Key figures 2006

The WEEE Forum's 2006 data concerning quantities of WEEE collected and costs related to management thereof

A Introduction

Every year, the WEEE Forum determines "key figures" on costs and quantities of waste electrical and electronic equipment (WEEE) collected. The data have been determined under the same structure since 2003 (KF for 2002).

The number of members of the WEEE Forum that contribute to the data grows continuously. For the year 2006, 31 operative members have been asked to provide information.

In 2007, the WEEE Forum started collecting data via a web-based application. Take-back systems that are members of the WEEE Forum provided their key figures online into a database until 8 August 2007.

All data are safely stored in a so-called "black box" so that WEEE Forum members are not in a position to see data provided by other WEEE systems, thereby revealing their cost structure. All overviews on data are done anonymously and/or are provided as ranges for minimum/maximum and/or averages. These results are aggregated automatically.

To exclude implausible data, a 1000% /1% check has been integrated, which means:

- 1000% - if a value is higher than 10-times (factor 10) of the WEEE Forum average, this value will be excluded from overviews and charts. Example: a system provides data in kg instead of tons.
- 1% - if a value is below 1% (factor 100) of the WEEE Forum average, this value will be excluded from overviews (this feature has been seen as necessary as some – especially smaller collective WEEE systems – cover some WEEE categories only as „side products" and especially minimum and/or average values would be influenced too much by these data).

B Amounts of WEEE collected

Key figures 2006 on amounts of WEEE collected show that:

- 27 WEEE Forum members have provided data on quantities of WEEE collected
- Among them, that is about 161 million inhabitants served and
- 820.000 tons of WEEE have been collected
- Which means an average amount of WEEE collected of about 5,1 kg/inh.a

In addition:

- On the level of WEEE systems being member of the WEEE Forum the average[1] of amounts of WEEE collected (setting 1000/1) was 4,3 kg/inh(served).a (see Chart 1)
- The “leader” WEEE system collected a specific amount of WEEE of 16,5 kg/inh(served).a
- The smallest WEEE system (covering only one part of one WEEE category) collected a specific amount (setting 0/0[2]) of 0,01 kg/inh(served).a

Following figures (Fig. 1 to Fig. 3) show amounts or WEEE collected determined per country or per WEEE system.

Chart 1 show ranges (average, min, max) of amounts of WEEE collected.

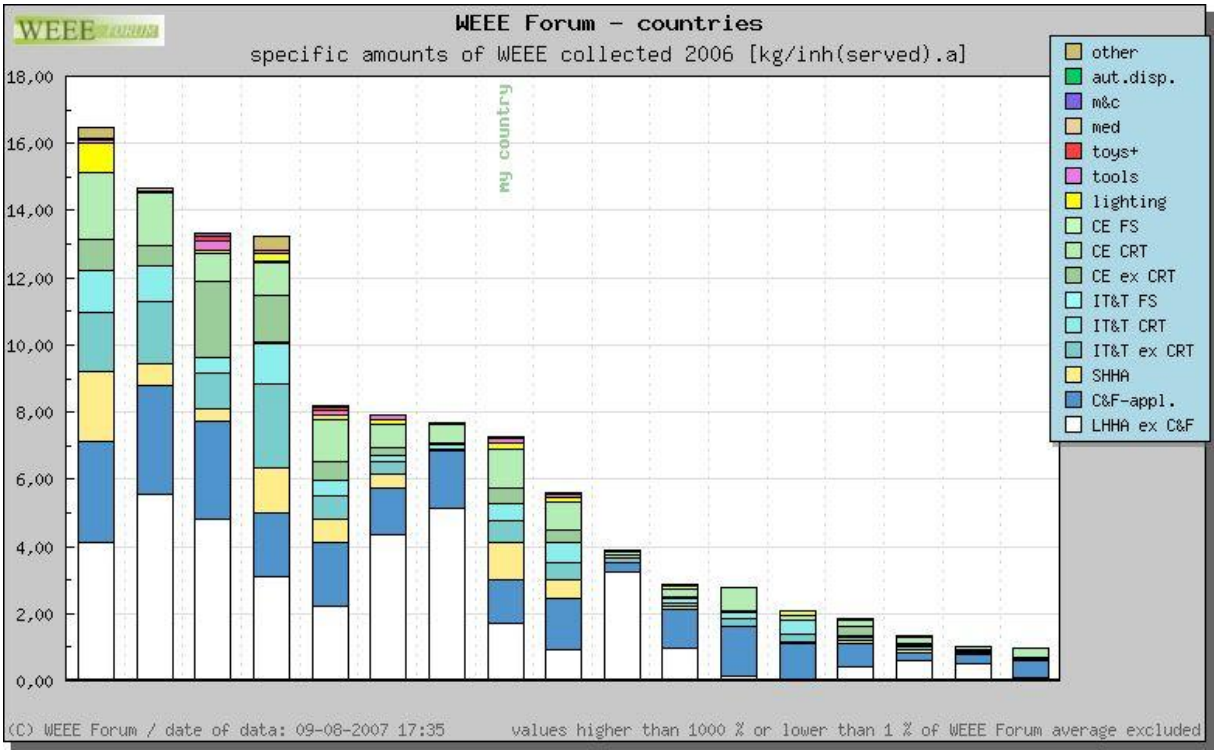

Fig. 1: Amounts of WEEE collected – specific, by WEEE Forum members – data per country [kg/inh(served).a] (setting 1000/1)

