

Capital factsheet on separate collection

Note: This ‘Capital factsheet’ has been prepared within the EC study “**Assessment of separate collection schemes in the 28 capitals of the EU**”. The document represents the status-quo of the EU Member States capitals in May2015. The information included in this document has been elaborated for all 28 EU-capitals based on expert interviews with various stakeholders on capital level, e.g. capital administrations, waste management operators, associations etc. as well as further publically available reports, statistics and websites.

All information is cited in the factsheet and a complete list of information sources including the interviews held can be found at the end of this document.

Stockholm	Sweden
<p>SUMMARY: In Stockholm the municipality is responsible for the separate collection of bio-waste, while the dry fractions are covered by producer responsibility schemes. The city has no door-to-door collection systems in place, except for bio-waste (12% coverage for households and 36% for businesses). Bring systems cover collection of all dry recyclables, complemented by civic amenity sites for all fractions. Overall the efficiency of the separate collection systems in Stockholm is satisfactory, with glass collection being very efficient. Further improvement is possible by focusing on plastic and paper/cardboard (and to a lesser extent on metals and bio-waste).</p>	
1 Capital general data	
City population (inhabitants)	897 700 [1]
City area (km ²)	188 [1]
City density (persons/km ²)	4 786 [1]
City climate (mediterranean, continental, oceanic, nordic; relevant for bio-waste collection)	Continental
2. Capital waste data	
Total (municipal) waste generation (t in indicated year)	399 133 (2013) [1, 2, 8 and 15]
Total (municipal) waste generation (kg/cap)	444,62 kg/cap [calculated]
Total separate collection (kg/cap) & (% of generation)	174.42 kg/cap [1, 2, 8 and 15] & 39.2 % of generation [calculated]
Percentage breakdown of total collection for separate collection by fraction	<ul style="list-style-type: none"> • 38.2 % paper and cardboard [calculated based on 1, 2, 8 and 15] • 35.3 % glass packaging [calculated based on 1, 2, 8 and 15] • 4.5 % plastic packaging [calculated based on 1, 2, 8 and 15] • 6 % metal packaging [calculated based on 1, 2, 8 and 15] • 15.1 % bio waste (food waste) [calculated based on 1, 2, 8 and 15] • 0,9 % other (small batteries, car batteries and other hazardous waste) [calculated based on 1, 2, 8 and 15]

3. Description of overall separate collection systems operating in capital

The municipality is responsible for collecting and transporting municipal waste from households and household-like wastes for treatment. Separate collection is partly taken care of by the municipality (bio-waste), and partly by producer responsibility (newspapers & magazines, paper packaging, plastic packaging, metal packaging, "white" glass, "green" glass and WEEE) [3]. For office paper there is a voluntary producer responsibility for the industry [2].

Many landlords or housing associations organize in or adjacent to the property, with the collection of packaging made of glass, plastic, paper and metal, and newspapers (waste under producer responsibility). Property manager signs up with a waste contractor who in turn signs a contract with Packaging and Newspaper Collection (FTI), Pressreturs and / or Swedish Glass Recycling contractors. The collected packaging and newspaper waste is treated in the same manner as the waste submitted at the recycling stations [4].

All collection of residual waste is handled by a contracted entrepreneur [5].

Paper and cardboard packaging, glass packaging, plastic packaging, metal packaging as well as newspapers and magazines is collected under producer responsibility. These fractions are collected via bring collection points. The main collection system for separate collection of "producers package material" is unmanned public bring to collection stations, today approximately 254 stations. A property-owner can arrange a local collection point at his property for these materials and then have to have a contract for collection with FTI's contractors for his collection.

Food waste: For businesses food waste is collected via either a vacuum truck or a garbage truck. From households the food waste is collected via separate bin, vacuum suction system, underground containers and from separate tank connected to a separate food-waste grinder [6].

Annual Running Costs (2013): For municipal waste collection the costs are € 47.932.535 [7], 55.23 €/cap [7]. I.e. these are the costs of collection, transport, recycling and removal of municipal waste not included in the producer responsibility.

Setup costs: Not available

Coverage (separate collection of fractions under the producer responsibility scheme):

- All households and businesses are considered to have access to collection points.

Coverage (separate food waste collection):

- 12 % of households with door-to-door separate collection (2014) [15]


4. Elements of the collection system



MUNICIPALITIES OR THEIR CONTRACTORS



Door-to-door collection of source separated waste

Fractions collected	Packaging of paper, glass, plastic and metal as well as newspapers & magazines and bio-waste
Collection frequency	Wastes under producer responsibility: in agreement between the property owner and the organisation responsible for the producer responsibility [3] Bio-waste: at least weekly for apartment buildings and businesses and at least bi-weekly for one- and two-family houses [3]
Coverage of collection	Bio-waste (2014): Households approximately 12%, Business approximately 36 % [15]
Annual collected quantities	Plastic, glass, metal and paper: see total for door-to-door collection and bring-points below Bio-waste (food waste): 12 241 t [8] & 13.64 kg/cap [calculated]
Setup costs	Not available due to the organisation of the system [15]
Running costs	Not available due to the organisation of the system [15]
Source of funding	Municipal collection: The municipal waste collection service is paid for via a waste fee, which consists of one or more of the following elements: basis fee, collection fee, treatment fee, basis subscription, addition(s) or

