2007 Key Figures on quantities of electrical and electronic equipment put on the market, of quantities of WEEE collected, and on costs related to WEEE management

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weeeforum
EUROPEAN ASSOCIATION OF
ELECTRICAL AND ELECTRONIC
WASTE TAKE BACK SYSTEMS

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1. Introduction

The WEEE Forum is the largest association in Europe of WEEE[1] collection and recovery systems. In 2007, its 42 members[2] took back approximately 1.2 million tons of e-waste, i.e. more than half of all e-waste collection in Europe today[3]. Several of its members have been collecting and recovering e-waste for more than five years, and some 10 or more years. The WEEE Forum is among the only multi-national *centre of competence* in the world when it comes to practical experience with the management of e-waste.

One of the organisation's mission statements is to develop tools that allow member systems to benchmark their results with those of others, and to provide comparable and sound data to stakeholders in general. "Key Figures" is such a tool. Every year, around April-May, members are asked to provide quantitative data to a web-based software programme on the amount of electrical and electronic equipment that producers, constituents of those systems, put on the market, the quantities of WEEE that they collected, and the costs related to WEEE management[4].

All data are stored in a so-called "black box", i.e. members are not in a position to see other systems' quantitative data or cost structures. In addition, the overviews do not disclose the identity of the systems, averages are calculated and minimum/maximum ranges are provided. Each member can make its own overviews of the type of results it is interested in.

This year, 31 members delivered data. Seven members were not in a position to send in comprehensive and consistent data because they started operations in the course of 2007 or 2008.

This report provides an overview of the 2007 key figures and, in so doing, seeks to contribute to the ongoing debate on e-waste management matters.

[1] WEEE stands for waste electrical and electronic equipment.
[2] The WEEE Forum was founded in April 2002 by 6 systems in Austria, Belgium, the Netherlands, Norway and Sweden. Today, it counts 42 collection and recovery systems from Switzerland and Norway and all member states of the European Union except Bulgaria, Lithuania, Cyprus and Malta. All systems are open, non-profit oriented systems run on behalf of a community of about 17,000 producers. Members in 2007: Amb3E, Appliances Recycling, Asekol, B2B Compliance, Ecoasimelec, Ecodom, Ecofimatica, Ecolec, Ecologic, Eco-RAEE's, ecoR'it, Eco-systèmes, Ecotic, Ecotrel, EES-Ringlus, ElectroCoord, ElektroEko, Elektrowin, Elker, El-Kretsen, elretur DK, Elretur NO, Envidom, ICT Milieu, Latvijas Zalais Elektrons, Lightcycle, Lumicom, NVMP, Recupel, REMA, Re.Media, Repic, Retela, RoRec, SENS, Serty, SEWA, SWICO, Tragamovil, UFH, WEEE Ireland and Zeos. For a more in-depth profile of the recovery systems of the WEEE Forum, see http://www.weee-forum.org/index.php?section=members&page=members_community.
[3] The United Nations University estimated total WEEE collection in Europe in 2005 at 2.2m tons. See UNU's final report "2008 review of Directive 2002/96/EC on WEEE": http://www.weee-forum.org/att/literature/2007_Review%20of%20Directive%202002.96.ec%20on%20weee_unu.pdf.
[4] The data have been determined within the same structure since 2003. Data on quantities put on the market were included for the first time in 2007.

2. Executive summary

- In total, 17,000 producers of electronics[5] are affiliated to the 42 collection and recovery systems that make up the WEEE Forum. In 2007, those affiliated to 28 WEEE Forum member systems taken together put almost 4m tons onto the European market – or, more specifically, onto the markets in which they operate. This corresponds to 11.1 kg per inhabitant per year. The maximum was a market input of 30.5 kg per inhabitant per year.

- The quantities of electronics put on the market increased from 2.9m (21 systems) to 3.9m tons (28 systems), i.e. from 10.1 to 11.1 kg per inhabitant per year.

- Taken together, 31 member systems collected almost 1.18m tons of e-waste, thereby serving 264 million inhabitants. This corresponds to a weighted average amount of 4.4 kg per inhabitant per year. The arithmetic mean average of WEEE collection was 4.0 kg per inhabitant per year. One system managed to collect 17.5 kg per inhabitant per year.

- Two-thirds of e-waste is collected from municipal collection facilities (13 systems).

- From KF 2006 to KF 2007 the quantities of electronic waste collected increased from 820,000 tons (27 systems) to 1,174,000 tons (31 systems). The specific amount collected decreased from 4.2 to 4.0 kg per inhabitant per year. However, those values are influenced by the growing number of systems providing information and their age and size/scope. If we compare only members which provided data in 2007 (for KF 2006), the average increases from 4.16 to 4.34 kg per inhabitant per year.

- There is evidence for the statement that, with the ever increasing value of raw materials, “valuable WEEE” tends to be returned to systems in decreasing amounts. The per-capita quantities of discarded household appliances (excluding cooling and freezing appliances) that ended up in one particular system dropped from 1.30 to 0.85 kg per inhabitant per year in the past 6 years (from 2002 to 2007). However, one system into which all WEEE is supposed to be returned by municipal collection facilities and other parties, reports that the amount of large household appliances collected has been increasing since 2002 from 3.20 to over 4.10 kg per inhabitant per year.

- 28 systems spent more than €300m on collection, treatment and administration. The weighted average of total specific costs, irrespective of the WEEE category or sub-category covered, is 0.28 €/kg. However, it is recommended to compare costs only at the level of WEEE categories or sub-categories.

[5] In this report, the terms “electrical and electronic equipment” and “electronics” are used interchangeably, and refer to the product categories as defined in Directive 2002/96/EC. Also “WEEE” and “electronic waste” or “e-waste” are synonyms.

- Most of the WEEE Forum members managed to lower the treatment costs for nearly all WEEE categories. Also for cooling appliances a reduction of total costs is not excluded.

- However, even if the picture of treatment improves cost-wise, the total operational costs for scrupulous systems who comply with standards and legislative requirements, such as those spelled out in Annex II of Directive 2002/96/EC, are typically positive. Only one member managed to get total operational costs and even total costs, i.e. including administration, for large white goods (excluding cooling appliances) below zero, i.e. turning operations into a profitable business.

3. Quantities of electrical and electronic equipment put on the **market** ("market input")

Producers of 28 WEEE Forum systems put almost 4m tons onto the market. The arithmetic mean average market input was 11.1 kg per inhabitant per year. The maximum was a market input of 30.5 kg per inhabitant per year.

The overview of "market input" is based on data provided by 28 WEEE Forum members[6]. All producers of those 28 systems taken together put 3,905,900 tons onto the market [see table 1 and graph 1]. The arithmetic mean average specific[7] market input (setting 1000/1[8]) was 11.1 kg/inh(country).a [see table 2]. The maximum was a market input of 30.5 kg/inh(country).a. Graphs 2 and 3 show total results of specific[9] market input data per system and per country respectively.

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

- The general market differences for individual WEEE categories.
- Consumers' purchasing power (general economic situation).
- The level of market saturation for particular types of equipment or for electronics in general.
- The market share of the system.
- And the criteria for reporting, for example, the inclusion/exclusion of market input data for B2C and B2B appliances.

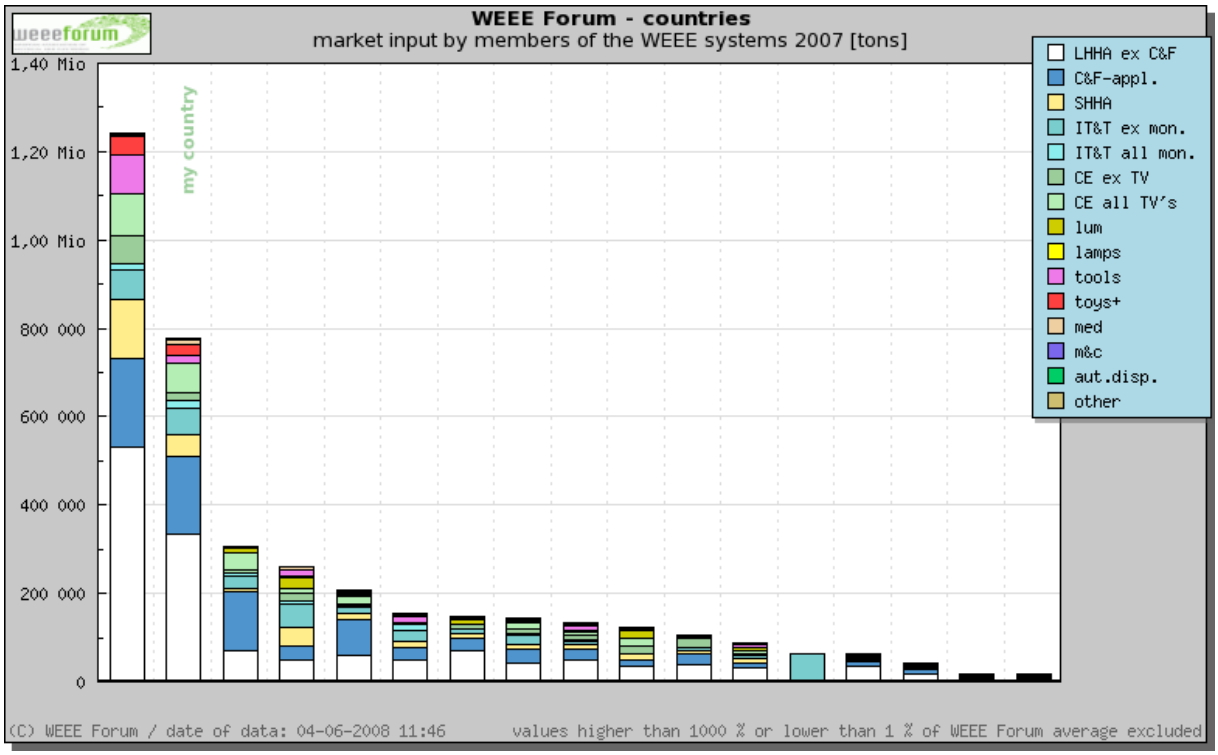
The quantities of electronics put on the market by producers increased from 2.9m (21 members) to 3.9m tons (28 members), i.e. from 10.1 to 11.1 kg/inh.a. Those values are influenced by the growing number and varying size of WEEE Forum members that provided data.

Total results on specific market input data per system or country are influenced by the number of WEEE categories covered by the system and the market shares of the producers of the systems within these categories[10].