[1] *arithmetic mean*
[2] *0/0 means no exclusion of data*

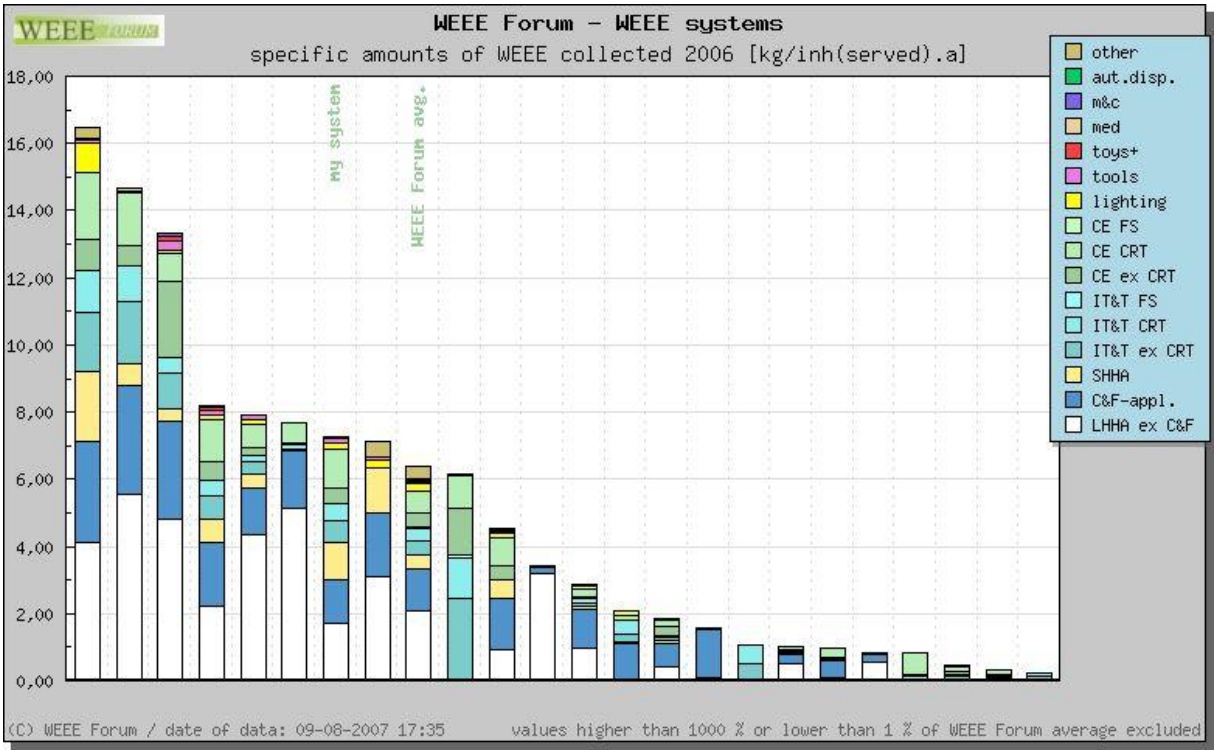

Fig. 2: Amounts of WEEE collected – specific, by WEEE Forum members – data per WEEE system [kg/inh (served).a] (setting 1000/1)