	<p>reduction(s) in fees as well as fees for other services. The fee can be based on volume or weight, towing distance and collection frequency [9].</p> <p>The waste fee is constructed in such a way that it promotes reuse, recycling or other environmentally "suitable" treatment.</p> <p>Wastes under producer responsibility:</p> <p>The door-to-door collection is financed partly by the producer responsibility and partly by the real estate owner [</p>
Cost to consumer (annual)	<p>All costs for the municipal household waste collection system is covered by a waste fee paid by the property-owner. This fee include collection of food waste when a property-owner want to have this service, this is voluntary. This fee do not include any collection of producer responsibility material.</p> <p>This fee covers all kerbside collection (door-to-door collected fractions). The fees is (as waste-fee 2015):</p> <ul style="list-style-type: none"> • One- and two family houses: approximately 187.36 €/year for household waste including separate collection of food-waste. Note that no producer responsibility collection and treatment is included in this. • Apartment blocks: Not applicable as this have to be calculated for each building. • Weight fee: 0.14 €/kg treatment fee (for waste-to-energy and food-waste for production of biogas) [15].
 Bring Collection Points	
Fractions collected	Packaging of paper, glass, plastic and metal as well as newspapers and magazines
Number of collection points	<p>254 bring collection points are run by FTI. The majority receive packaging of glass, paper, metal and plastic as well as newspapers & magazines. A few do not receive plastic packaging and a few others only receive newspapers & magazines [10].</p> <p>28 per 100 000 inhabitants [calculated]</p>
Collected quantities for bring collection points and door-to-door collection in total	Newspapers and magazines: 21 419 t [calculated] & 23.86 kg/cap [2]
	Paper- and cardboard packaging: 7 083 t [calculated] & 7.89 kg/cap [2]
	Glass: 27 398 t [calculated] & 30.52 kg/cap [2]
	Plastic: 3 043 t [calculated] & 3.39 kg/cap [2]
	Metal: 880 t [calculated] & 0.98 kg/cap [2]
Setup costs	Not available
Running costs	The collection- and recycling producer responsibility system costs approximately € 108 million per year [11]
Source of funding	<p>Collection under the producer responsibility scheme:</p> <p>Some of the funding is done via re-sell value of the collected material while the rest is covered by a packing fee paid by the producers. This fee is based on weight and differ between the different types of material for household and commercial packaging, depending on how they affect the system financially. [11].</p> <p>The property's total cost for waste collection, including extra costs for sorting through the kerbside collection, are often lower than the cost of waste collection without sorting. The collected packaging and newspapers are recycled and the compensation given to the waste contractor for the material enables him to give property owners and condominium associations a lower price on the collection.</p> <p>In addition to the agreed price with the contractor, the owner or housing association bear the cost of preparing the collection site, procurement of container, cleaning, maintenance and continuous information to residents [4].</p>
Cost to consumer	All costs for the producer responsibility scheme are incorporated in product prices.

 Bring-in Civic Amenity sites	
Fractions collected	Paper, cardboard, glass, plastic, metal, garden waste and more (packaging under producer responsibility and non-packaging under municipal responsibility)
Number of sites	15 Hazardous waste collection stations (only for hazardous waste from households) and 6 Recycling Centres [12].
Collected quantities	Paper and cardboard: 31 363 t [15] & 34.9 kg/cap [calculated]
	Glass: 27 834 t [15] & 31 kg/cap [calculated]
	Plastic: 4 025 t [15] & 4.5 kg/cap [calculated]
	Metal: 8 453 t [15] & 9.4 kg/cap [calculated]
	Bio-waste (garden waste): 11 387 t [15] & 12.7 kg/cap [calculated]
Setup costs	Not available
Running costs	Not available
Source of funding	All municipal cost for waste management is covered by the waste fee.
Cost to consumer	All municipal cost for waste management is covered by the waste fee.
PRODUCERS OR THEIR AGENTS	
 Retursystem för plastflaskor och metallburkar (Returpack)- Take-back system for plastic bottles and cans	
Products covered	PET-bottles and cans with consumption-ready drinks
Quantity covered by system (in t)	Not available [16]
Quantity collected by system (in t)	Cans: 82 174 601 pcs [16] PET-bottles: 42 323 969 [16]
Funding mechanism	Returpack activities are financed primarily by the sale of the commodities handled in the factory (metal and recyclable plastics) but also pledged deposits as well as administrative fees from importers and breweries.
Consumer cost	0.11 €/ can 0.11 €/ small bottle 0.11 €/ large bottle
BARRIERS TO IMPLEMENT SEPARATE COLLECTION	
<p>The systems we are using today in Stockholm for collection is:</p> <ol style="list-style-type: none"> 1. Manual collection by waste-bins (2 or 4 wheel bins) from villas and multi apartment buildings. 2. Manual collection by plastic waste-sacks from multi apartment buildings. 3. Underground containers from multi apartment buildings. 4. Stationary vacuum suction system from multi apartment buildings. 5. Mobile vacuum suction system from multi apartment buildings. <p>For the systems 1, 3, 4 and 5 at multi apartment buildings we have also introduced or tried to use coloured bag for separate collection of food-waste to biogas production.</p> <p>For all our system there is one common barrier, it is to get high registration of participation in our “voluntary system”. The citizens are interested and well aware of the benefits with food-waste collection but have not taken in all information on how to participate.</p> <p>Separate food waste collection means a more expensive waste system compared with all waste in one bin but this has not been a barrier for introduction. The introduction of weighting the bin has given a positive reaction on separating the food-</p>	

