

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.

Rome	Italy
<p>SUMMARY: The city of Rome is currently changing the collection system, the new systems introduced (but not yet with full coverage) includes a door-to-door separate collection systems for all fractions and a bring points’ system for paper, glass and metals/plastics. The old system, still in place for a part of the city relied on co-mingling door-to-door collection (Plastic/ metal or plastic/metal/glass). Rome has achieved relatively high capture rates for metals and bio-waste. For the remaining materials, improvement is possible, pending the full establishment of the newly introduced separate collection systems.</p>	
1 Capital general data	
City population (inhabitants)	2 863 322 persons [1]
City area (km ²)	2 244 km ²
City density (persons/km ²)	1 275 km ²
City climate (mediterranean, continental, oceanic, nordic; relevant for bio-waste collection)	Mediterranean
2. Capital waste data¹	
Total (municipal) waste generation (t in indicated year)	1 754 823 t (2013) [1]
Total (municipal) waste generation (kg/cap)	613.0 kg/cap [1]
Total separate collection (kg/cap) & (% of generation)	178.28 kg/cap; 29.1% of generated [1]
Percentage breakdown of total collection for separate collection by fraction [1]	<ul style="list-style-type: none"> • 49.5% paper and cardboard • 4.4 % glass • 9.1 % plastic • 1.5 % metal • 27.5 % bio-waste • 8 % Other: 3.3 % wood 2.6 WEEE 2.0% textile 0.1% other
3. Description of overall separate collection systems operating in capital	
<p>The collection scheme operated in Rome has profoundly changed during the last years. The change started in 2012 after the “waste crisis” due to the closure of the landfill site serving the municipality of Rome (Malagrotta landfill site). At the time the municipality started to implement throughout the city the single stream waste collections in five fractions (residual municipal waste, glass, plastic/metal, bio-waste and paper).</p> <p>The municipal waste collection system has been rearranged towards an “integrated” system including bring collection points system (comprising five types of road containers dedicated to the five fractions) in parts of the city and a door-to-door system for single stream waste (paper and bio-waste) and for co-mingled recyclables (plastic/metal or plastic/metal/glass) in other</p>	

¹ Data is for 2013

areas. Where the door-to-door system for single streams is operated, the glass fraction is collected in dedicated road containers.

Currently 14 municipal civic amenity sites are operated within the municipality. At the end of 2014, this new waste collection system has been implemented in 11 of the 15 Roman districts (“*municipi*”).

AMA S.p.A. is the Municipal Waste Company which is in charge for municipal waste collection service in Rome.

Paper and cardboard: Paper and cardboard is collected as separate fraction through both **door-to-door collection** in dedicated household bins and **bring collection points**. Larger quantities of paper and cardboard may also be delivered to some civic amenity sites.

Glass: Glass is collected as separate fraction in bring collection points with dedicated road containers. In some areas of the city, the glass is still co-mingled with plastic and metal (as “heavy multi-material” fraction) and collected in road containers (bring points).

Plastic: Plastic is co-mingled with other recyclable fraction (i.e. metal) and it is collected as “light multi-material” fraction both in door-to-door and bring point collection systems.

Metal: Metal is co-mingled with other recyclable fraction (i.e. plastic) and collected as “light multi-material” fraction both through door-to-door and bring point collection systems.

Annual Running Costs: 132 225 031 € [3], 242 €/t²; 46 €/cap

Setup costs: Not available

Coverage [2]³:

- 27% of inhabitants with door-to-door separate mono-material (five fractions) collection (new system) with the exclusion of the glass fraction which remains collected in dedicated road containers.
- 45% inhabitants with bring point for mono-material collection (new system)
- 28% inhabitants with the “old” collection system (mainly composed of bring points collecting 3 fractions: paper, unsorted wastes and comingled glass/metal/plastic)

