This project is co-funded by the European Union and the Republic of Türkiye

Technical Assistance for Assessment of Türkiye's Potential on Transition to Circular Economy

EuropeAid/140562/IH/SER/TR

Activity 3.3.1. Zero Waste Management System Practices Workshop

Recyclable Waste Collection Methods - Assessment of Advantages and Disadvantages

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Antalya, Türkiye

Presentation Content

Door-to-Door Collection

Kerbside Collection

Civic Amenity Sites

Advantages and Disadvantages
Success factors and Risks

Conditions determining preference for an efficient separate waste collection system

- Population density
- The amount of waste produced
- Waste composition (Categorization)
- Climate
- Topography
- Urban planning (urban/rural/industrial areas)
- Cultural characteristics
- Seasonality and permanent and non-permanent residents (e.g. tourist destinations)
- ease of access to waste treatment facilities

DOOR TO DOOR

- Urban areas with short transport distances and high population density
- The collection period is usually fortnightly to every 2 weeks

It provides maximum service to citizens and, when integrated with the deposit return system, increases recycling of beverage packaging (plastics and metals) and minimises littering.

It is more costly, but also provides the best results in separation.

It is widely used for different types of waste:

- residual waste,
- kitchen waste,
- paper and cardboard,
- plastic packaging,
- textile products,
- voluminous waste.

Door-to-door collection can be organised and financed by municipalities (e.g. mixed waste and bio-waste) or WEEE organisations (e.g. WEEE). Operational execution can be carried out by municipal employees or outsourced to private

Success Factors in Door to Door Collection

- The collection frequency of recyclables and bio-waste should be at least as high as the collection frequency of residual waste to encourage separation.
- A combination of short cycles (e.g. once or twice a week) for the collection of recyclables and longer cycles (e.g. 2 weeks) for residual waste can optimise collection costs while maximising at source separation.
- Periodicity should decrease over time to optimise cost efficiency and provide overall incentives for waste prevention/composting.
- It is particularly important in warmer climates that the frequency of collection of kitchen waste is high (e.g. twice a week), whereas in colder climates it may be lower (e.g. once every two weeks)
- During waste collection, staff can carry out a visual or weight-based rough check of potential contaminants.
- If apartment blocks have common waste collection services, there must be common separate collection equipment.

Municipalities in densely populated areas should foresee a programme to help multi-apartment buildings to install collection facilities: (good practice guide, cheap or free support from expert consultants, a single point of contact in the municipality to deal with questions and projects).

Risks in Door-to-Door Collection

- Private companies are being selective in their door-to-door collection, focusing only on high-value materials (and sometimes even only during periods of high resource prices).
- Contamination of collected waste types (mixed waste). Municipalities should optimise their collection systems for the future and plan and implement them for a period of three years or more.

Kerbside collection system

- Above-ground or underground containers
- Typical size 1.5 - 5 m3

Logistics optimisation (compared to door-to-door collection) provides cost efficiencies and can solve local mobility problems in historic city centres.

It is widely used for different types of waste:

- kitchen waste,
- paper and cardboard,
- beverage packaging
- residual waste

Integration with the deposit return system is recommended to increase the reuse/recycling rates and quality of beverage packaging (plastics and metals).

Success Factors and Risks of Kerbside Collection

Success Factors

Clear and unambiguous instructions to citizens to promote separation at source

Implementation of Pay-As-You-Throw (PAYT)

In low-density areas, placing street containers at central points close to transport routes

Risks

Contamination of separated fractions due to lack of control

The equipment placed above ground causes visual pollution, noise in the evenings or rubbish being thrown near the container

