards and legislative requirements may find it easier to show a rosier picture. The weighted average treatment costs for cooling appliances including air conditioning equipment and IT and telecom equipment excluding monitors are €180 and €15 per tonne respectively.

[10] One member organisation has its data included in the data set of another member organisation; therefore we refer to 29 organisations rather than 30.

Eight organisations reported negative treatment costs (minus values) for large household appliances, the weighted average treatment cost being a profit of €40 per tonne. The weighted average of total costs amounts to €110 per tonne.

Organisations not only report operational costs but also so-called additional costs, i.e. costs related to administration and responsibilities resulting from agreements with branch associations. Examples of such additional costs:

- Remunerations to be paid to the distribution chain for levying fees.
- Costs related to levying funds.
- Costs related to control of free riders.
- Technical control of collection facilities and/or treatment partners.
- PR and awareness raising campaigns.
- Research and development costs.
- Special sorting or sampling of WEEE (upon request).
- And new cost factors, such as payments for the clearing house.

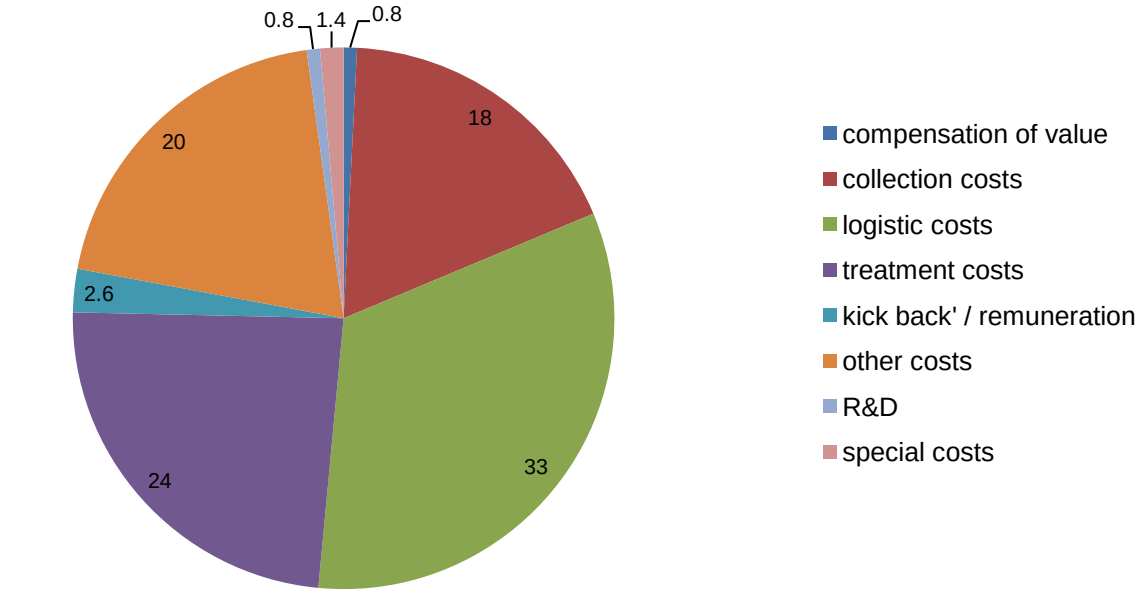

Figure 7 The share of allocated cost categories associated with the collection, transport and treatment of WEEE and in the administration of the WEEE Forum organisations in 2008. © WEEE Forum, 2009.