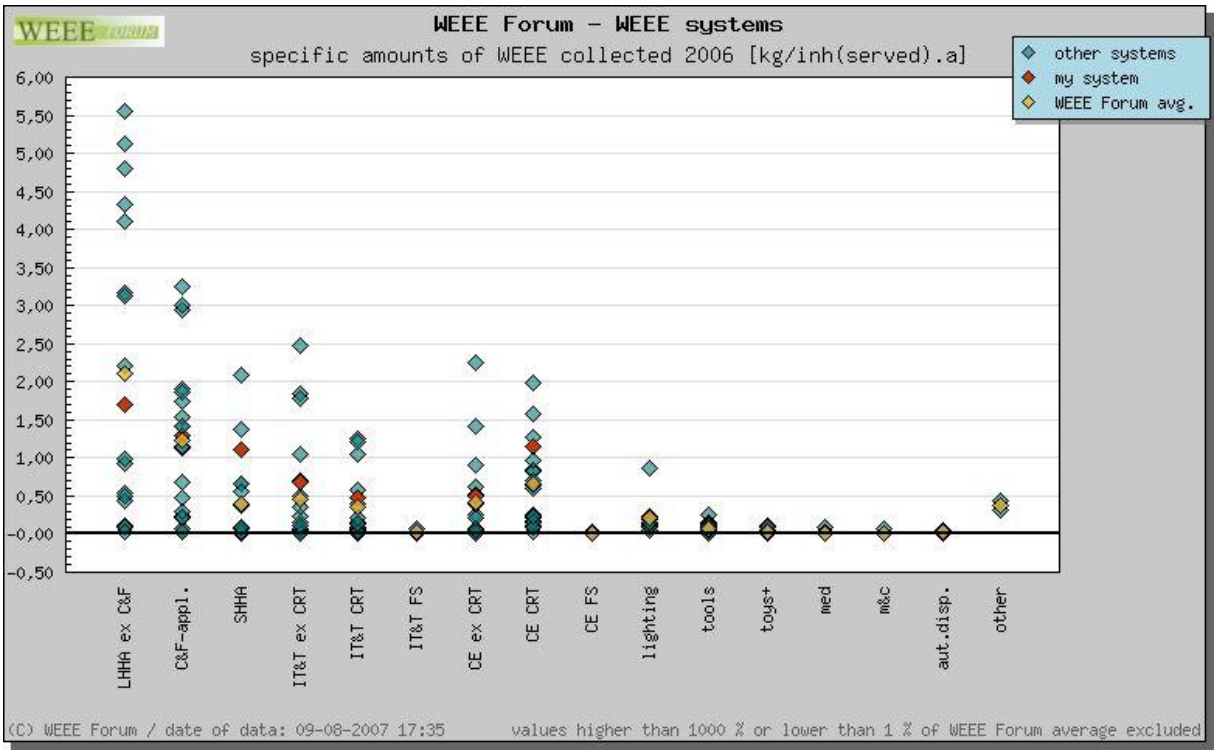

Fig. 3: Amounts of WEEE collected – specific, by WEEE Forum members – data WEEE categories, per WEEE system [kg/inh (served).a] (setting 1000/1)

specific amounts of WEEE collected 2006 [kg/inh(served).a]			
WEEE cat.	**average**	**min.**	**max.**
large household appliances (ex C&F's)	2,10	0,04	5,54
cooling and freezing appliances	1,23	0,02	3,25
small household appliances	0,40	0,00	2,09
IT and telecommunications equipment (ex CRT's)	0,45	0,01	2,47
monitors - IT&T (CRT's)	0,36	0,01	1,25
flat screen appliances - IT&T	0,04	0,01	0,06
consumer equipment (ex CRT's)	0,41	0,004	2,25
television sets - CE (CRT's)	0,66	0,04	1,98
flat screen appliances - CE	0,01	0,003	0,02
lighting equipment	0,21	0,04	0,87
luminaires	0,10	0,01	0,56
lamps	0,11	0,0011	0,31
electrical and electronic tools	0,07	0,0008	0,25
toys, leisure and sports equipment	0,02	0,0003	0,12
medical devices	0,01	0,0002	0,08
monitoring and control instruments	0,01	0,0002	0,07
automatic dispensers	0,03	0,01	0,06
other WEEE	0,38	0,32	0,43
total	**4,28**	**0,07**	**16,46**
	setting 1000/1		

KF 2006 FINAL - specific 2007-08-08.xls/ amounts collected

Chart 1: Amounts of WEEE collected – specific, by WEEE Forum members – data WEEE categories, per WEEE system [kg/inh(served).a] (setting 1000/1) (26[3] WEEE Forum member)

The main influencing factors for amounts of WEEE collected::

- Ownership of WEEE. For example, whether the legal framework allows municipal collection facilities to hand over WEEE to other stakeholders than WEEE systems.
- Value of appliances.
- Area coverage and convenience for consumers or customers, e.g. number and density of collection facilities and synergies for final users such as collection of other types of waste, take back by retail, minimum amounts for pick-up service for collection facilities.
- Awareness of consumers and other stakeholders, for example information also provided by authorities, general availability and use of (municipal) waste collection facilities
- General economic data, for example purchasing power in recent past, today's purchasing power and replacement of appliances.
- General basic data like storage capacity of households, disposal behaviour of consumers.
- Legal framework, e.g. take back and forwarding obligations for all stakeholders, collection targets, export restrictions, control of other disposal paths.

[3] *why 60 <> 27 members having provided data: 1 WEEE system excluded by the 1000/1 check*

Examples

- WEEE systems that started operations before 2005 collected an average[4] of 11,5 kg/inh(served).a.
- Some newly set up systems started operations in 2005, so the collection network has to be built up from scratch or improved at least, consumers' awareness has to be raised... Others started to collect from specific sources, e.g. retail, or cover only specific product groups. Still others have to meet specific targets for collection defined by their national authority.

For example, the average[5] WEEE collected in Central and Eastern Europe was 1,74 kg/inh(served).a (data of WEEE Forum members); in Western Europe where agreements with authorities and/or collection facilities remained to be found and/or the collections structure has to be developed, 3,0 kg/inh(served).a (all relevant WEEE systems are WEEE Forum members) was collected.

[4] *arithmetic mean*
[5] *arithmetic mean*

C Costs

The structure of cost determination and therefore cost allocation used by the WEEE Forum distinguishes between “operational costs” related to collection, containers, transport and treatment, and “additional costs” with respect to kick back, research and development or other system-specific costs. See Chart 6 for the structure of cost allocation.

Key figures 2006 on costs show:

- 20 WEEE Forum members could provide information on total allocated costs in a way agreed by the WEEE Forum.
- By them a total cost of about €215,5 million was spent on collection and treatment of WEEE and on administration of the WEEE system.
- The 20 WEEE Forum members collected 756,5 tons WEEE, what means that the average[6] of total specific costs is 0,28 €/kg
- Total absolute costs can be split to cost categories as shown in Chart 2.

allocated costs [€]	
cost cat.	**[%]**
collection costs	14%
costs for containers	2%
transport costs	24%
treatment costs	45%
total 'operational costs'	**84%**
'kick back' / remuneration	3%
other costs	11%
R&D	0,4%
special costs	2%
total 'additional costs'	**16%**
total costs	**100%**
setting 1000/1	

KF 2006 FINAL - absolute 2007-08-08.xls/ allocated costs

Chart 2: Split of total costs – absolute to cost categories – data of 20 WEEE Forum members setting 1000/1 [%]

But comparison of costs should be done at the level of WEEE categories or WEEE sub categories only, as different needs on collection and transport and/or treatment are given and are causing different specific costs [€/kg].