4. Elements of the collection system

MUNICIPALITIES OR THEIR CONTRACTORS



Door-to-door collection of source separated waste

Fractions collected	Paper, bio-waste,
Collection frequency	Paper: Bi-weekly Bio-waste: three times a week
Coverage of collection [2]	Paper: 25% of inhabitants [2]; N/A ⁴ for businesses Bio-waste (food and organic waste): 26% of inhabitants [2]; N/A for businesses
Annual collected quantities (estimated values⁵)	Paper: 63 596 t Bio-waste: 36 744 t
Setup costs	Not available
Running costs	Not available only the total annual cost for separate waste collection is available
Source of funding	Municipal service tax

² €/ton has been estimated considering the ratio between the 2013 annual running cost for separate waste collection and tons of municipal waste collected in 2013 through separate collection system.

³ Data referred to November 2014

⁴ N/A: data not available

⁵ Disaggregated data are not available. Data have been estimated considering the separate collection rate for 2013 (kg/cap) for each fraction [1], the percentage of coverage of collection referred to 2014 (% of inhabitants) [2] and the number of inhabitants served by the different typology of collection scheme [2].

Cost to consumer (annual)	Municipal service tax ⁶
 Door-to-door collection of co-mingled recyclables	
Fractions collected together in one bin	Plastic/ metal ("light multi-material" fraction), plastic/metal/glass ("heavy multi-material" fraction)
Collection frequency	Bi-weekly
Coverage of collection	Plastic/metal: 23% of inhabitants [2]; N/A for businesses Plastic/metal/glass: 2% of inhabitants [2]; N/A for businesses
Annual collected quantities (estimated values)	Plastic/metal: 12 529 t Plastic/metal/glass: 1 541 t
Setup costs	Not available
Running costs	Not available only the total annual cost for separate waste collection is available
Source of funding	Municipal service tax
Cost to consumer (annual)	Municipal service tax ⁶
 Bring Collection Points	
Fractions collected	Paper, plastic/metal, plastic/metal/glass, glass, bio-waste ,
Number of collection points	16 818 for paper (587 per 100 000 inhabitants) and 16 708 for glass and plastic/metal and glass/plastic/metal (583 per 100 000 inhabitants) [6]. Data not available for the other fractions
Collection frequency	Paper: bi-weekly Glass: weekly Bio-waste: three times a week Plastic/metal: three times a week Plastic/metal/glass: three times a week
Coverage of collection	Paper: 73% of inhabitants [2]; [not available] for businesses Glass: 40% of inhabitants [2]; [not available] for businesses Bio-waste (food and organic waste): 46% of inhabitants [2]; [not available] for businesses Plastic/metal: 40% of inhabitants [2]; [not available] for businesses Plastic/metal/glass: 34% of inhabitants [2]; [not available] for businesses
Collected quantities (estimated values)	Paper: 185 702 t Glass: 14 245 t Plastic/metal: 21 790 t Plastic/metal/glass: 26 209 t Bio-waste: 65 010 t
Setup costs	Not available
Running costs	Not available only the total annual cost for separate waste collection is available
Source of funding	Municipal service tax

⁶ The tax is calculated on the surface area of the property where wastes are generated and on the number of people living at the property. For example, for a 100 m² property with 4 people, the tax is 393.98 €/year [5]. For offices/companies, the tax is based on the surface area of the local and on the activity category.