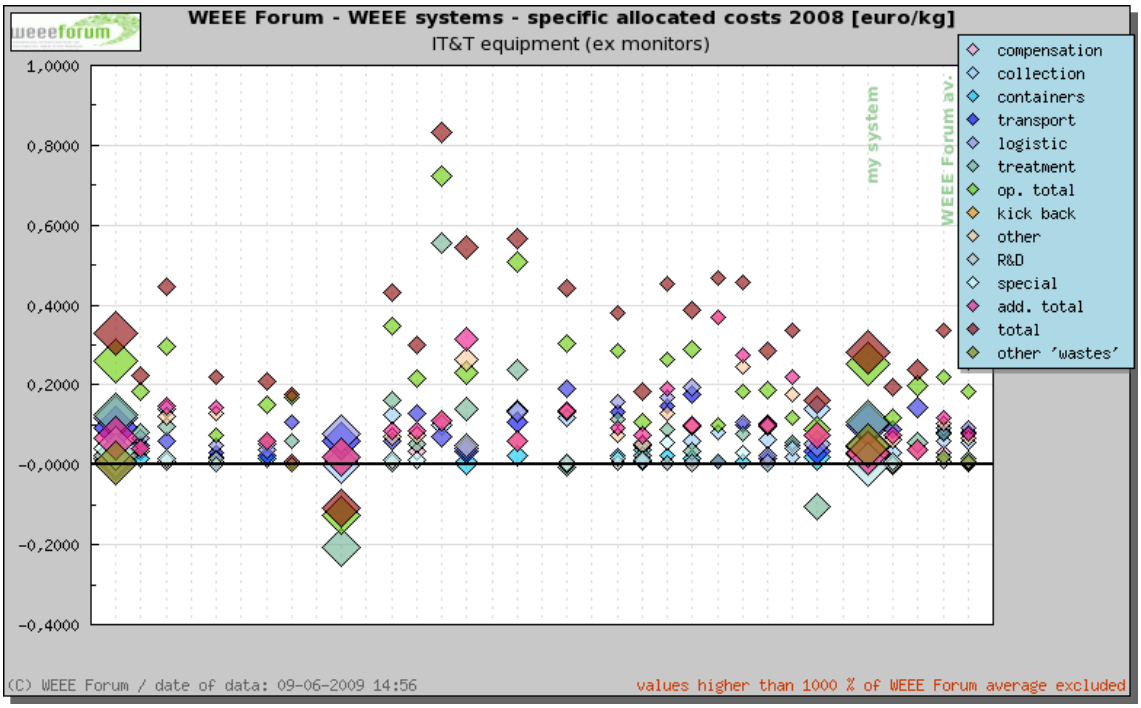

Figure 8 Distribution of the costs (€/kg) associated with the cost categories for each of the organisations of the WEEE Forum. © WEEE Forum, 2009.

Annex

		cost 'categories'	cost 'groups' - cost allocation	cost 'factors'	remark NEW with KF 2008
total costs WEEE	operational costs		compensation of value	compensation of value	NEW
		collection costs		costs for collection at collection facilities	
				costs for 'centralisation' = 1st step transport	NEW
				costs for sorting to 'collection categories'	
				additional collection costs for reuse of appliances	
		costs for containers		annual costs for receptacles for collection facilities	
				annual costs for transport containers/boxes	
				additional container costs for reuse of appliances	
		transport costs		costs for transports to treatment operators	NEW detail
				costs for logistic administration	
				additional transport costs for reuse of appliances	
		logistic costs		*info: will be calculated from total of cost 'categories' 'costs for containers' and 'transport costs'*	
		treatment costs		costs for treatment	
				revenues/expenses for fractions	NEW
				additional costs/revenues for/from reuse of appliances	
			total operational costs		
	additional costs		**'kick back'**	'kick back' / remuneration	
		other costs	**financial service**	costs for levying of funds	
			sales and marketing *(optional)*	costs for market activities *(optional)*	
			financial monitoring & control	costs for control of free riders	
				costs for financial control	
			technical monitoring & control	costs for technical control of collection facilities	
				costs for technical control of treatment partners	
			reporting *(optional)*	costs for reporting *(optional)*	
			PR	PR costs - materials (external)	
				costs for PR staff (internal or external)	
			administration and overheads	administration and overheads	
			legal support *(optional)*	costs for legal support *(optional)*	
			interests *(optional)*	interests to be paid or as income *(optional)*	NEW
		R&D		costs for development of collection facilities	
				costs for research work	
				other R&D costs	
		special costs WEEE		costs for differentiation of WEEE of WEEE systems	
				costs for sorting / sampling for e.g. accounting, ...	
				costs for determination of sales data	
				costs for clearing house	
				costs for 'fines' to authorities	NEW
				costs for special projects	
			total additional costs		
			total costs WEEE		
other wastes			**costs other 'wastes'**	costs for batteries	NEW - split from WEEE
				costs for packaging material	

Table 2 Structure of cost determination © WEEE Forum, 2009

For more information on the WEEE Forum and a profile of each member organisation and contact information, see http://www.weee-forum.org. Overviews of specific data sets can be made upon request to pascal.leroy@weee-forum.org or therese.shryane@weee-forum.org. Or call us on (32 2) 706 87 01.