

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.

ZAGREB	CROATIA
<p>SUMMARY: In Zagreb separate collection takes place mainly by bring systems including paper, glass, plastic packaging and metals at bring points. Only bio-waste is collected by a pilot separate door-to-door collection system in selected neighbourhoods. The separate collection rate on total municipal waste generation is very low (9.6%). The effectiveness of the separate collection system cannot be evaluated due to missing data.</p>	
1 Capital general data	
City population (inhabitants)	790 017 [1]
City population (inhabitants) covered by municipal waste management system	780 000 (99%) [4]
City area (km ²)	641.32 [1]
City density (persons/km ²)	1 232 [2]
City climate (mediterranean, continental, oceanic, nordic; relevant for bio-waste collection)	Temperate (continental) [3]
2. Capital waste data	
Total (municipal) waste generation (t in indicated year)	304 706 t (2013) [4] ¹
Additionally estimated (municipal) waste generation (t in indicated year)	354 775 t (2013) [4] [9] ²
Total (municipal) waste generation (kg/cap)	386 kg/cap [4]
Total separate collection (kg/cap) & (% of generation)	37.76 kg/cap ³ & 9.66% ⁴
Percentage breakdown of total collection for separate collection by fraction	Total separate collection 2013: 52 787.69 t <ul style="list-style-type: none"> • 6.66 % paper and cardboard (3 524.27 t) [4] • 9 % glass (4 753.94 t) [4] • 3.59 % plastics (1 897.69 t) [4] • 0.84 % metals (441.56 t) [4] • 35.68 % bio-waste (18 833.92 t)⁵ [4] [9]

¹[12, §4 (1)] “municipal waste” means waste generated by households or any other waste comparable in nature and composition to household waste e.g. commercial and institutional waste excluding production waste and waste from agriculture and forestry

² [9] total includes also estimated generated amounts of waste in nature and composition comparable to municipal waste which were additionally collected from e.g. illegal dumpsites by locally responsible organisations for MSW system and which is not covered by usual reporting and waste data processing methodology




³ Total separate collection per capita calculated as follows: Total separate collection/city population covered by municipal waste management system

⁴ % of separate collection generation calculated as follows: Total separate collection/Total municipal waste generation


⁵ [9] includes waste codes: 200108 biodegradable household waste, 200125 edible oil and fats, 200201 biodegradable waste, 200302 waste from markets (biodegradable fraction)

	<ul style="list-style-type: none"> 44.23 % other (bulky waste) (23 336. 31 t) [4]
3. Description of overall separate collection systems operating in capital [5] [6]	
<p>The responsible organisation for dealing with the waste accumulated in the City of Zagreb is the city's waste management utility company Podružnica Čistoća (Čistoća d.o.o. www.cistoca.hr), as a statutory body of the city company Zagrebački Holding do.o.o. Čistoća d.o.o. is responsible for organising the integrated waste management system prescribed by the City of Zagreb Waste Management Plan which is in accordance with the national waste legislation, namely the Act on Sustainable Waste Management (OG 93/14) and Waste Management Plan 2007-2015.</p> <p>The separate collection system is organised by establishing a system of bring points (individual or co-mingled containers or grouped in "green islands"⁶), and civic amenities (recycling yards) in accordance with requirements and measures prescribed in the City of Zagreb Waste Management Plan. City of Zagreb is also implementing pilot activities in selected city areas in order to test measures aiming to improve the integrated waste management system and encourage separate collection. In 2011 total 8 000 households were involved in pilot activities aiming to reduce municipal waste being landfilled by introducing more separate collection bring points for different fractions (paper, plastic packaging and glass) in selected city neighbourhoods. Further in 2014 pilot activities Čistoća distributed 300 000 waste bags for different fractions (biodegradable municipal waste, plastic, glass, metal) and brown containers for biodegradable municipal waste for households and buildings. They also ensured weekly door-to-door collection for biodegradable municipal waste over the period of 2 months in 1 687 households in two city neighbourhoods.</p> <p>Paper and cardboard: Separate collection system for old newspapers, magazines, catalogues, office paper, packing paper, cardboard and card covers the whole city; bring point system: ~ 1 865 individual blue containers and containers included in 4 "green islands"; civic amenities: 5 recycling yards</p> <p>Plastics and Metals: Co-mingled separate collection system for plastic and metal packaging including plastic bags, food and cosmetic bottle packaging (PE-HD, PE-LD, PP, PVC, PS, PET), food packaging (PS, PP), polystyrene packaging (EPS), metal food packaging; bring point system: ~1 004 individual yellow containers and containers included in 4 "green islands" for co-mingled collection; civic amenities: 5 recycling yards</p> <p>Glass: Separate collection throughout the city for glass packaging (i.e. bottles and jars); bring point system: ~1 400 individual green containers and containers included in 4 "green islands"; civic amenities: 5 recycling yards which also accept other types of waste glass (windows, car windshields, laboratory glass, light bulbs including fluorescent bulbs</p> <p>Bio-waste: Separate collection system for biodegradable municipal waste and garden and parks green waste; Pilot door-to-door collection system activities with intention to implement the system in the entire city area for biodegradable municipal waste; Čistoća ensures partial separate collection of biodegradable municipal waste from 23 retail premises i.e. markets and city gardens and parks; civic amenities: 5 recycling yards accept biodegradable municipal waste many of households have their own garden and can compost much of their organic waste themselves.</p>	
<p>Annual Running Costs: Not available [11]</p>	
<p>Setup costs: Not available [11]</p>	
<p>Coverage:</p> <ul style="list-style-type: none"> 2 % households with pilot door-to-door collection for bio-waste (see following section on door-to door collection) 	