Chart 3 shows an example of the range of costs according to cost categories for the WEEE category of large household appliances[7]. Fig. 4 shows the spread of these costs[8].

[6] *weighted average*
[7] *you may choose other examples from KF 2006 FINAL - specific 2007-08-08.xls / allocated costs - cost_cat*
[8] *see other examples in choice of charts*

specific allocated costs 2006 [€/kg]					
large household appliances (ex C&F's)					
cost category	average	min.	max.		weighted average
collection costs	0,06	0,0007	0,23		0,02
costs for containers	0,01	0,0002	0,02		0,003
transport costs	0,07	0,001	0,22		0,04
treatment costs	0,03	-0,10	0,26		-0,005
total 'operational costs'	0,15	-0,04	0,51		0,06
'kick back' / remuneration	0,03	0,008	0,07		0,005
other costs	0,05	0,003	0,20		0,01
R&D	0,008	0,0002	0,06		0,0005
special costs	0,01	0,001	0,03		0,004
total 'additional costs'	0,06	0,003	0,21		0,02
total costs	0,21	-0,035	0,72		0,08

KF 2006 FINAL - specific 2007-08-08.xls/ex_LHHA allo_costs - cost_cat

Chart 3: Allocated costs – specific, example 'large household appliances', data of WEEE Forum members – per WEEE system [€/kg]

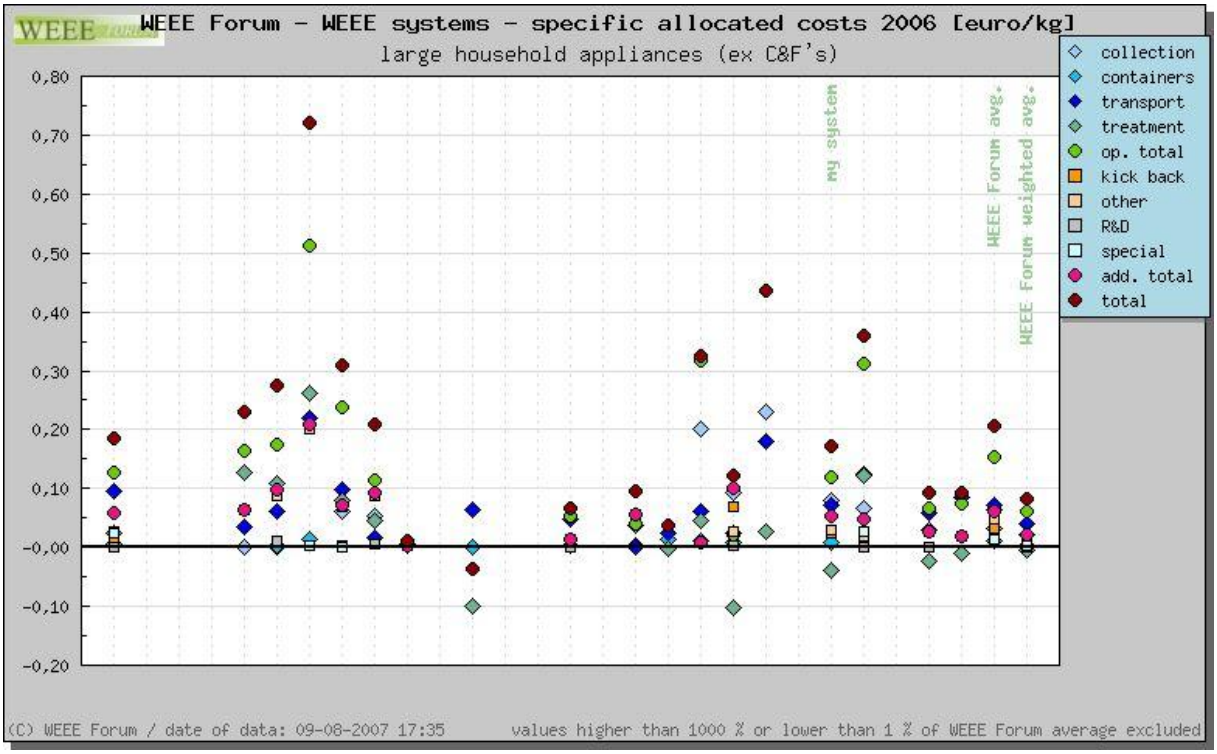

Fig. 4: Allocated costs – specific, example 'large household appliances', data of WEEE Forum members – per WEEE system [€/kg]

The perhaps most interesting data to be compared are treatment and/or total operational costs, i.e. costs to be paid for collection at collection facilities, costs for receptacles and containers and transport costs as well as treatment costs.