[6] The data refer to quantities of electrical and electronic equipment put on the market by producers who have joined the WEEE Forum member systems.
[7] Throughout the report, the word "specific" refers to either kilograms per head per year, i.e. kg/inh.a, or costs per kilogram, i.e. €/kg.
[8] To exclude implausible data a 1000%/1% check was integrated. Values higher than 10-times (factor 10) of the WEEE Forum average or below 1% (factor 100) of the average are excluded from overviews, minimum, maximum and/or average values.
[9] Specific market input data [kg/inh[country).a] should be set in relation to the market shares of the systems in a country to come to more comparable data on the total specific market input data in that country.
[10] It should also be noted that the majority of systems that provided data have included market input data on appliances sold to business users.

	market input by members of the WEEE systems 2007 [tons]					
	values higher than 1000 % or lower than 1 % of WEEE Forum average excluded					
	WEEE cat.	average	min.	max.	num data	total
		[t]	[t]	[t]	[#]	[t]
1a	large household appliances (ex C&F's)	64.945	1.286	492.254	22	1.428.785
1b	cooling and freezing appliances (incl. air con)	38.869	846	177.912	21	816.258
2	small household appliances	15.213	309	98.616	22	334.684
3a	IT&T equipment (ex monitors)	16.413	761	64.000	23	377.508
3b	all monitors - IT&T	3.753	94	13.362	18	67.561
4a	consumer equipment (ex TV's)	8.898	250	43.252	22	195.754
4b	all television sets - CE	12.803	258	72.760	22	281.664
5a	luminaires	6.266	298	27.662	14	87.725
5b	lamps	1.371	59	3.740	14	19.196
6	electrical and electronic tools	7.984	313	65.762	20	159.680
7	toys, leisure and sports equipment	4.803	73	23.450	18	86.456
8	medical devices	1.521	22	7.565	17	25.850
9	monitoring and control instruments	656	15	2.940	18	11.800
10	automatic dispensers	812	29	3.622	15	12.178
	total	**139.496**	**1.604**	**1.009.308**	**28**	**3.905.900**

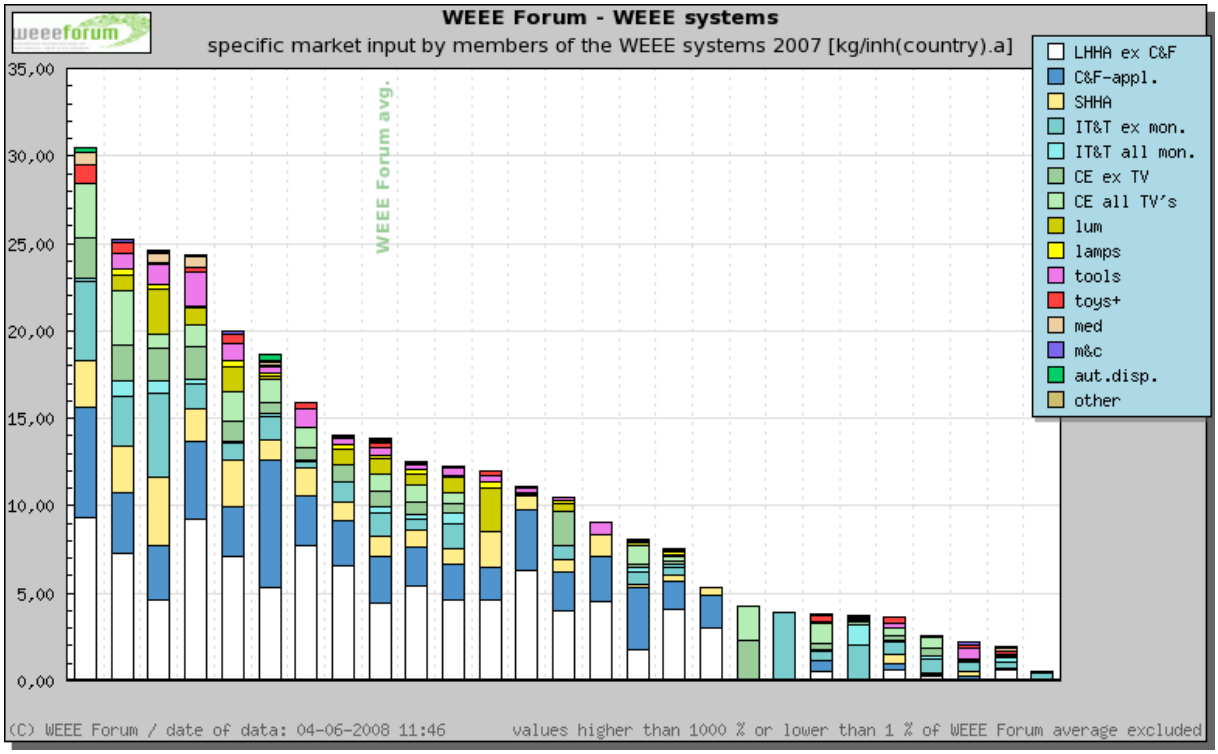
Table 1 Market input 2007 – Quantities put on the market: absolute [tons], data per system, ranges for WEEE categories covered and totals (setting 1000/1)



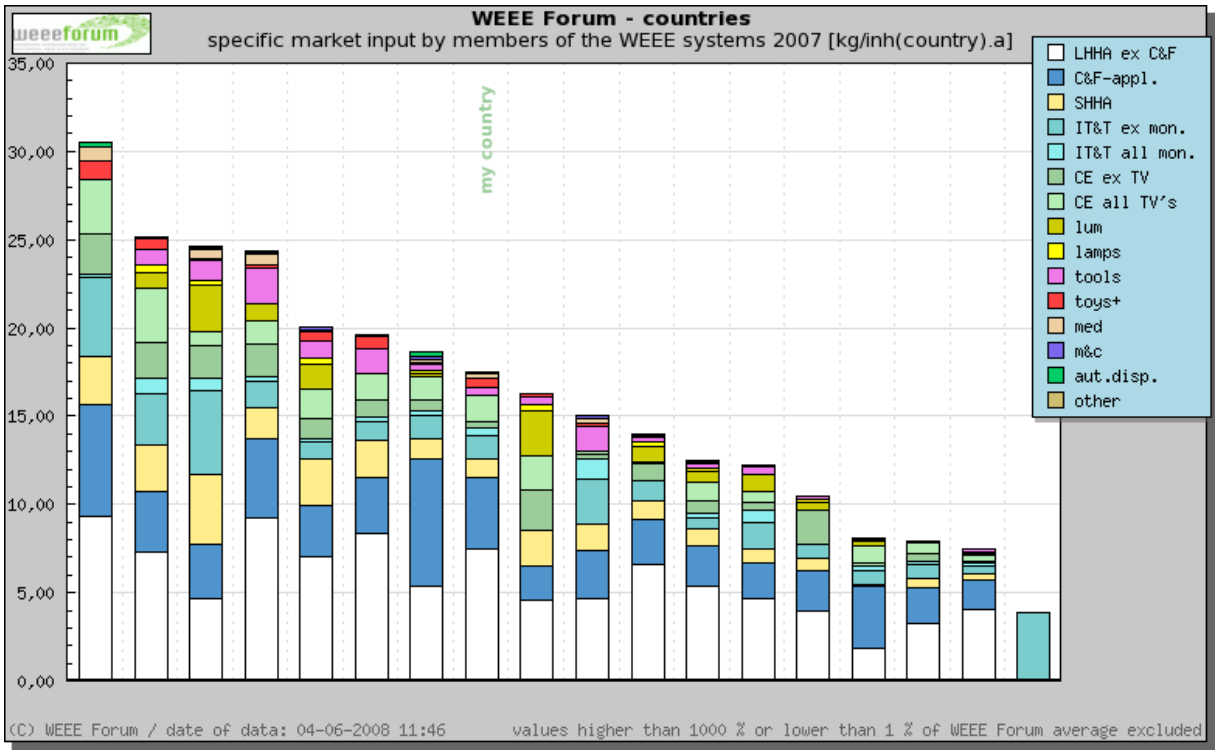
Graph 1 Market input 2007 – Quantities put on the market: absolute [tons], data per country [data of the producers affiliated with the WEEE Forum member systems] (setting 1000/1)

	specific market input by members of the WEEE systems 2007 [kg/inh(country).a]				
	values higher than 1000 % or lower than 1 % of WEEE Forum average excluded				
	WEEE cat.	**average**	**min.**	**max.**	**num data**
		[kg/inh.a]	[kg/inh.a]	[kg/inh.a]	[#]
1a	large household appliances (ex C&F's)	4,45	0,13	9,36	22
1b	cooling and freezing appliances (incl. air con)	2,64	0,12	7,27	21
2	small household appliances	1,19	0,06	3,95	22
3a	IT&T equipment (ex monitors)	1,34	0,02	4,82	23
3b	all monitors - IT&T	0,31	0,005	1,20	18
4a	consumer equipment (ex TV's)	0,88	0,02	2,30	21
4b	all television sets - CE	0,96	0,03	3,11	21
5a	luminaires	0,91	0,03	2,61	13
5b	lamps	0,18	0,003	0,40	14
6	electrical and electronic tools	0,49	0,01	1,97	21
7	toys, leisure and sports equipment	0,21	0,004	1,08	21
8	medical devices	0,14	0,003	0,73	18
9	monitoring and control instruments	0,05	0,001	0,19	18
10	automatic dispensers	0,07	0,002	0,32	15
	total	**11,09**	**0,53**	**30,50**	**26**

Table 2 Market input 2007 – specific [kg/inh(country).a], data per system, ranges for WEEE categories covered and totals (setting 1000/1 for 2 systems) (26 members)



Graph 2 Market input 2007 – specific [kg/inh (country).a], data per system (setting 1000/1)



Graph 3 Market input 2007 – specific [kg/inh (country).a], data per country (data of the producers affiliated with the WEEE Forum member systems) (setting 1000/1)

4. Quantities of WEEE collected

31 member systems provided data on collected WEEE quantities. Taken together, they collected almost 1.18m tons of WEEE, thereby serving 264 million inhabitants. This corresponds to a weighted average amount of 4.4 kg per inhabitant per year. The arithmetic mean average of WEEE collection (setting 1000/1) was 4.0 kg per inhabitant per year. The highest specific amount collected per person was 17.5 kg per inhabitant per year.

Table 3 and 4 show the ranges of amounts of WEEE collected in absolute and specific values respectively. 31 members of the WEEE Forum collected a total quantity of 1,174,000 tons.

Graph 6 shows amounts of electronic waste collected per country. Note, however, that these data only refer to quantities collected by the WEEE Forum members, and should not be interpreted as total quantities collected in one particular state[11].

The Key Figures web-based tool allows for a calculation of total results on specific amounts of e-waste collected per system or per country [see Graph 55 and 6, but also of individual WEEE categories. See graph 7 for an example on cooling and freezing appliances.