⁶ From [5] section 5.2 sets requirements for "green islands": 3-4 individual containers (2-3m³) for different fractions grouped in a system located not more than 200m from residential area and covering minimum 500 inhabitants also taking in consideration other circumstances (e.g. available space, traffic routs, green areas, etc.)

4. Elements of the collection system [5]	
MUNICIPALITIES OR THEIR CONTRACTORS	
 Door-to-door collection of source separated waste	
Fractions collected	Bio-waste: Pilot separate door-to-door collection system for biodegradable municipal waste in selected neighbourhoods in Zagreb covering ~8 000 households in 2014
Collection frequency	Pilot project: Over two months (March to June 2014) weekly door-to-door collection of bio-waste from selected households
Coverage of collection	Bio-waste: Pilot activities in 2014: 2% of households ⁷ [2]
Annual collected quantities	Bio-waste from pilot activities in 2014: 110.9 t
Setup costs	The setup cost was covered city's waste management utility company Podružnica Čistoća. Data not available to City of Zagreb municipality [11]
Running costs	Not available [11]
Source of funding	Financed from the budget of city's waste management utility company Zagrebački holding Ltd., Branch-office Čistoća [11]
Cost to consumer (annual)	Not available [11]
 Bring Collection Points	
Fractions collected	Paper, glass, plastic packaging, metals, hazardous municipal waste (waste batteries and old medicines)
Number of collection points	<ul style="list-style-type: none"> • 4 269 (total individual containers for paper, glass and co-mingled plastic & metal packaging) • 337 containers for waste batteries • 23 containers for old medicines • 4 "green islands" with 3-4 individual containers for paper, glass, co-mingled plastic&metal packaging: ~15 containers • 23.3 (per 100 000 inhabitants)
Collected quantities in 2012 [5]	Paper: 1 567.3 t & 2 kg/cap
	Glass: 886.7 t & 1.14 kg/cap
	Plastic: 191.9 t & 0.25 kg/cap
	Metal: 500 t & 0.64 kg/cap [4]
Setup costs	Not available [11]
Running costs	Not available [11]
Source of funding	Financed from the budget of city's waste management utility company Zagrebački holding Ltd., Branch-office Čistoća [11]
Cost to consumer	Not available [11]
 Bring-in Civic Amenity sites	

⁷ From [2] section 2.3 Zagreb has 303 441 households.

Fractions collected	Paper, Glass, Plastic, Metals, bio-waste, other types of waste glass, WEEE, bulky waste, waste tyres, scrap metal, hazardous municipal waste (waste oils, waste batteries, old medicines)
Number of sites	5 (total) 0.63 (per 100 000 inhabitants)
Collected quantities in 2012	Paper: 192.7 t & 0.25 kg/cap [5]
	Glass: 27.8 t & 0.04 kg/cap [5]
	Plastic packaging: 25.5 t & 0.033 kg/cap [5]
	Metal packaging: 0.0 t [5]
	Bio-waste: 138.4 t & 0.18 kg/cap [5]
Setup costs	Not available [11]
Running costs	Not available [11]
Source of funding	Financed from the budget of city's waste management utility company Zagrebački holding Ltd., Branch-office Čistoća. [11]
Cost to consumer	Not available [11]
PRODUCERS OR THEIR AGENTS	
	Producers Responsibility scheme for packaging waste (paper, plastics, metal, glass) including Deposit scheme for PET, glass bottles, Al-Fe cans at national level [10]
Products covered	All packaging material, Deposit scheme PET, glass bottles and Al/Fe cans V> 0,2 L , beverage and dairy [10]
Quantity covered by system (in t)	Placed on the market (according the producer declaration), 2013: 198.570 t [10] Collected through the scheme 2013: 116,749,6 t [10]
Quantity collected by system (in t) in 2013	Paper: 61 002 t [7] PET: 22 060 t [7] Glass: 32 231 t [7] Metal cans: 1 082 t [7] Wood: 442.3 [10]
Funding mechanism	Producers' fees paid to the Environmental Protection and Energy Efficiency Fund, Croatia when placing the packaged product on the market [8] Producers' fee comprises three fees: disposal, deposit and reusable packaging incentive [10] Deposit fee is used to support the Deposit scheme and is being given back to consumers when they return the packaging waste unit (PET, glass bottles and Al/Fe cans V> 0,2 L , beverage and dairy) to designated store [10]
Consumer cost⁸	€0,0655 (6c) bottle (plastic&glass) or can ⁹ [8]
BARRIERS TO IMPLEMENT SEPARATE COLLECTION	
<ul style="list-style-type: none"> • City level integrated waste management system aiming to move municipal waste management up the waste hierarchy as planned in [5] is not fully implemented due to lack of sufficient funds to develop the required infrastructure: increase number of bring points and recycling yards, organise door-to-door collection of biodegradable municipal waste, etc. [5] • Resource efficiency and waste prevention are not fully implemented at industry level • Public awareness and public participation in the waste separate collection system is low 	