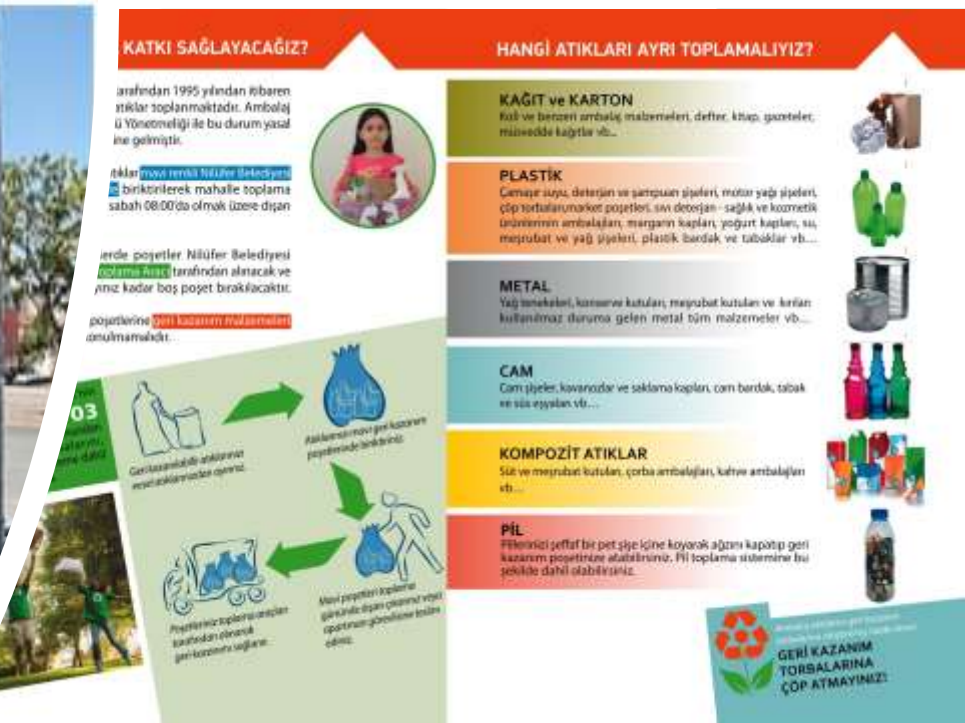
Cost of underground containers to be used in city centres or historical sites

Civic Amenity Sites

CASs **four different types:**

- ✓ **Large open spaces** and CASs with areas reserved for different types of waste
- ✓ **CASs** with different application units such as repair centres, second-hand donation, social areas, etc. **in large indoor/semi-indoor areas within the city,** accessible only to citizens
- ✓ **Mobile** CASs (container and truck type)
- ✓ Small type CASs with openable covers suitable for use by **unstaffed** citizens

Civic Amenity Sites Success factors and risks



Success factors

- Informing citizens correctly for effective separation
- Employment of trained personnel to maximise the quality of the types of waste sorted
- Long working hours, including weekends

Risks

- Sufficient space to establish facilities and provide services for a comprehensive range of waste types
- Making it accessible and attractive for citizens

EMAS Regulation No. 1221/2009/EC (Commission Decision (EU) 2020/519))

Waste management sector - reference document on performance indicators for best environmental management practices

Environmental Performance Indicators for CASs

- ✓ Easy accessibility to CASs, e.g. without a vehicle
- ✓ Number of CASs per 100,000 inhabitants
- ✓ Number of different waste fractions collected
- ✓ Availability of product/material exchange areas aimed at promoting reuse
- ✓ Inclusion of the wastes given to CASs in the Pay As You Throw (PAYT) system
- ✓ Budget spent on awareness raising per capita per year (EUR/person/year)

Measure of Excellence

- ✓ At least one CAS within the borders of municipalities with at least 1000 inhabitants
- ✓ At least 20 different waste fractions
- ✓ Product/material exchange areas aimed at promoting reuse
- ✓ Awareness raising campaigns should be systematically implemented for different target groups (e.g. students, citizens, CAS users) and the annual budget should be at least 5 Euro per capita.