specific allocated costs 2006 [€/kg]					
treatment costs					
WEEE cat.	average	min.	max.		weighted average
large household appliances (ex C&F's)	0,03	-0,10	0,26		-0,01
cooling and freezing appliances	0,23	0,02	0,43		0,23
small household appliances	0,13	0,01	0,32		0,11
IT and telecommunications equipment (ex CRT's)	0,14	0,02	0,33		0,17
IT&T - CRT's	0,23	0,04	0,53		0,23
IT&T - flat screen appliances	0,33	0,33	0,33		0,27
consumer equipment (ex CRT's)	0,16	0,02	0,33		0,14
CE - CRT's	0,24	0,04	0,53		0,22
CE - flat screen appliances	0,33	0,33	0,33		0,29
lighting equipment	0,82	0,04	4,10		0,35
luminaires	0,96	0,02	8,53		0,11
lamps	0,94	0,04	4,01		0,56
electrical and electronic tools	0,13	0,00	0,31		0,09
toys, leisure and sports equipment	0,16	0,02	0,34		0,04
medical devices	0,13	-0,10	0,33		0,14
monitoring and control instruments	0,10	-0,09	0,33		0,05
automatic dispensers	0,15	0,01	0,25		0,11
other WEEE	0,27	0,27	0,27		0,13

KF 2006 FINAL - specific 2007-08-08.xls/ ex_treatm allo_costs

Chart 4: Allocated costs – specific, example treatment costs, data of WEEE Forum members – per WEEE system [€/kg]

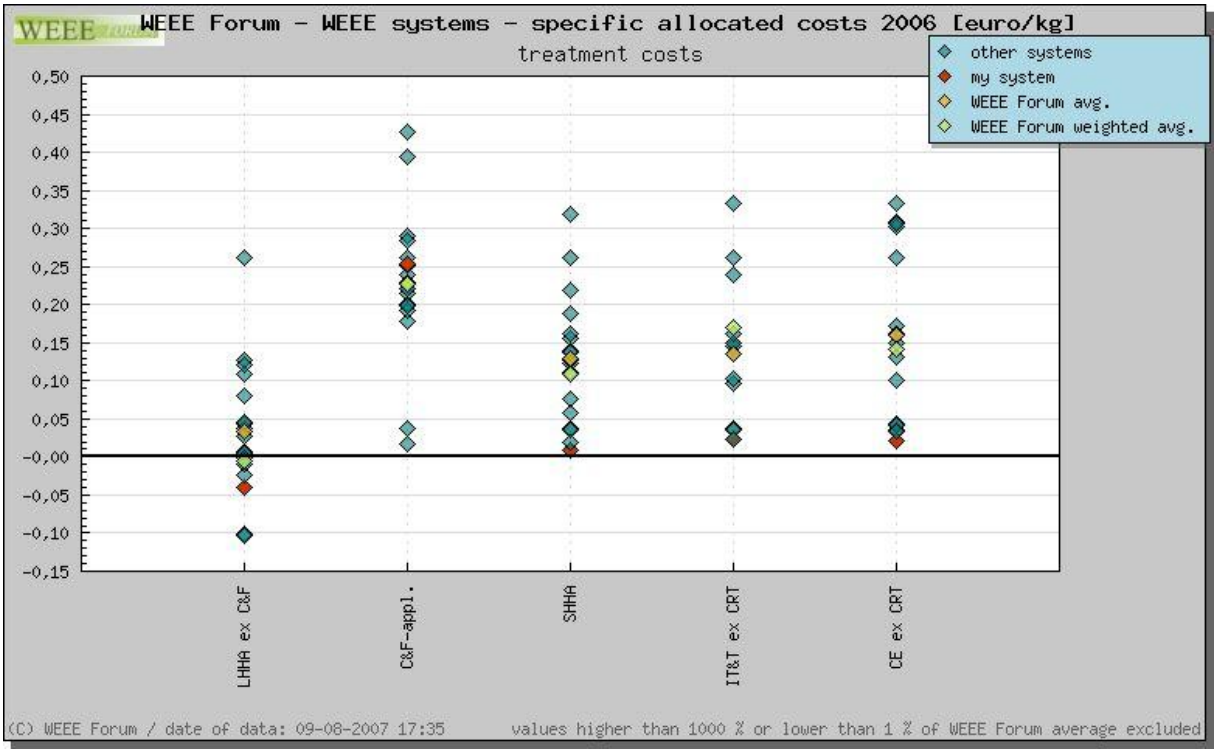

Fig. 5: Allocated costs – specific, example treatment costs - WEEE cat. 1-4 (excl. CRT appliances), data of WEEE Forum members – per WEEE system [€/kg]

specific allocated costs 2006 [€/kg]				
total 'operational costs'				
WEEE cat.	average	min.	max.	weighted average
large household appliances (ex C&F's)	0,15	-0,04	0,51	0,06
cooling and freezing appliances	0,40	0,04	0,67	0,37
small household appliances	0,27	0,04	0,54	0,22
IT and telecommunications equipment (ex CRT's)	0,26	0,04	0,51	0,29
IT&T - CRT's	0,38	0,04	0,77	0,36
IT&T - flat screen appliances	0,47	0,47	0,47	0,38
consumer equipment (ex CRT's)	0,28	0,05	0,51	0,23
CE - CRT's	0,39	0,04	0,77	0,34
CE - flat screen appliances	0,47	0,47	0,47	0,42
lighting equipment	1,42	0,04	6,35	0,63
luminaires	1,53	0,07	13,07	0,19
lamps	1,65	0,04	6,22	1,01
electrical and electronic tools	0,32	0,07	1,31	0,21
toys, leisure and sports equipment	0,29	0,07	0,51	0,08
medical devices	0,26	0,02	0,51	0,23
monitoring and control instruments	0,21	0,02	0,51	0,10
automatic dispensers	0,25	0,07	0,35	0,23
other WEEE	0,36	0,36	0,36	0,17