Cost to consumer	Municipal service tax ⁶
 Bring-in Civic Amenity sites	
Fractions collected	Bulky waste (WEE, bulky, etc.)
Number of sites	15 (total) (0.5 per 100 000 inhabitants)
Collection frequency	Not available
Collected quantities	Not available
Setup costs	Not available
Running costs	Not available only the total annual cost for separate waste collection is available
Source of funding	Municipal service tax
Cost to consumer	Municipal service tax
PRODUCERS OR THEIR AGENTS	
 Mobile collection stations of paper and comingled plastic/metal/glass (in operation only in the old town centre – District I)	
Fractions collected	Paper and plastic/metal/glass
Coverage of collection [2]	Paper: 2% of inhabitants; N/A for businesses Plastic/metal/glass: 2% of inhabitants; N/A for businesses
Collected quantities (estimated values)	Paper: 5 088 t Plastic/metal/glass: 1 089 t
Source of funding	Municipal service tax
Cost to consumer	Municipal service tax ⁶
 House to house collection of bulky waste (both for households and business)	
Products covered	Bulky waste
Quantity covered by system (in t)	Not available
Quantity collected by system (in t)	Not available
Funding mechanism	Municipal service tax + fee system
Consumer cost	Municipal service tax and fee varies depending on the location of the point of collection and on the volume/weight of the waste.
BARRIERS TO IMPLEMENT SEPARATE COLLECTION	
<ul style="list-style-type: none"> • Complex system that reflects the heterogeneity of the city of Rome. • The complexity of the system means that no single city-wide awareness campaign can be used, with consequent problems for the population to understand how each system works; • Door-to-door system (as a consequence there is the absence of road containers) is set up on a rigid organisation in terms of day and hours for household collection which can be difficult to be respected by inhabitants; thus inhabitants tend to switch to bring points set up in other districts; • New bring point system (with five different road containers) may be difficult to implement in district characterized by narrow and/or traffic-congested streets. 	

ADDITIONAL FINDINGS

A detailed online register pertaining to waste data ("Anagrafica pubblica relative alla raccolta, al recupero, allo smaltimento e agli impianti dei rifiuti solidi urbani") is under preparation by the Rome Municipality. No information is available when the register will become operational. [4]

5. Materials, Quantities and costs**SUMMARY OF COLLECTION SYSTEMS IN PLACE**

Collected waste (t)	Paper	Glass	Plastic/Metal	Plastic/Metal/Glass	Bio-waste	City Coverage
Door-to-door	63 596	5 200			36 744	23 - 26% of households
Co-mingled			12 529	1 541		2 - 23% of households
Bring points	185 702	9 045	21 790	26 209 t	65 010	34 - 73% of households
Civic amenities				not available	38 543 ⁷	15 (total) (0.5 per 100 000 inhabitants)
Mobile collection stations	5 088			1 089		2 %, of households
House to house collection						
Total	254 386	14 245	34 319	28 839	140 297	

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	Not available	Municipal service tax	Municipal service tax
Co-mingled	Not available	Not available	Municipal service tax	Municipal service tax
Bring points	Not available	Not available	Municipal service tax	Municipal service tax
Civic amenities	Not available	Not available	Municipal service tax	Municipal service tax
Mobile collection stations	Not available	Not available	Municipal service tax	Municipal service tax
House to house collection	Not available	Not available	Municipal tax + fees system	Fee varies depending on the location of the point of collection and on the volume/weight of the waste.
Total	€132 225 031 (2013)			236.28 €/cap⁸ [1]

⁷ Data for civic amenities are not available. This data has been computed as difference with the total amount of bio-waste collected in 2013 [1] presuming that bio-waste not collected with door-to-door or bring collection are collected through the civic amenities scheme.

⁸ Total cost per capita (€/cap/year) for the municipal waste management (including the management of unsorted wastes and fixed services) considering the percentage of the separate waste collection and the percentage of wastes recycled and landfilled.