The Current State of the CASs

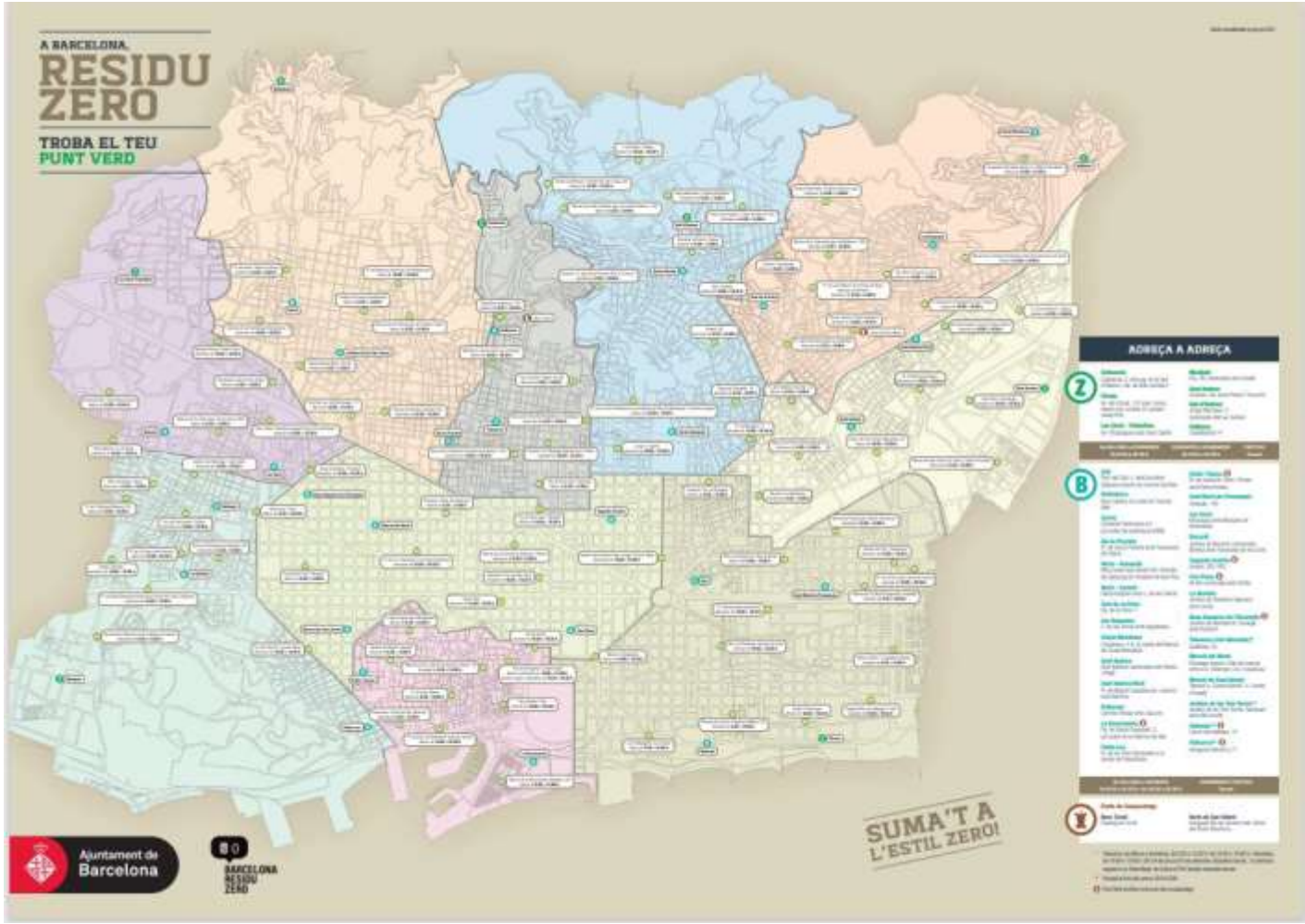
- In 2019, there were a total of **4367 CASs (fixed+mobile)** in **Italy**. This corresponds to approximately **7 CASs** per 100,000 inhabitants.[1]
- In **Croatia**, there were a total of **417 CASs (fixed+mobile)** in 2022. This corresponds to approximately **11 CASs** per 100,000 inhabitants.[2]
- In **Denmark**, there were a total of **364 CASs** in 2019. This corresponds to approximately **6 CASs** per 100,000 inhabitants.[3]
- There are a total of **117 CASs** in **Ireland** in 2024. This corresponds to approximately **2 CASs** per 100,000 inhabitants.[4]
- There are a total of **855 CASs** in the **UK** in 2022. This corresponds to approximately **1 CAS** per 100,000 inhabitants.[5]
- There are a total of **3000+ CASs (fixed+mobile)** in **Türkiye** in 2024. This corresponds to approximately **4 CASs** per 100,000 inhabitants.[6]
- In Europe, the density of CASs in metropolises, towns/suburbs and rural areas varies greatly compared to the use of other collection methods. Therefore, the number of CASs per 100,000 inhabitants may be a misleading indicator.
- In the EU, **about two thirds** of separately collected household hazardous waste is collected by CASs.[7]