⁸ Currency exchange rate as of 24 March 2015: 7.64 HRK/€ [10]

http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ert_bil_eur_a&lang=en

⁹ Consumer costs refer to return fees returned to stakeholders involved (collectors, sellers) in 2013 [10]

- Lack of policy measures to encourage waste separation (e.g. municipal waste collection costs for consumers should be kg or m³ household instead of m²/household)
- Insufficient enforcement and control
- Present illegal dumping due to insufficient infrastructure and low public awareness

5. Materials, Quantities and costs

SUMMARY OF COLLECTION SYSTEMS IN PLACE

Collected waste in 2012 (t) [5]	Paper	Glass	Plastic	Metal	Bio-waste	City Coverage
Door-to-door					110.9 ¹⁰	2% of total households ¹¹
Bring points	1 567.3	886.7	191.9			4 284 (23.3 per 100 000 inhabitants)
Civic amenities	192.7	27.8	25.5	441.56	138.4	5 (0.63 per 100 000 inhabitants)
Total	1 760	914.5	217.4	441.56	249.3	
Producer responsibility and Deposit scheme*	61 002	32 231	22 060	1 082		

*National level scheme, data available only for national level

SUMMARY OF COSTS FOR SEPARATE COLLECTION SYSTEMS IN PLACE (setup costs should be total, running costs annual)

Costs (€)	Authorities / waste management companies		Consumer costs	
	Setup (€)	Running (€/year)	Funding type	Amount (€)
Door-to-door	Not available			
Bring points				
Civic amenities				
Producer responsibility and Deposit scheme**	Not available	65 674.19 ⁸ [10]	collectors fees deposit fees handling fees [10]	62 436.70 ⁸ [10]
Total	Not available	65 674.19	Not available	62 436.70

** Funding type: includes all Producers' fees (collectors, deposit, handling fees) paid to the Environmental protection and energy efficiency Fund, Croatia as responsible body for management of packaging waste system [10]

6. Recycling and losses

RECYCLING OF THE COLLECTED WASTE¹²

	Paper	Glass	Plastic	Metal	Bio-waste	Total
Generated in 2013 [4] [9]	96 144.02	12 417	93 660.6	3 902.52	94 015.37	96 144.02
Collected in 2012 [5]	1 760	914.5	217.4	441.56	249.3	3 582.76
Recycled nationally	Not available					
Exported for recycling						
Rejected						

¹⁰ Biodegradable municipal waste from pilot activities in 2014

¹¹ Pilot activities in 2014

¹² Data of **waste generation** per waste stream have been calculated on the basis of residual waste sorting analysis, if data was not directly available. Based on the composition of residual waste (% of each waste fraction) and its total weight amounts per waste fraction can be calculated

References

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- [3] National Meteorological and Hydrological Service, Climate Atlas Croatia, 1971-2000, http://klima.hr/razno/publikacije/klimatski_atlas_hrvatske.pdf, accessed March 2015
- [4] Croatian Environment Agency, Municipal waste annual report for 2013, <http://www.azo.hr/IzvjesceOKomunalnomOtpaduZa2013>, accessed March 2015
- [5] City of Zagreb, Waste Management Plan until 2015, [http://web.zagreb.hr/Sjednice/2013/Big_Attach_2013.nsf/0/266360D753B4947AC1257D4F0040D8ED/\\$FILE/PGO%20Zagreb_05_09_2014%20za%20Skupstinu.pdf](http://web.zagreb.hr/Sjednice/2013/Big_Attach_2013.nsf/0/266360D753B4947AC1257D4F0040D8ED/$FILE/PGO%20Zagreb_05_09_2014%20za%20Skupstinu.pdf), accessed March 2015
- [6] Čistoća d.o.o. brochure on separate collection system, <http://www.cistoca.hr/UserDocImages/brosura-odvoj.skup.2otp.pdf>, accessed March 2015
- [7] Croatian Environment Agency, Packaging waste amounts, <http://www.azo.hr/KolicineAmbalazel>, accessed March 2015
- [8] Ordinance on packaging and packaging waste (NN 97/05 and its amendments), http://mzoip.hr/doc/ordinance_on_packaging_and_packaging_waste_og_97-05.pdf, accessed March 2015
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- [11] City of Zagreb Municipality, additional information and data verification received from Ms. Irena Jerković, dipl. ing., Head of sustainable waste management department, email exchange, 30 March 2015
- [12] Zakon o održivom gospodarenju otpadom (NN 94/13) (Act on Sustainable Waste Management (OG No. 94/13)), http://mzoip.hr/doc/act_on_sustainable_waste_management.pdf, accessed April 2015