The WEEE Forum member systems collect e-waste from different sources. One frequently asked question is what the share is of e-waste collected by municipal collection facilities (MCF) as opposed to other sources. With that request in mind, a decision tree was developed to provide results on amounts collected from different possible sources.

- 13 systems that provided data regarding WEEE collection quantities from MCF collected a total amount of 487,000 tons, of which 327,000 tons from MCF. In other words, 67 per cent (or two-thirds) was collected from MCF.
- 21 systems provided data (or identified with yes/no) that WEEE collected from business users are included in the results on amounts of WEEE collected. The 2 systems that collected most in terms of specific amounts collected [kg/inh(country).a] also provided data on quantities collected from business users separately: 2.3 and 13 per cent respectively. In other words, the argument that these high results is mainly influenced by the fact that electronic waste is collected from business users, is not correct.

From KF 2006 to KF 2007 the quantities of e-waste collected by the WEEE Forum members increased from 820,000 tons (27 systems) to 1,174,000 tons (31 systems). The specific amount collected decreased from 4.2 to 4.0 kg/inh(served).a. These values are very much influenced by the growing number of systems providing information on collected quantities and their size/scope[12]. Additional members having provided data on amounts of WEEE collected for KF 2007 for the first time are very small to medium-sized. If only members were taken for

[11] Quantities of WEEE collected [kg/inh[served).a] 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.

[12] The older the system is, the more cost-effective and efficient the infrastructure that the system put in place is likely to be. Size or scope refer to the number of WEEE categories covered and the system's share of total collection.

comparison which provided data on amounts collected for KF 2006 and KF 2007, the average specific amount increases from 4.16 to 4.34 kg/inh(served).a.

The KF tool also allows producing time series of collection or market input for one particular system [see graph 9].

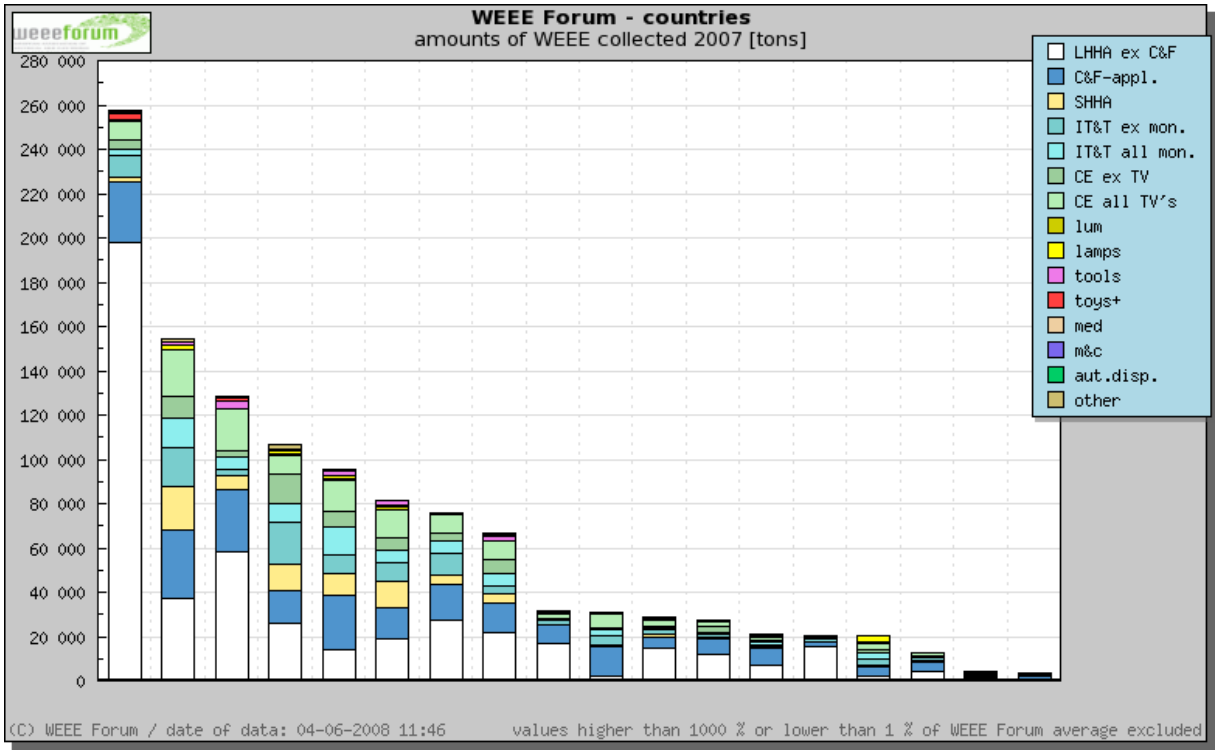
The results on quantities collected are influenced by a number of factors.

- The legal and regulatory framework, e.g. related to take back and forwarding obligations for all stakeholders, collection targets, export restrictions, control of other disposal paths, and so forth.
- The question on the legal ownership of waste established by the law. For example, municipal collection facilities are or are not entitled to hand over to other parties than systems.
- The intrinsic, material value of appliances, e.g. a proportion of valuable WEEE ends up in “complementary streams”.
- The access to collection facilities, e.g. other parties keep long term working relationships with collection facilities, while the system does not get access to this collection facilities and WEEE.
- The area covered by the system, 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 or 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 collection facilities.
- Awareness of consumers and other parties.
- General availability and use of infrastructure like (municipal) waste collection facilities.
- Economic data concerning equipment in homes, which tends to be related to purchasing power of past years, today’s purchasing power and replacement of appliances (as opposed to re-use).
- Living conditions like storage capacity of households.

It is often argued that, with the ever increasing value of raw materials, “valuable WEEE” tends to be returned to systems in decreasing amounts. Graph 10 seems to corroborate this finding. The per-capita quantities of discarded household appliances (excluding cooling and freezing appliances) that ended up in one particular system dropped from 1.30 to 0.85 kg/inh(served).a in the past 6 years (from 2002 to 2007). However, this finding should not be extrapolated. One system into which all WEEE is supposed to be returned by municipal collection facilities and other parties, reports that the amount of large household appliances collected has been increasing since 2002 [see graph 11] from 3.20 to over 4.10 kg/inh(served).a.

amounts of WEEE collected 2007 [tons]					
values higher than 1000 % or lower than 1 % of WEEE Forum average excluded					
WEEE.cat.	**average**	**min.**	**max.**	**num data**	**total**
	[t]	[t]	[t]	[#]	[t]
large household appliances (ex C&F's)	21.696	454	181.013	22	477.320
cooling and freezing appliances (incl air con)	8.895	106	30.461	25	222.384
small household appliances	3.191	65	20.005	24	76.581
IT&T equipment (ex monitors)	3.557	59	18.728	27	96.034
all monitors - IT&T	2.929	107	13.178	24	70.285
consumer equipment (ex TV's)	2.426	30	12.768	25	60.642
all television sets - CE	5.067	168	20.920	24	121.610
luminaires	234	5	1.006	14	3.274
lamps	797	13	3.233	15	11.950
electrical and electronic tools	634	23	3.614	21	13.312
toys, leisure and sports equipment	353	7,0	2.912	18	6.362
medical devices	90	1,0	390	20	1.796
monitoring and control instruments	61	1,0	344	17	1.044
automatic dispensers	276	3,0	1.203	9	2.484
other WEEE	1.555	1.016	2.094	2	3.110
total	**37.866**	**733**	**209.301**	**31**	**1.173.851**

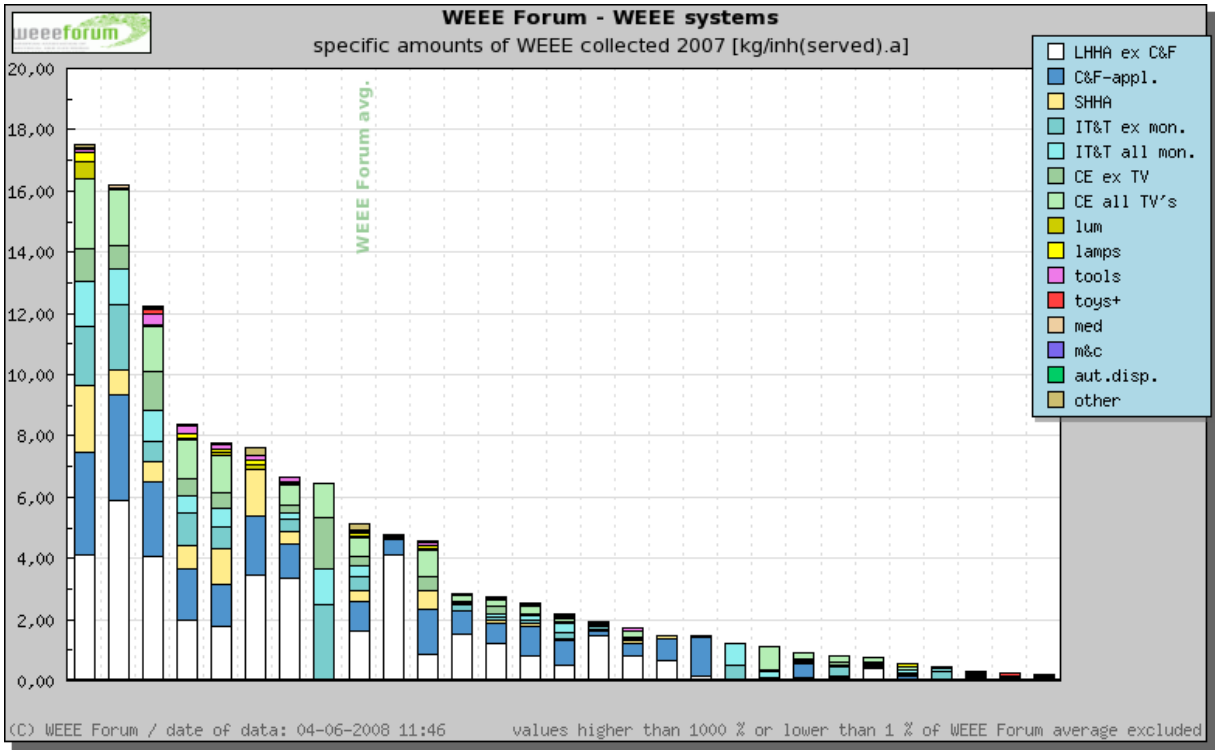
Table 3 Amounts of WEEE collected 2007 – absolute [tons], data per system, ranges for WEEE categories covered and totals (setting 1000/1)



Graph 4 Amounts of WEEE collected 2007 – absolute [tons], data per country (data of WEEE Forum members) (setting 1000/1)