Source 1: *RAEE, 2019. https://www.raeeitalia.it/it/press.html*
Source 2: *MoESD, 2022. https://mingo.gov.hr/UserDocsImages/UPRAVA-ZA-PROCJENU-UTJECAJA-NA-OKOLIS-ODRZIVO-GOSPODARENJE-OTPADOM/Sektor%20za%20odr%C5%BEivo%20gospodarenje%20otpadom/PGO%20eng_web%2011_12_2023.pdf*
Source 3: *Danish Waste Association, 2019. https://stateofgreen.com/en/news/recycling-centres-rival-major-tourist-attractions-in-number-of-visitors/*
Source 4: *REPAK, 2024. https://repak.ie/recycling/recycling-centres-bring-banks/*
Source 5: *Anyjunk 2022. https://www.anyjunk.co.uk/blog/2022/03/06/map-of-uk-civic-amenity-sites/*
Source 6: *MoEUCC, 2024. Zero Waste Information System*
Source 7*: EC, 2020. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020XC1106 (01)*

BARCELONA, Spain

- Barcelona Provincial Council
- The local government serves 1.7 million citizens.
- The Department of Urban Ecology - Environment and Urban Services is responsible for the management of the CAS network called **Green Spots**.
  - 15 Regional GreenSpots (ZGP)
  - 28 Neighborhood Green Spots (NGP)
  - Mobile Green Spot (MGP) with 9 vehicles and 100 stops
  - 1 School Mobile Green Spot (SMGP)
- 1.14 million users

Ajuntament de Barcelona

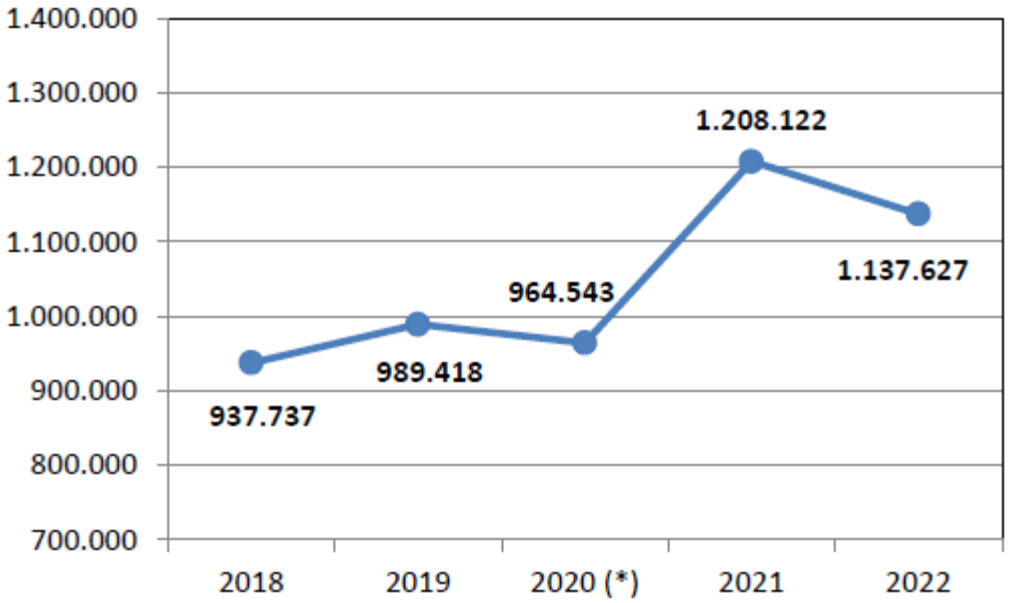


Reference: *Barcelona Provincial Council, 2024. https://ajuntament.barcelona.cat/ecologiaurbana/sites/default/files/XarxaPuntsVerds.pdf*