waste in villa. The property-owner then is more aware of how much waste the property through and can reduce their waste-fee by adjust their consumer behaviour and sorting their waste.

- For system 1 there are no real barriers then to have separate collection of food-waste. The property has 2 bins, one for separate food-waste and one for the residue.
- For system 2 there is first of all today no technical solution to open the sack without damaging the coloured bags inside, when using coloured bags for food-waste and residual waste. Another barrier to introduce separate collection when we are using plastic waste sack is that the sack with separate food-waste will be very heavy. This will give a worker environment problem and the sack will be difficult to handle.
- For the system 3 with underground containers is the normal system that there is separate underground container for food-waste and residual waste. The only barrier for use of this system is that the container for food-waste can be difficult to “keep clean” inside after been use for a long time. When using the system together with coloured bags are there no real barriers for the collection. Barriers will rise in the pre-treatment and treatment system.
- For the system 4 with stationary suction system are there no real barriers it is very like the underground system for the citizens. This system have less problems to “keep the tank clean” compared to the underground container.
- For the system 5 with mobile suction system there is one technical barrier to overcome and that is the design of the tank for food-waste and the problems to empty that tank.

All other type of separate collection for recycling is through producers responsibility and the introduction of weighting the waste also have increased the interest for this separate handling of recyclables [15].

5. Materials, Quantities and costs

SUMMARY OF COLLECTION SYSTEMS IN PLACE

Collected waste (t)	Paper and cardboard	Glass	Plastic	Metal	Bio-waste	City Coverage
Door-to-door					12 241	Households: app. 12 % of total (as above)
Co-mingled						3 000 test households
Bring points	28 502	27 398	3 043	880		254 + 28 per 100 000 inhabitants (as above)
Civic amenities	31 363	27 834	4 025	8 453	11 387	Number + per 100 000 inhabitants (as above)
Producer / Retailer take-back			Data only available in pieces	Data only available in pieces		
Total	59 865	55 232	7 068	9 333	23 628	

SUMMARY OF COSTS FOR SEPARATE COLLECTION SYSTEMS IN PLACE

Costs (€)	Authorities / waste management companies		Consumer costs	
	Setup (€)	Running (€/year)	Funding type	Amount (€)
Door-to-door	Not available	Not available	Municipal waste fee	<ul style="list-style-type: none"> • One- and two family houses: approximately 187.36 €/year for household waste including separate collection of food-waste. Note that no producer responsibility collection and treatment is included in this.

				<ul style="list-style-type: none"> • Apartment blocks: Not applicable as this have to be calculated for each building. • Weight fee: 0.14 €/kg treatment fee (for waste-to-energy and food-waste for production of biogas) [15].
Co-mingled	Not available	Not available	Not available	Not available
Bring points	NA	Approximately € 108 million	Some of the funding is done via re-sell value of the collected material while the rest is covered by a packing fee paid by the producers.	Incorporated in product prices
Civic amenities	Not available	Not available	Municipal waste fee	Municipal waste fee
Producer / Retailer take-back	Not available	Not available	Primarily by the sale of the commodities handled in the factory (metal and recyclable plastics) but also pledged deposits as well as administrative fees from importers and breweries.	0.11 €/ can 0.11 €/ small bottle 0.11 €/ large bottle
Total	-	-	-	-

6. Recycling and losses

RECYCLING OF THE COLLECTED WASTE

Recycled (t)	Paper*	Glass	Plastic	Metal	Bio-waste	Total
Generated	Not available	Not available	Not available	Not available	Not available	Not available
Collected	59 865	55 232	7 068**	9 333**	23 628	59 865
Recycled nationally	43 103****	24 165***	5 160****	7 177****		79 605
Exported for recycling	Not available					
Rejected						

* Paper collected under the producer responsibility scheme (newspaper, magazines as well as paper- and cardboard packaging)

** Excluding data for the take-back system for bottles and cans since these are only given in pieces

*** Recycling data for glass are calculated based on recycling percentages for national collection from FTI in 2012 [13]

**** Recycling data for paper, plastic and metal are based on recycling percentages for national collection from FTI in 2014 [17]

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