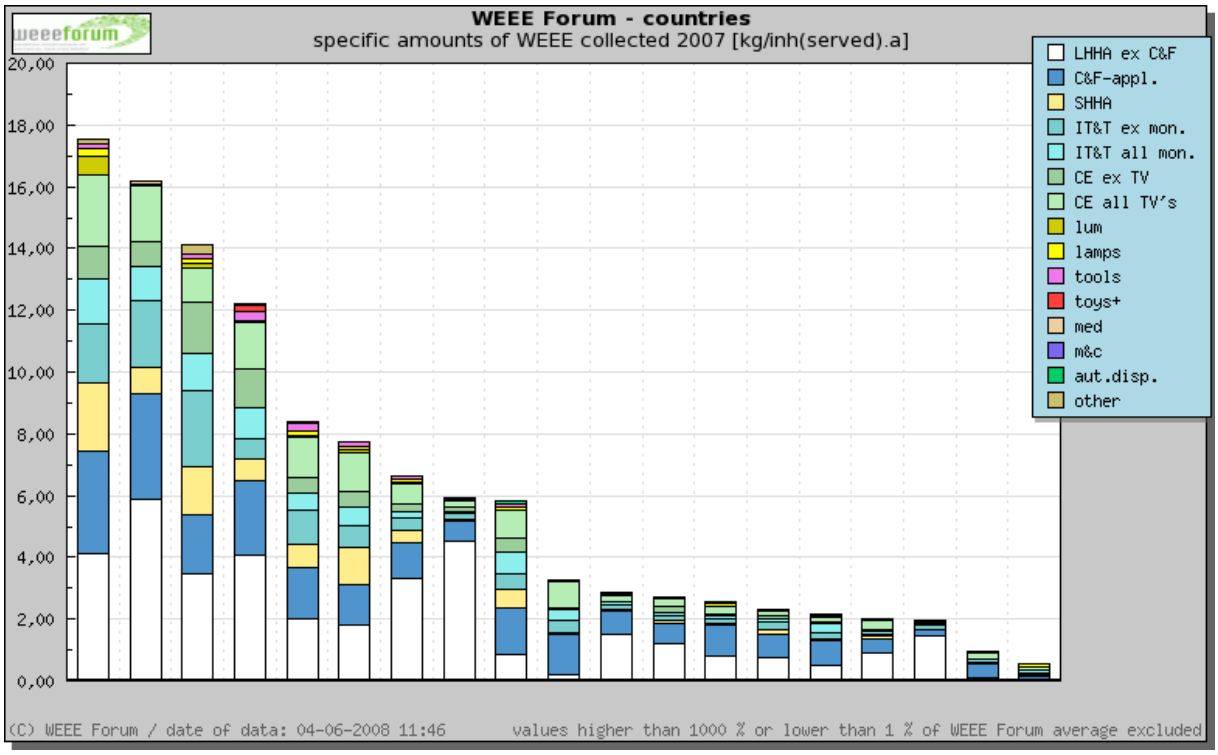
specific amounts of WEEE collected 2007 [kg/inh(served).a]				
values higher than 1000 % or lower than 1 % of WEEE Forum average excluded				
WEEE cat.	**average**	**min.**	**max.**	**num data**
	[kg/inh(served).a]	[kg/inh(served).a]	[kg/inh(served).a]	[#]
large household appliances (ex C&F's)	1,63	0,03	5,88	23
cooling and freezing appliances (incl. air con)	0,95	0,01	3,44	25
small household appliances	0,37	0,004	2,20	24
IT&T equipment (ex monitors)	0,45	0,01	2,47	26
all monitors - IT&T	0,36	0,02	1,45	23
consumer equipment (ex TV's)	0,30	0,0035	1,68	24
all television sets - CE	0,58	0,006	2,30	23
luminaires	0,08	0,0025	0,58	13
lamps	0,08	0,001	0,28	15
electrical and electronic tools	0,07	0,001	0,33	21
toys, leisure and sports equipment	0,02	0,001	0,18	19
medical devices	0,01	0,0001	0,08	19
monitoring and control instruments	0,007	0,0003	0,06	16
automatic dispensers	0,03	0,0006	0,07	8
other WEEE	0,19	0,11	0,28	2
total	**4,00**	**0,08**	**17,52**	**29**

Table 4 Amounts of WEEE collected 2007 – specific [kg/inh(served).a], data per system, ranges for WEEE categories covered and totals (setting 1000/1) (29 members[13])

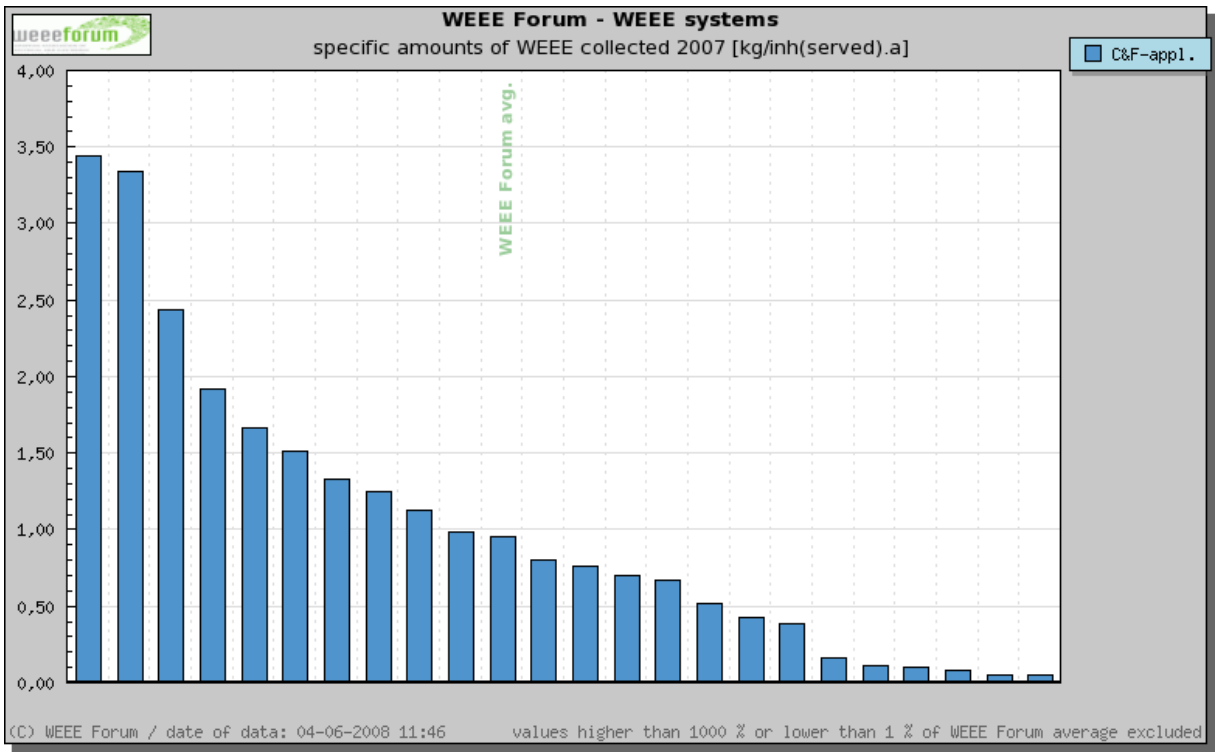


Graph 5 Amounts of WEEE collected 2007 – specific [kg/inh (served).a], data per WEEE system (setting 1000/1)

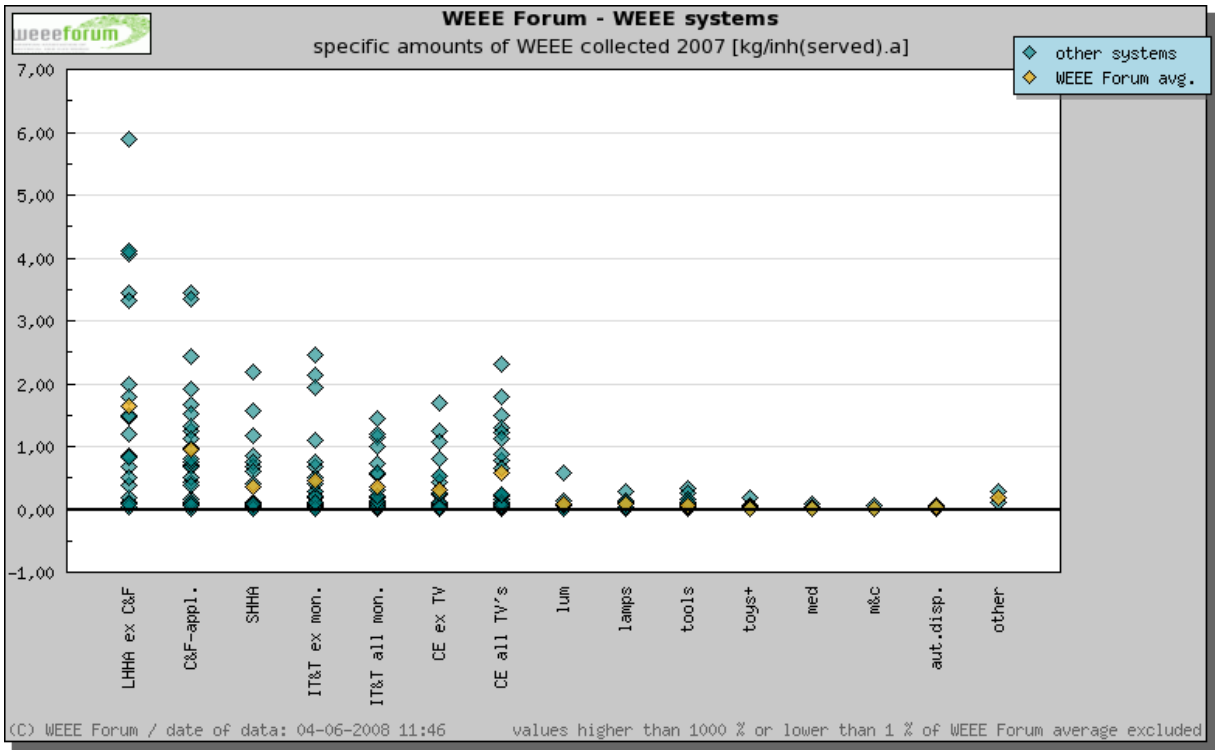
[13] 2 datasets excluded by 1000/1 setting