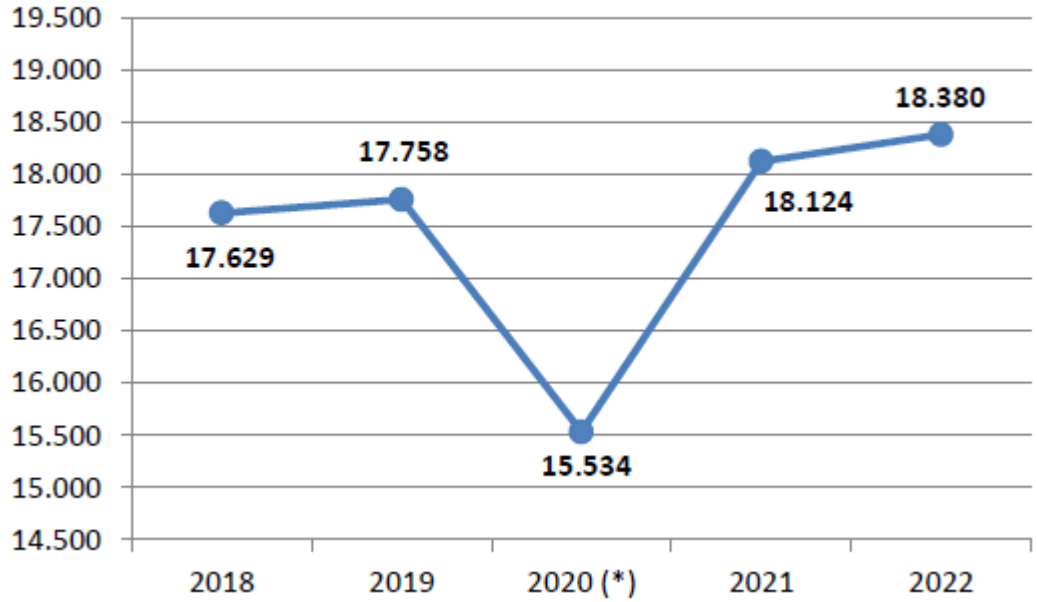
BARCELONA, Spain

Number of Users and Amounts Collected

Number of Users



Amounts Collected



Most Collected Waste Types in 2022

- Construction waste	5,586
- Wood	3,951
- Other	1,729
- Clothes and shoes	1,156
- Paper and cardboard	906
- Glass	760
- Plant waste	741
- Small electronic items	572

Reference: *Barcelona Provincial Council, 2024.*
https://ajuntament.barcelona.cat/ecologiaurbana/sites/default/files/XarxaPuntsVerds.pdf
https://ajuntament.barcelona.cat/neteja-i-residus/en/household-waste-collection/green-point-network