Chart 5: Allocated costs – specific, example total 'operational costs', data of WEEE Forum members – per WEEE system [€/kg]

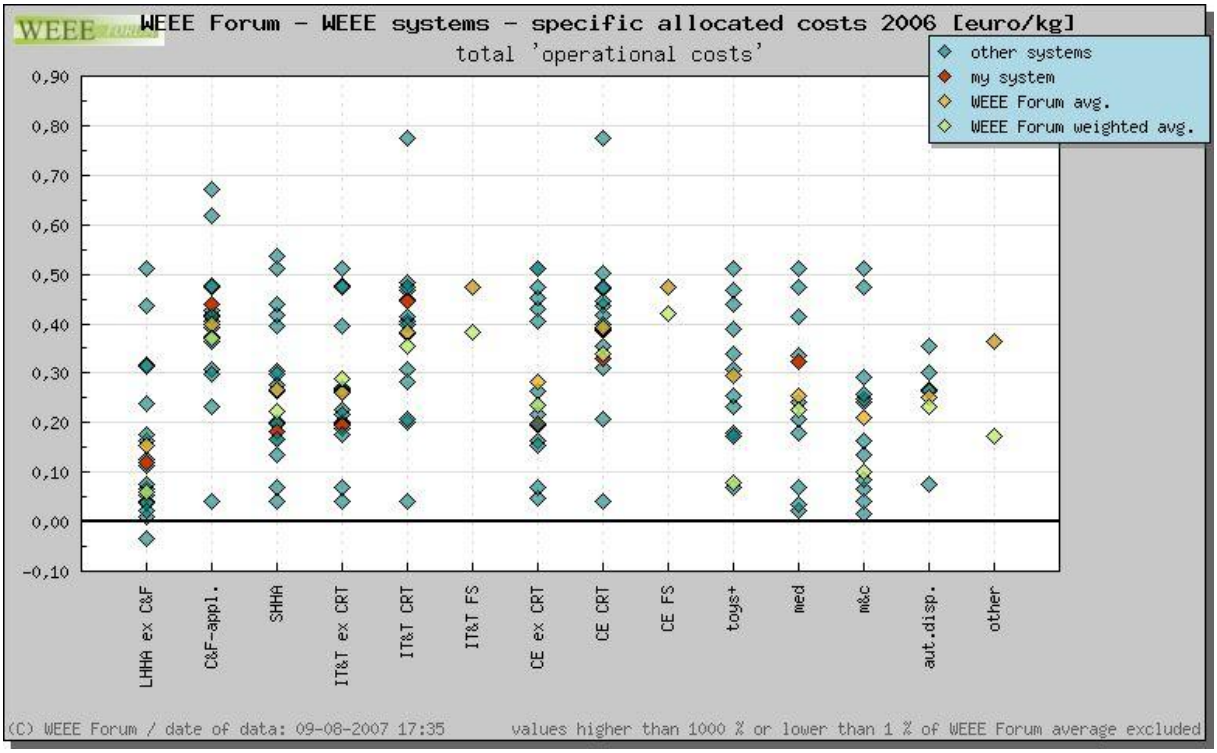

Fig. 6: Allocated costs – specific, example total 'operational costs' (excl. lighting and tools), data of WEEE Forum members – per WEEE system [€/kg]

In general, operational costs are influenced by:

- The need to pay for collection at collection facilities.
- The area that a system is required to cover, which influences collection costs and logistic costs.
- The amount of WEEE collected and treated on behalf of the WEEE systems (economies of scale, options to negotiate prices...).
- The treatment standards.

Most of the long-running WEEE Forum members could lower especially their treatment costs for nearly all WEEE categories covered the last years based on new contracts and negotiations (see Fig. 7 for the development of costs for LHHA from one of the WEEE Forum member) and some do already achieve positive treatment costs, i.e. revenues, for some WEEE categories or sub categories, e.g. large household appliances – see Fig. 5, ongoing discussions for other WEEE categories.

Many WEEE systems could also lower their specific transport costs based on new contracts and/or the optimisation of their logistic services.

In some cases additional costs have to be paid to improve the collection of specific WEEE categories – see Fig. 8.