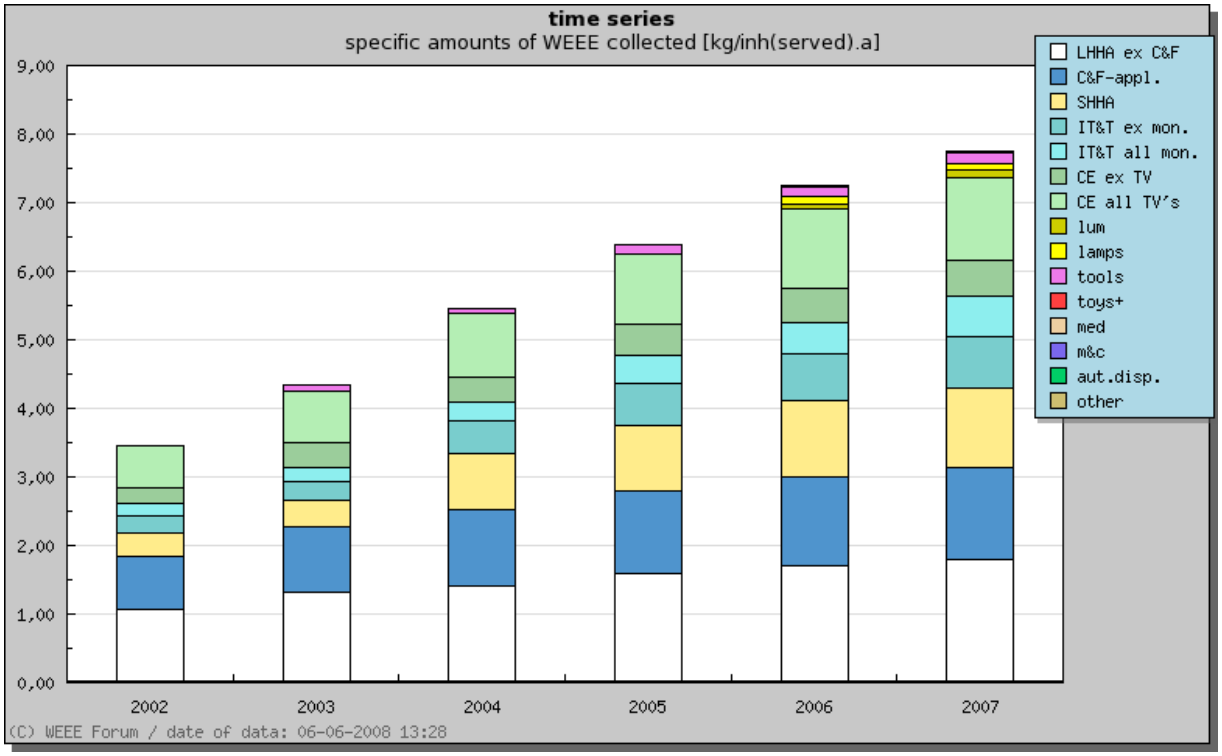
Graph 6 Amounts of WEEE collected 2007 – specific [kg/inh (served).a], data per country (setting 1000/1)



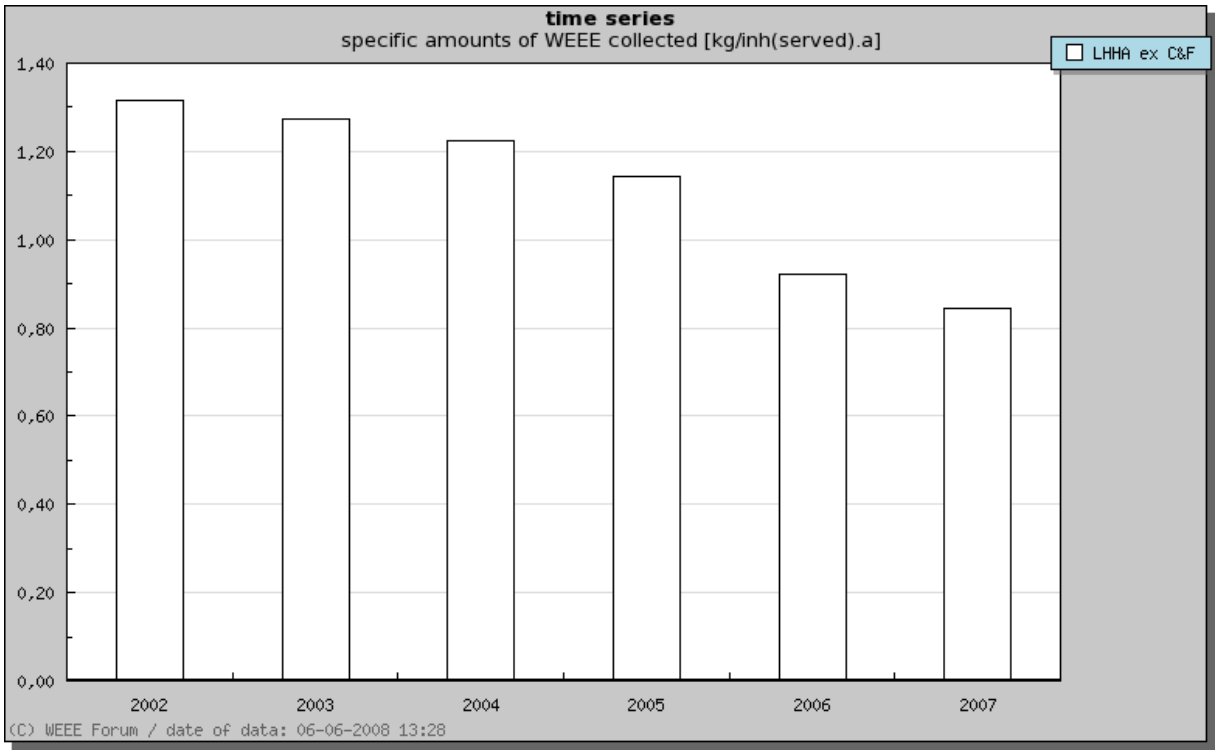
Graph 7 Amounts of WEEE collected 2007 – specific [kg/inh (served).a], data per WEEE system, example cooling & freezing appliances (setting 1000/1)



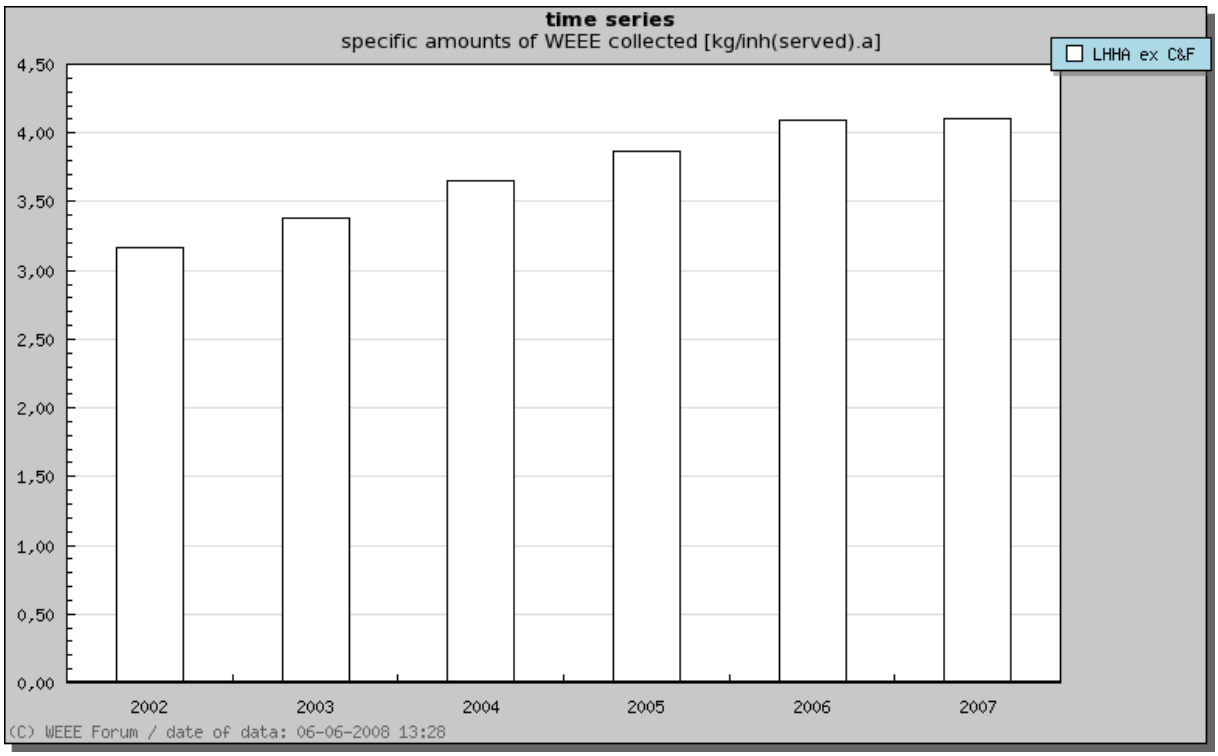
Graph 8 Amounts of WEEE collected 2007 – specific [kg/inh (served).a], data per WEEE system, distribution of values (setting 1000/1)



Graph 9 Specific amounts of WEEE collected [kg/inh(served).a] – time series for one particular system



Graph 10 Amounts of discarded large household appliances collected at one particular system – example of decreasing amounts



Graph 11 Amounts of discarded large household appliances collected at one particular system – example of increasing amounts

5. Costs related to WEEE management

28 WEEE Forum members provided information on total costs (operational and additional costs)[14]. 26 of them allocated them to the WEEE categories and sub-categories covered by the system. In total, they spent €303m on collection, treatment and administration. Those 26 members collected over 1m tons of e-waste, which means that the weighted average of total specific costs, irrespective of the WEEE category or sub-category covered, is 0.28 €/kg. It is however recommended to compare costs only at the level of WEEE categories or sub-categories.

Table 5 shows the total allocated costs and the share of each cost category in the total costs. Almost four-fifths of costs relate to collection, containers, transport and treatment. It is worth mentioning that the share of different types of costs, treatment costs for example, differ quite considerably from system to system.

Costs should only be compared at the level of WEEE categories or sub-categories, because requirements with respect to collection, transport and treatment differ and therefore cause dissimilar costs per kilogram.

Specific costs 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.

Table 6 provides an example of the range of costs according to cost categories for WEEE sub-category “cooling and freezing appliances”. Other selections can be made as well, of course, for example total specific (allocated) costs for “large household appliances” [see graph 12] or treatment costs for “cooling and freezing appliances” [see graph 13] of all systems.[15]

In general, operational costs are influenced by:

- The requirement to pay for collection at collection facilities, or the legal requirement to collect
- 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 asked from systems, which influences collection costs and logistic costs
- The amount of WEEE collected and treated on behalf of the systems (economies of scale, options to negotiate prices), and
- Treatment standards, for example established by national authorities.

Most of the WEEE Forum members managed to lower the treatment costs for nearly all WEEE categories.