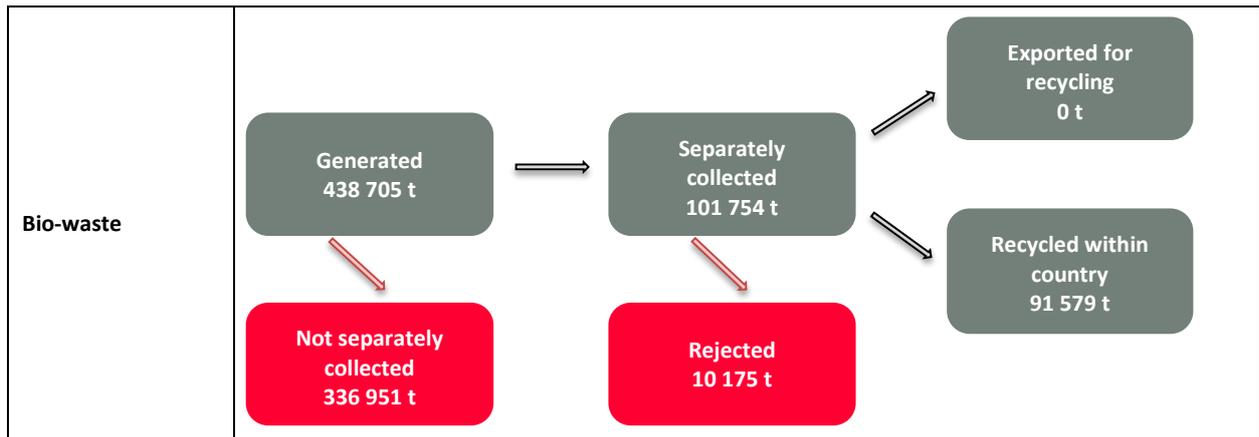
6. Recycling and losses						
RECYCLING OF THE COLLECTED WASTE ⁹						
Recycled (t)	Paper	Glass	Plastic	Metal	Bio-waste	Total
Generated	491 350	105 289	210 578	52 644	438 705	1 298 566
Collected	254 386	77 403			101 754	433 543
Recycled nationally ¹⁰	228 947	71 210			91 579	391 736
Exported for recycling	0 [7]	0 [7]	0 [7]	0 [7]	0 [7]	0 [7]
Rejected ¹¹	25 439	6 193			10 175	41 807

7. Material flows	
MATERIAL FLOWS FOR EACH COLLECTED FRACTION	
Paper	
Glass/Plastic/Metal	

⁹ 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 [2].

¹⁰ It has been considered as the difference between the collected and the rejected [7]

¹¹ The quantity rejected has been assumed [7] equal to the average value of the percentage of impurity for each fraction [8]



References

- [1] Report on municipal solid waste production and management in Italy, 2014, issued by ISPRA - National Institute for the Environmental Protection and Research (Rapporto Rifiuti Urbani – Edizione 2014), <http://www.isprambiente.gov.it/it/pubblicazioni/rapporti/rapporto-rifiuti-urbani-edizione-2014>
- [2] Environment and urban hygiene for the Municipality of Rome (Ambiente ed Igiene Urbana) <http://www.agenzia.roma.it/documenti/relazioni/231.pdf>
- [3] Financial Plan of the municipal waste management service – Municipality of Rome (Piano Finanziario del Servizio di Gestione dei Rifiuti Urbani di Roma Capitale – Anno 2014), <https://www.comune.roma.it/PCR/resources/cms/documents/pianofinanziariotari.pdf>
- [4] Information pertaining to the Online Waste Data Register “Anagrafica pubblica relative alla raccolta, al recupero, allo smaltimento e agli impianti dei rifiuti solidi urbani”), under preparation by the Municipality of Rome, http://www.agenzia.roma.it/home.cfm?nomepagina=settore&id_settore=13&tiposett=servizi
o
- [5] Example taken from the AMA (Municipal Waste Company which is in charge for municipal waste collection service in Rome) web site, <http://www.amaroma.it/moduli/calcola-tariffa/?metri=100&persone=4>
- [6] Data provided by Email from Dr. Geranzane (Municipal Waste, Recovery and Recycling Technical Office – Rome Municipality), March 18, 2015
- [7] Telephone Interview with Dr. Geranzane (Municipal Waste, Recovery and Recycling Technical Office – Rome Municipality), March 18, 2015
- [8] Guidelines for the Management of the separate collection of municipal waste in the Lazio Region (Linee Guida per la Gestione delle raccolte differenziate dei rifiuti urbani nella Regione Lazio), http://www.regione.lazio.it/binary/rl_main/tbl_documenti/RIF_DGR_162_13_04_2012_Allegato1.pdf