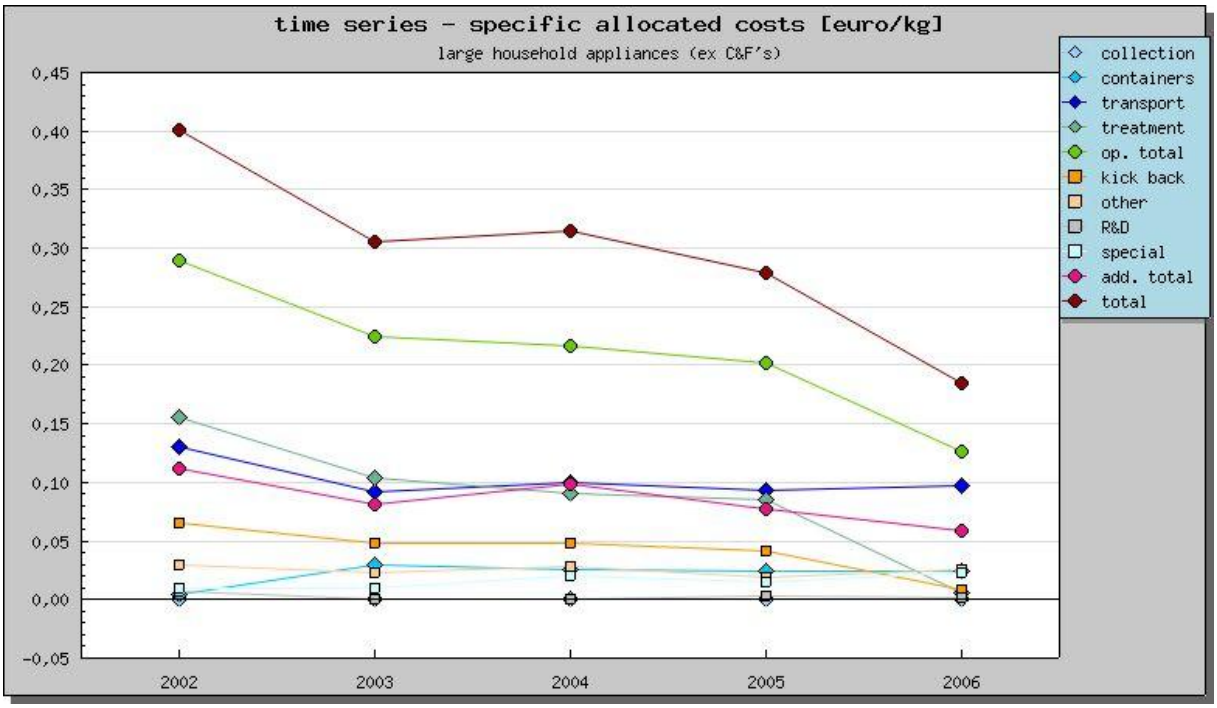

Fig. 7: Allocated costs – specific - example on development of costs for WEEE category 'large household appliances' – one WEEE Forum member [€/kg]

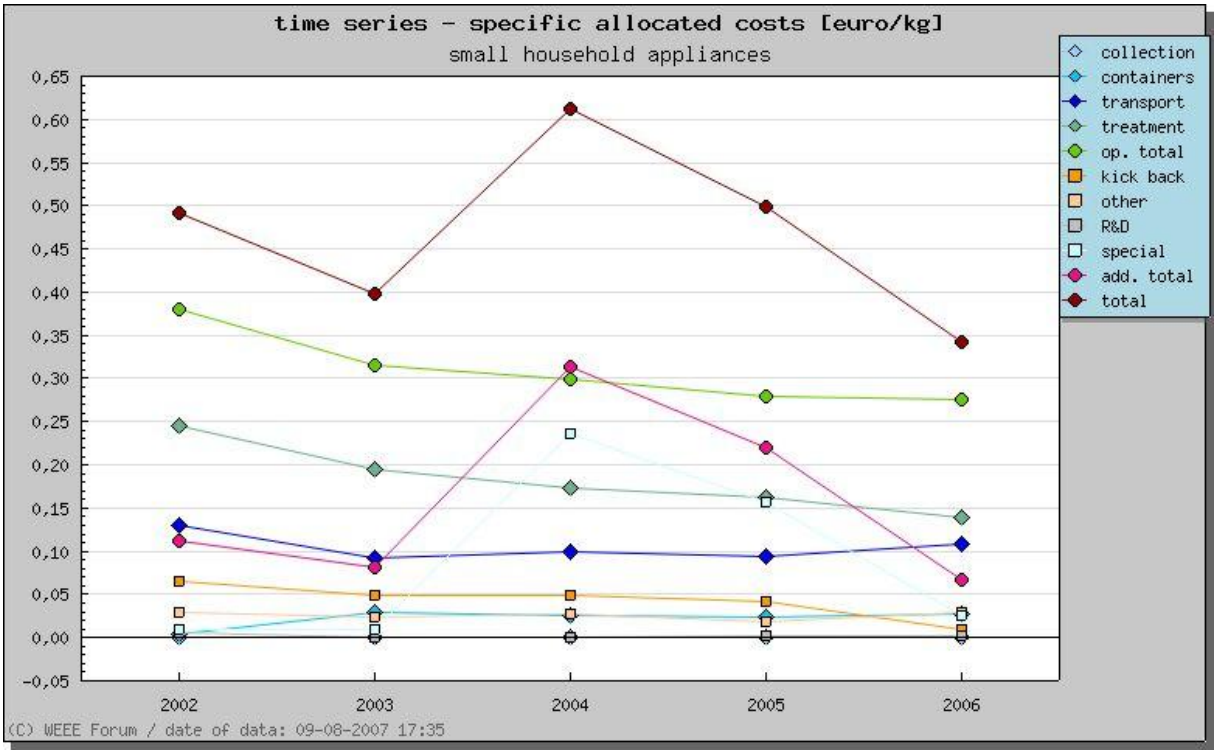

Fig. 8: Allocated costs – specific - example on development of costs for WEEE category 'small household appliances' – one WEEE Forum member [€/kg]