Graph 14 shows the development of costs for large household appliances from one of the members. 9 systems already achieve “positive” treatment costs for large household appliances.

[14] A distinction is made between on the one hand “operational costs” related to collection, containers, transport and treatment, and “additional costs” with respect to administration, overhead and specific responsibilities taken over, on the other. See table 7 for the types of costs used.

[15] Tailor-made tables and graphs of anonymous data, i.e. without disclosing the identity of the systems, can be made upon simple request.

Standards and compliance with the requirements of Annex II of the Directive are such that costs related to treatment will remain overall costs in the medium term perspective for quite a few WEEE categories and sub-categories[16]. Put differently, unscrupulous parties who deliberately do not comply with standards and legislative requirements may find it easier to show a rosier picture. However, also for cooling appliances [see graph 13 for an overall picture] a reduction of treatment and total costs cannot be excluded mainly due to the material value and the composition of the appliances [see graph 15 for one system].

Yet, even if the picture of treatment improves cost-wise, the total operational costs are typically positive. Only one member managed to get total operational costs and even total costs, i.e. including administration, for large household appliances (excluding cooling appliances) below zero [see graph 16], i.e. to make the business operations for white goods (excluding refrigerators and freezers) profitable.

Systems not only have operational costs but also so-called “additional costs”, i.e. costs related to administration of the system and responsibilities taken over from or following 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)
- Special costs for other types of waste take back, such as batteries and packaging waste
- And new cost factors, such as payments for the clearing house of WEEE systems.

Furthermore, when comparing costs with other collection and recovery systems, one ought to find out whether there are costs made by the producers related to registration, free rider control, guarantees or internal data generation which come on top of their contribution to the system. There are systems which provide those services and others not.

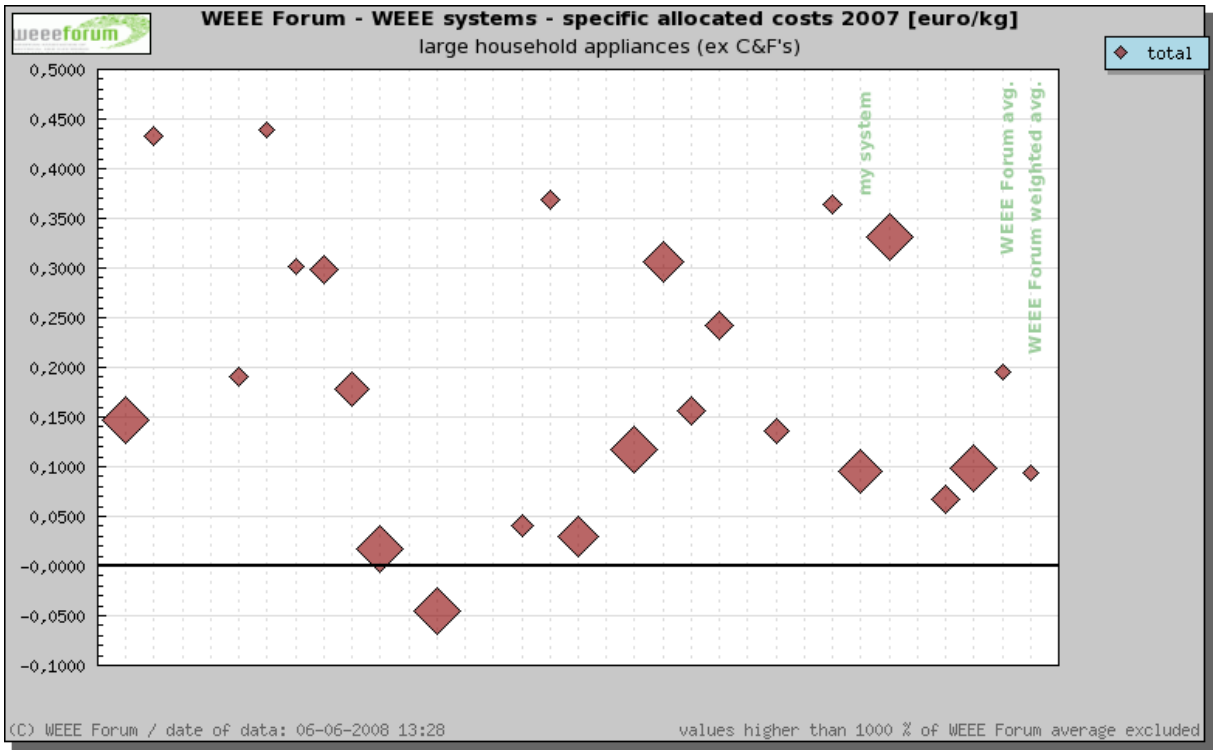
[16] For overviews of specific costs of treatment of different types of equipment, see graphs 17-20.

allocated costs 2007 [€]			
cost 'category'	**num data**	**total**	**total**
	[#]	[€]	[%]
collection costs	23	52.902.143	17%
costs for containers	15	5.806.560	2%
transport costs	26	81.221.921	27%
logistic costs	*26*	*87.028.481*	*29%*
treatment costs	26	99.214.775	33%
total 'operational costs'	***26***	***239.145.398***	***79%***
'kick back' / remuneration	2	7.045.042	2%
other costs	26	47.342.096	16%
R&D	16	1.497.977	0,5%
special costs	15	8.322.656	3%
total 'additional costs'	***26***	***64.207.771***	***21%***
total costs	**26**	**303.353.169**	
values higher than 1000 % of WEEE Forum average excluded			

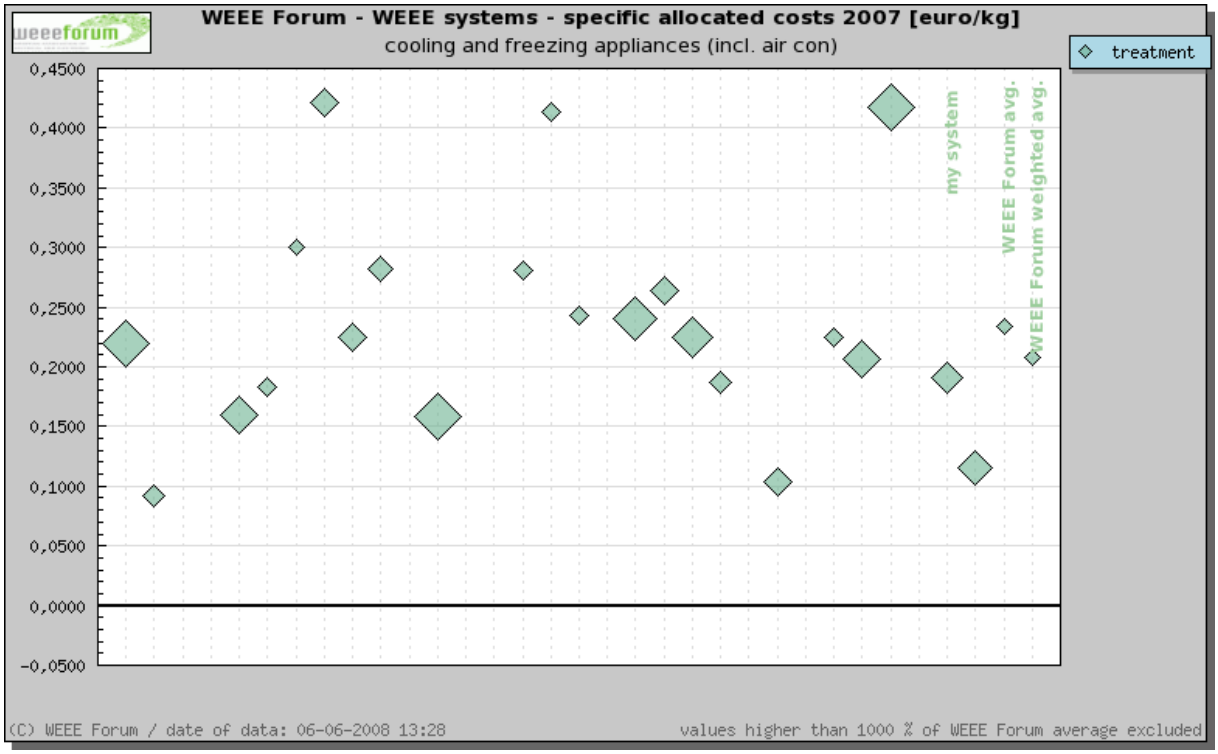
Table 5 Split of total allocated costs 2007 (setting 1000/1)

specific allocated costs 2007 [€/kg]					
cooling and freezing appliances (incl. air con)					
cost category	**average**	**min.**	**max.**	**num data**	**weighted average**
	[€/kg]	[€/kg]	[€/kg]	[#]	[€/kg]
collection costs	0,07	0,001	0,20	19	0,06
costs for containers	0,01	0,0002	0,05	9	0,004
transport costs	0,10	0,001	0,18	22	0,10
logistic costs	*0,11*	*0,001*	*0,19*	*22*	*0,10*
treatment costs	0,23	0,09	0,42	22	0,21
total 'operational costs'	***0,40***	***0,21***	***0,60***	***22***	***0,37***
'kick back' / remuneration	0,05	0,02	0,09	2	0,01
other costs	0,09	0,01	0,60	22	0,05
R&D	0,01	0,0006	0,04	12	0,001
special costs	0,01	0,001	0,08	11	0,008
total 'additional costs'	***0,11***	***0,01***	***0,62***	***22***	***0,07***
total costs	**0,51**	**0,28**	**1,09**	**22**	**0,44**
values higher than 1000 % of WEEE Forum average excluded					

Table 6 Allocated costs 2007 – specific [€/kg], example cooling & freezing appliances

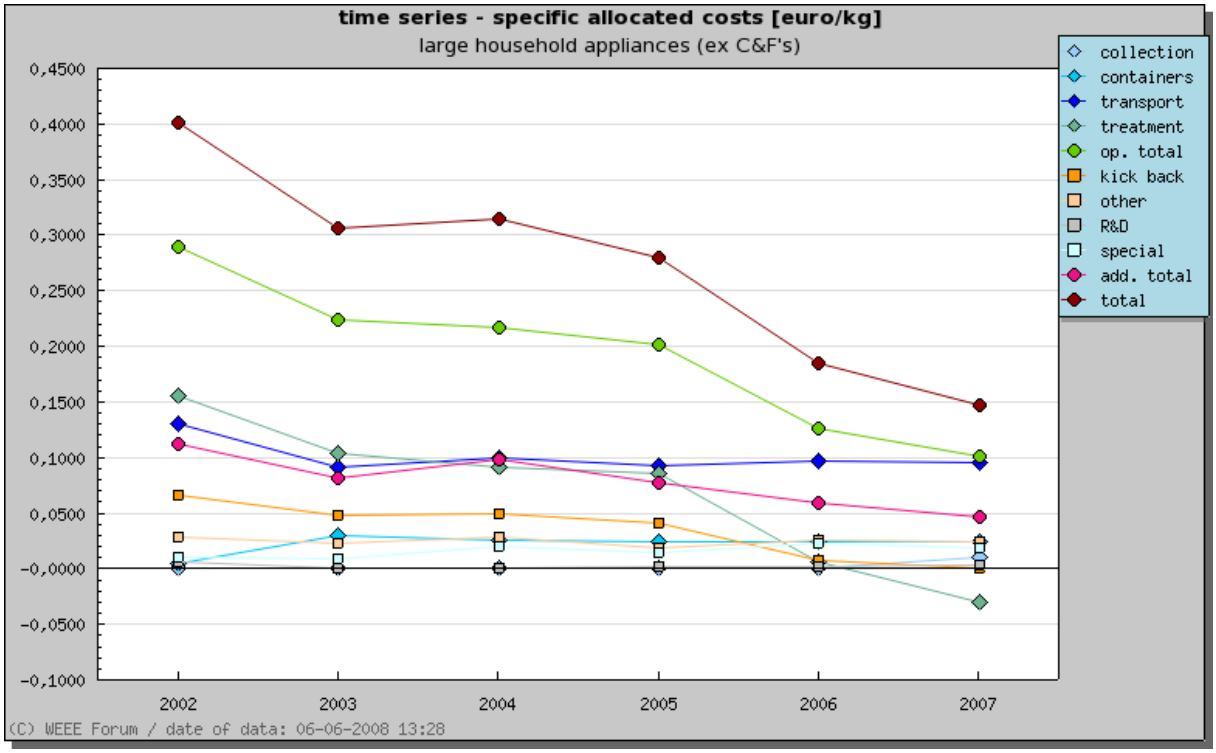


Graph 12 Allocated costs – specific [€/kg], example large household appliances, total costs[17]

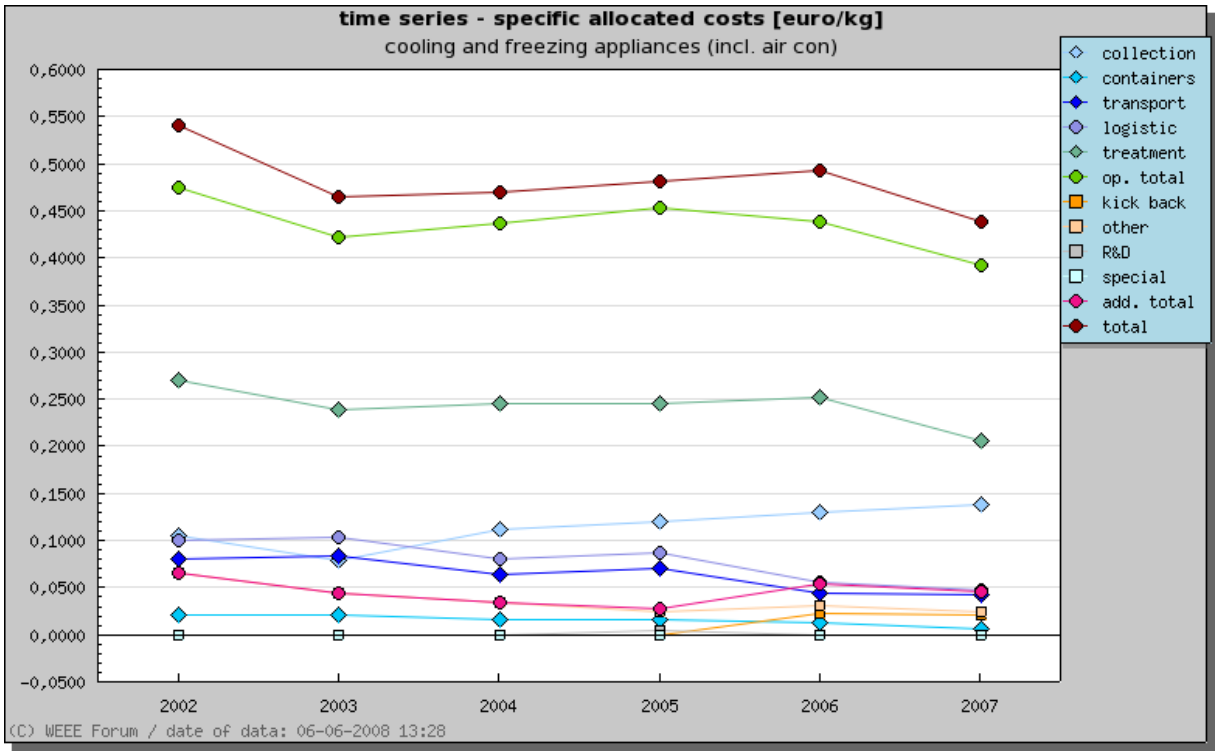


Graph 23 Allocated costs – specific [€/kg], example cooling and freezing appliances, treatment costs

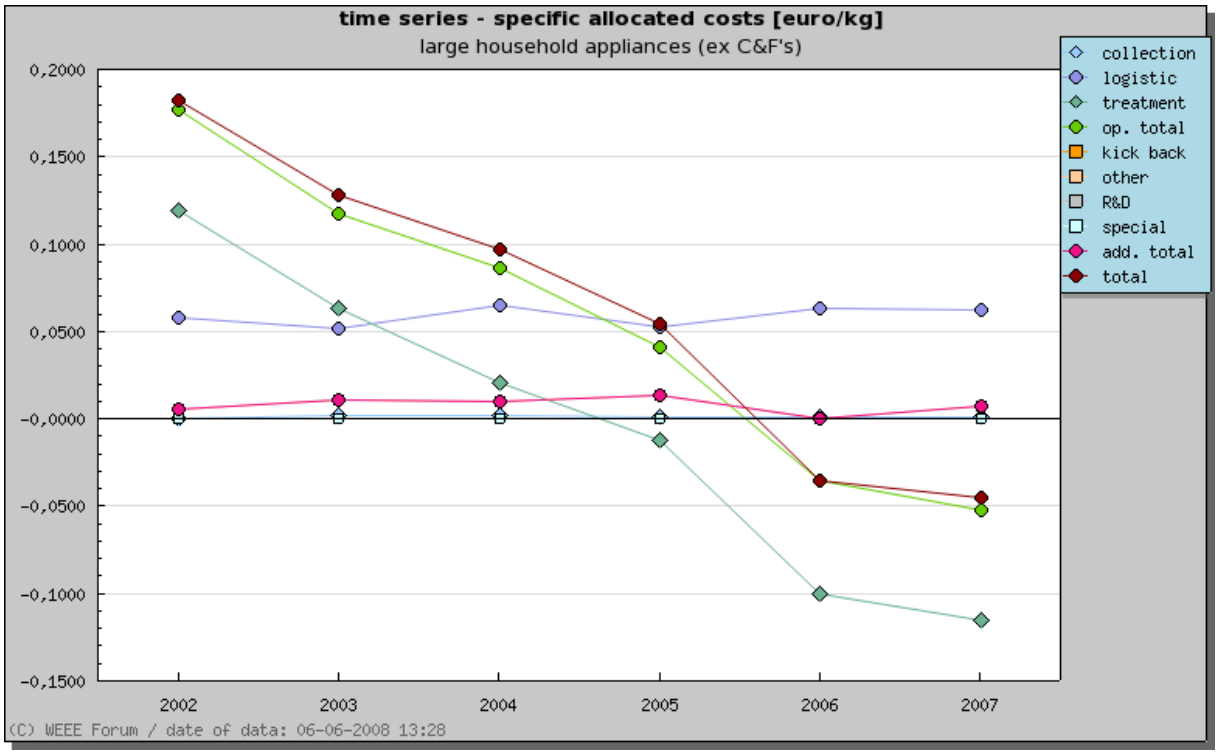
[17] The size of the square corresponds to the relevance of the system given by the specific amount of WEEE collected [kg/inh(served).a] with size steps and maximum size defined.



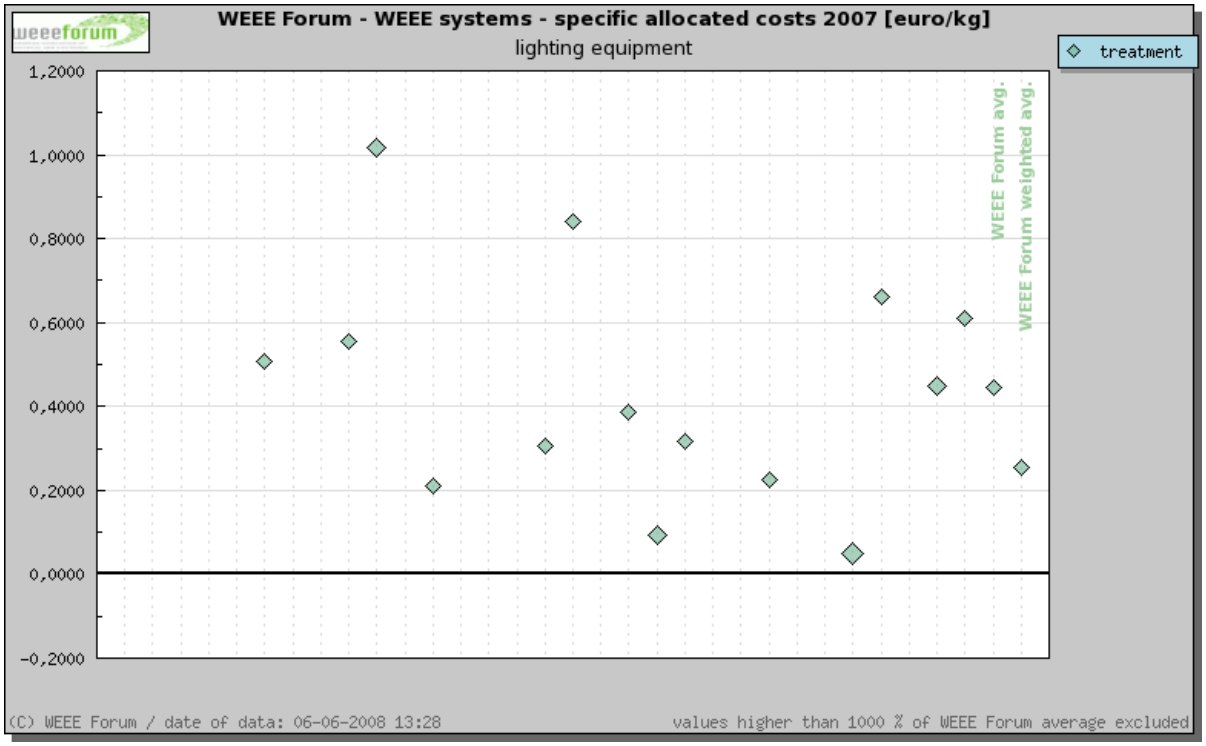
Graph 14 Allocated costs – specific [€/kg], cost trend, example large household appliances, example of one WEEE Forum member