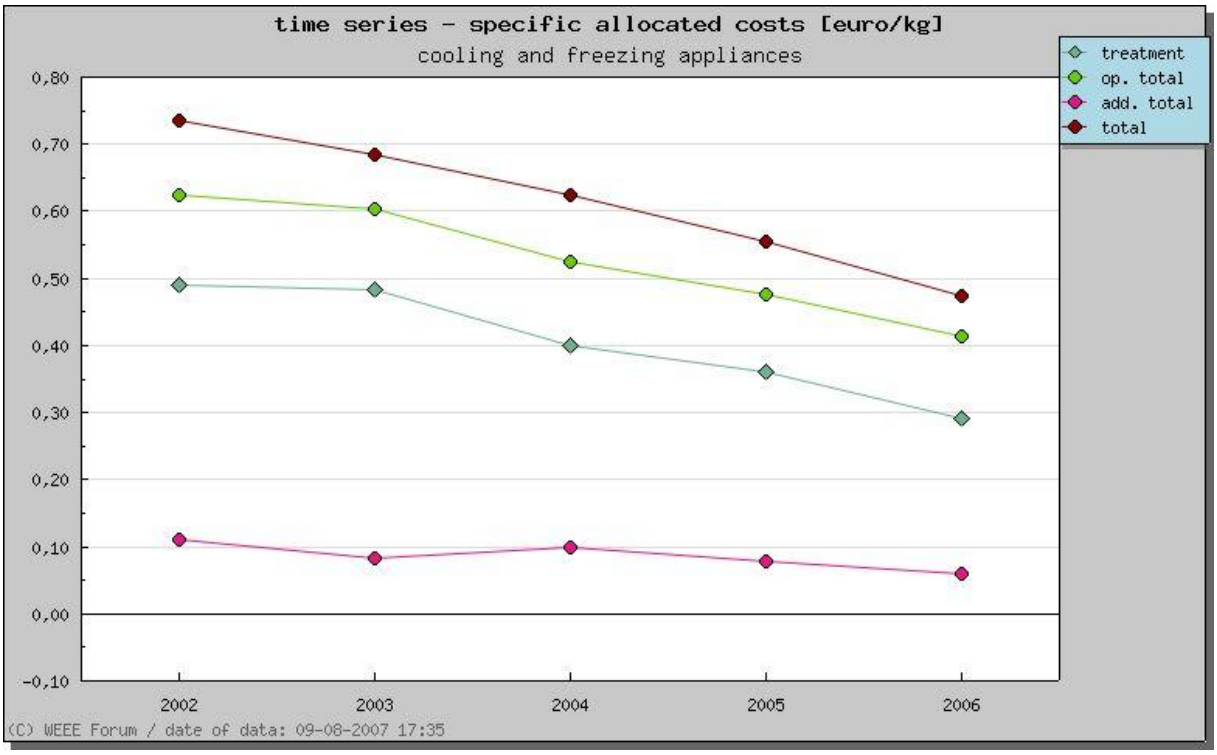

Fig. 9: Allocated costs – specific - example on development of costs for WEEE category 'cooling & freezing appliances' – one WEEE Forum member [€/kg]

However it is important to realise, that even if positive treatment costs are achieved, e.g. based on the material value of WEEE, the total operational costs and especially the total costs, i.e. including administration, are typically negative – see Fig. 4.

Apart from operational costs WEEE systems spend additional costs based on their responsibilities taken over or agreements done by branch associations like remunerations to be paid to retail for levying fees,

- “Other costs” to be covered by the WEEE system based on responsibilities taken over, e.g. costs for levying funds, control of free riders, technical control of collection facilities and/or treatment partners, PR and awareness raising,
- R&D costs,
- Special costs as e.g. special sorting or sampling of WEEE on request of branch associations or members or special costs for other types of waste collected, e.g. batteries, packaging material...
- New cost factors are coming up like payments for the clearing house of WEEE systems.

If comparing costs with other WEEE systems one should also ask oneself which costs have to be spent by the producers on top of their contribution to the WEEE system like

- Costs for registration
- Costs for free rider control
- Costs for guarantees or
- Costs for internal data generation

For these costs most of the WEEE systems of the WEEE Forum are providing services so that there are no additional costs for members of these WEEE systems.

D Annex

	cost 'groups' - cost allocation	*cost 'factors'*
	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
	treatment costs	costs for treatment
		additional costs/revenues for/from reuse of appliances
	'kick back'	'kick back' / remuneration
other costs	financial service	costs for levying of funds
other costs	sales and marketing	costs for market activities
other costs	financial monitoring & control	costs for control of free riders
other costs		costs for financial control
other costs	technical monitoring & control	costs for technical control of collection facilities
other costs		costs for technical control of treatment partners
other costs	reporting	costs for reporting
other costs	PR	PR costs - materials (external)
other costs		costs for PR staff (internal or external)
other costs	administration and overheads	administration and overheads
other costs	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 branch associations, different systems or special projects	costs for differentiation of WEEE of WEEE systems
special costs		costs for sorting / sampling for e.g. accounting, ...
special costs		costs for determination of sales data
special costs		costs for clearing house
special costs		costs for special projects
special costs	special costs for other 'wastes'	costs for batteries
special costs		costs for packaging material

Chart 6: Structure of cost allocation