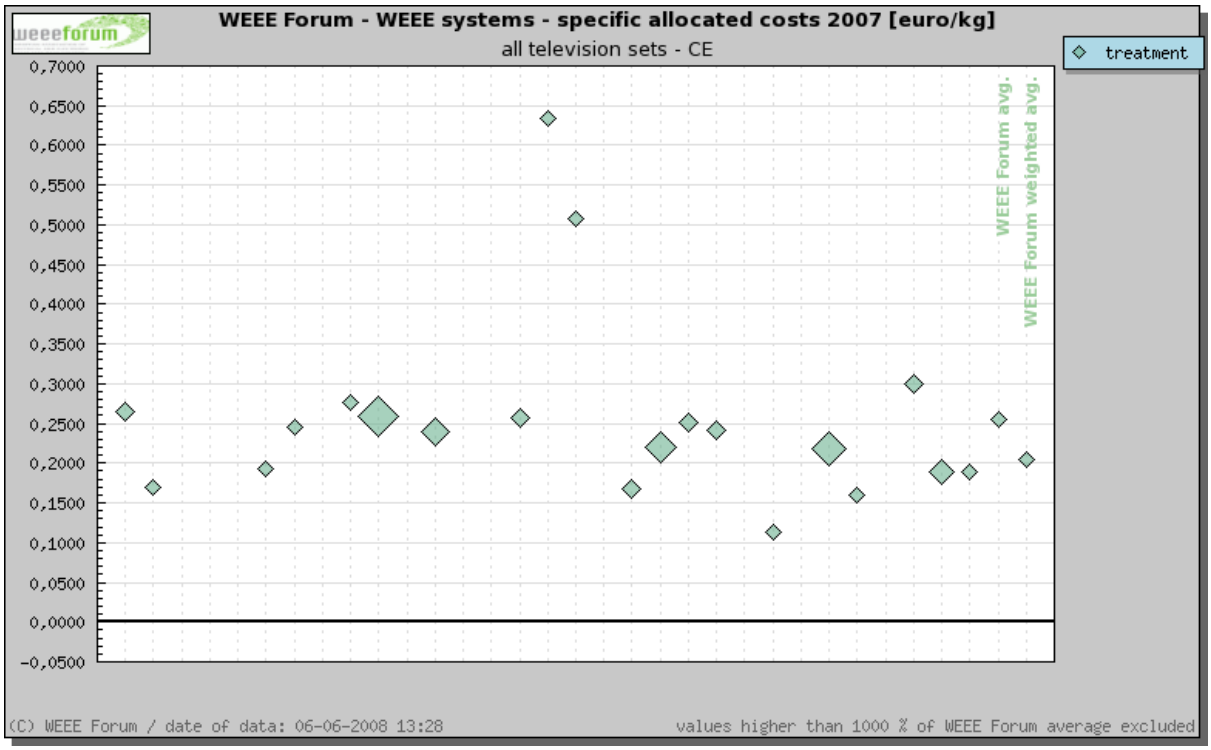
Graph 15 Allocated costs – specific [€/kg], cost trend, example cooling & freezing appliances, example of one WEEE Forum member



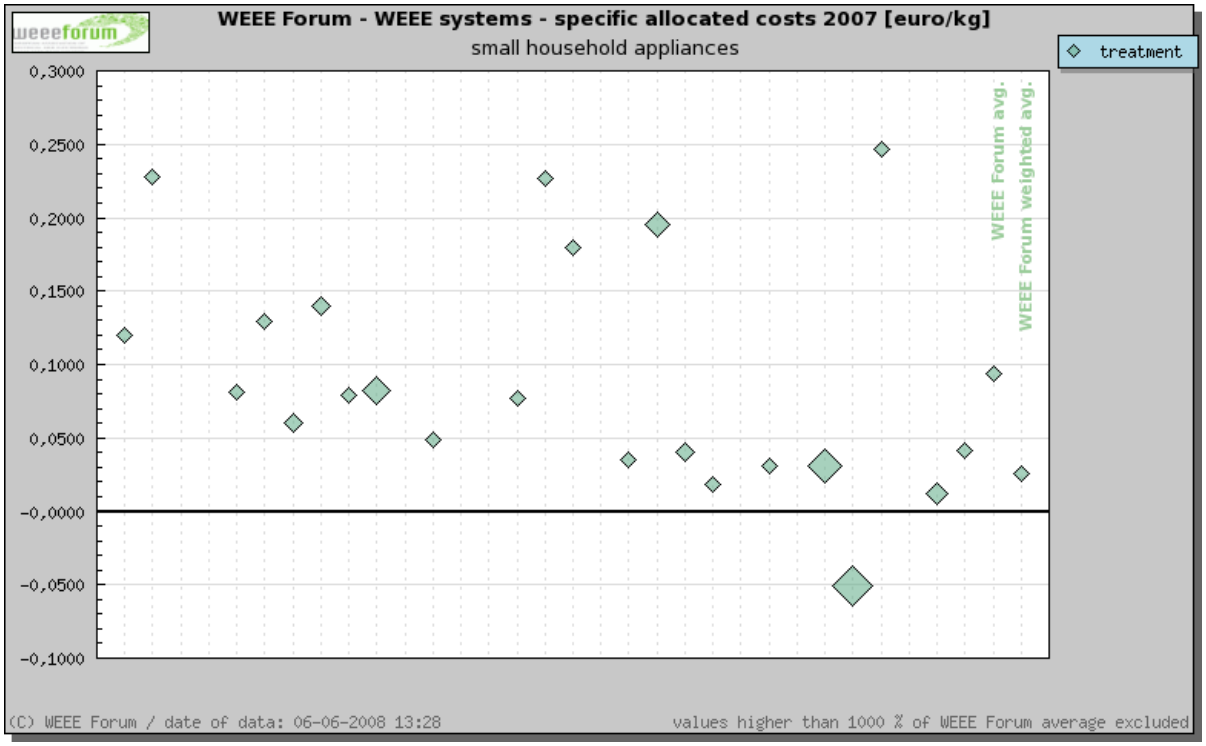
Graph 16 Allocated costs – specific [€/kg], development of costs, example large household appliances, example of one WEEE Forum member “leader in costs”



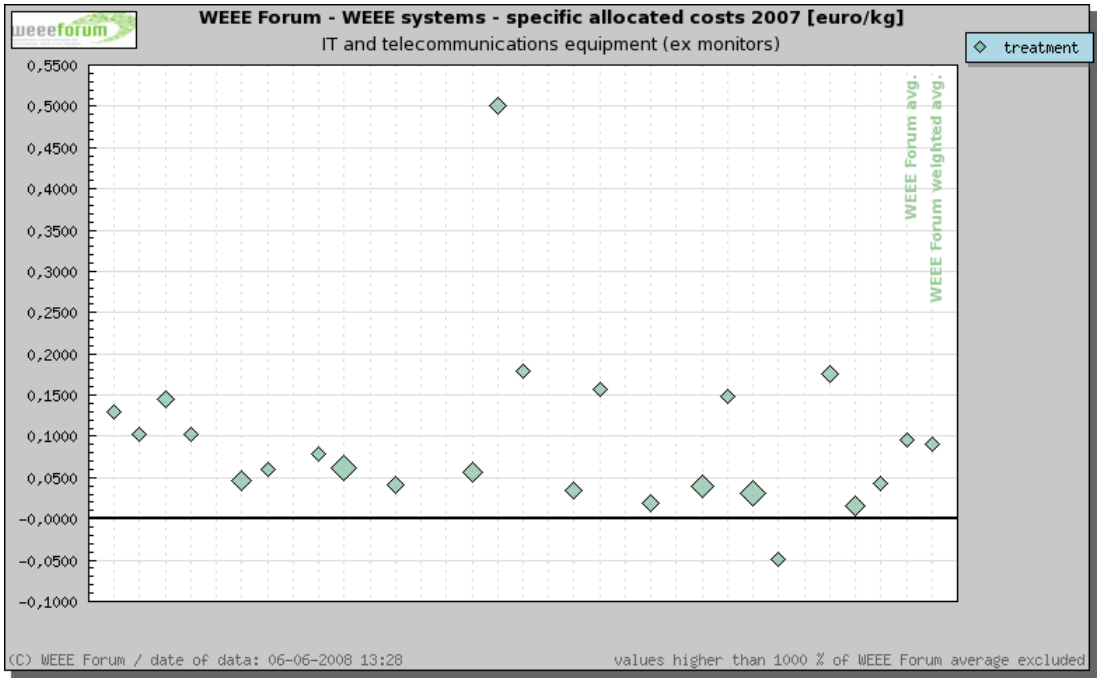
Graph 17 Allocated costs – specific [€/kg], example lighting, treatment costs



Graph 18 Allocated costs – specific [€/kg], example consumer electronics (CE), including TV sets, treatment costs



Graph 19 Allocated costs – specific [€/kg], example small household appliances, treatment costs



Graph 20 Allocated costs – specific [€/kg], example IT and telecommunication equipment, excluding monitors, treatment costs

Annex

	cost 'categories'	cost 'groups' - cost allocation	cost 'factors'
operational costs		collection costs	costs for collection at collection facilities
			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
			costs for logistic administration
			additional transport costs for reuse of appliances
		logistic costs	*will be **calulated** as total of costs for containers and transport costs*
		treatment costs	costs for treatment
			additional costs/revenues for/from reuse of appliances
additional costs		'kick back'	'kick back' / remuneration
	other costs	financial service	costs for levying of funds
		sales and marketing	costs for market activities
		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	costs for reporting
		PR	PR costs - materials (external)
			costs for PR staff (internal or external)
		administration and overheads	administration and overheads
		legal support	costs for legal support
		R&D	costs for development of collection facilities
			costs for research work
			other R&D costs
	special costs	special costs based on different WEEE systems or 'sectors' or special projects	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 special projects
		special costs for other 'wastes'	costs for batteries
			costs for packaging material

Table 7 Structure of cost determination

For more information on the WEEE Forum and a profile of each system and contact information, see http://www.weee-forum.org. Drop a line with the Brussels office: secretariat@weee-forum.org. Call us on (32-2) 706 87 01. Or pay us a visit: Diamant conference and business centre, Boulevard Auguste Reyerslaan 80, 1030 Brussels (Belgium).