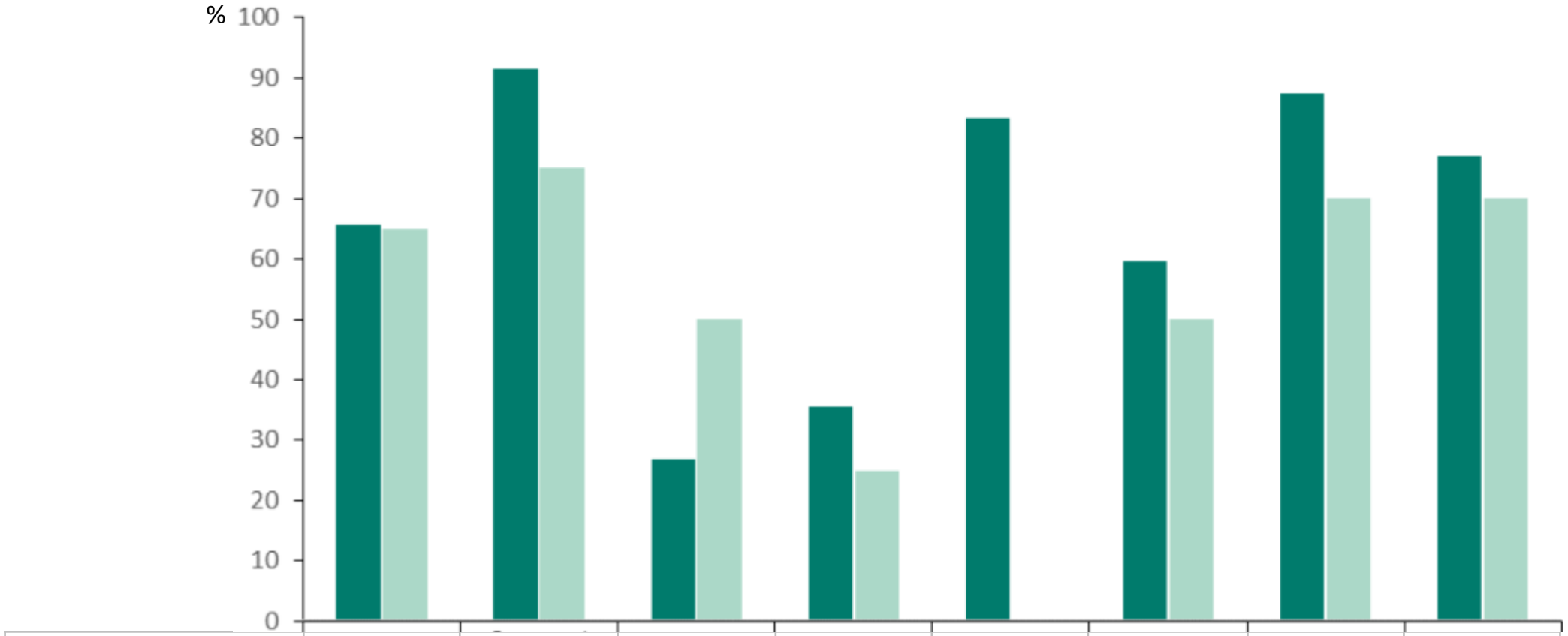
FRANCE

	Cities (densely populated areas)					**Towns and suburbs** (medium density areas)					**Rural areas** (sparsely populated areas)			
	Door to door - separate	Door to door - mixed	Collection point (>5/km2)	Collection point (<5/km2)	Civic amenity site	Door to door - separate	Door to door - mixed	Collection point (>5/km2)	Collection point (<5/km2)	Civic amenity site	Door to door - separate	Door to door - mixed	Collection point	Civic amenity site
Residual Waste	X					X					X			
Paper and cardboard		XX	X				XX	X		X		X	X	X
Ferrous metals		XX	X				XX			X		X	X	X
Aluminium		XX	X				XX			X		X	X	X
Glass	X		X			X		X					X	
Plastic		XX					XX					X	X	
Bio-waste														
Food	X (YD)		X (YD)			X (YD)		X (YD)					X (YD)	
Garden waste	X (YD)				XX	X (YD)				XX				
Textile				X	XX				X	XX			X	XX
Wood					XX					XX			X	XX
WEEE				X	X				X	X			X	X
Composite		XX					X					X	X	

***Reference**: European Environment Agency, 2023. https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to*

NC: Not Common

FRANCE



	Packaging	Paper and cardboard	Plastic	Wood	Metal	Aluminium	Ferrous Metal	Glass
Recycling Rate (2019)	65.6	91.4	26.9	35.6	83.4	59.7	87.5	77.1
EU Directive Target (2025)	65	75	50	25		50	70	70

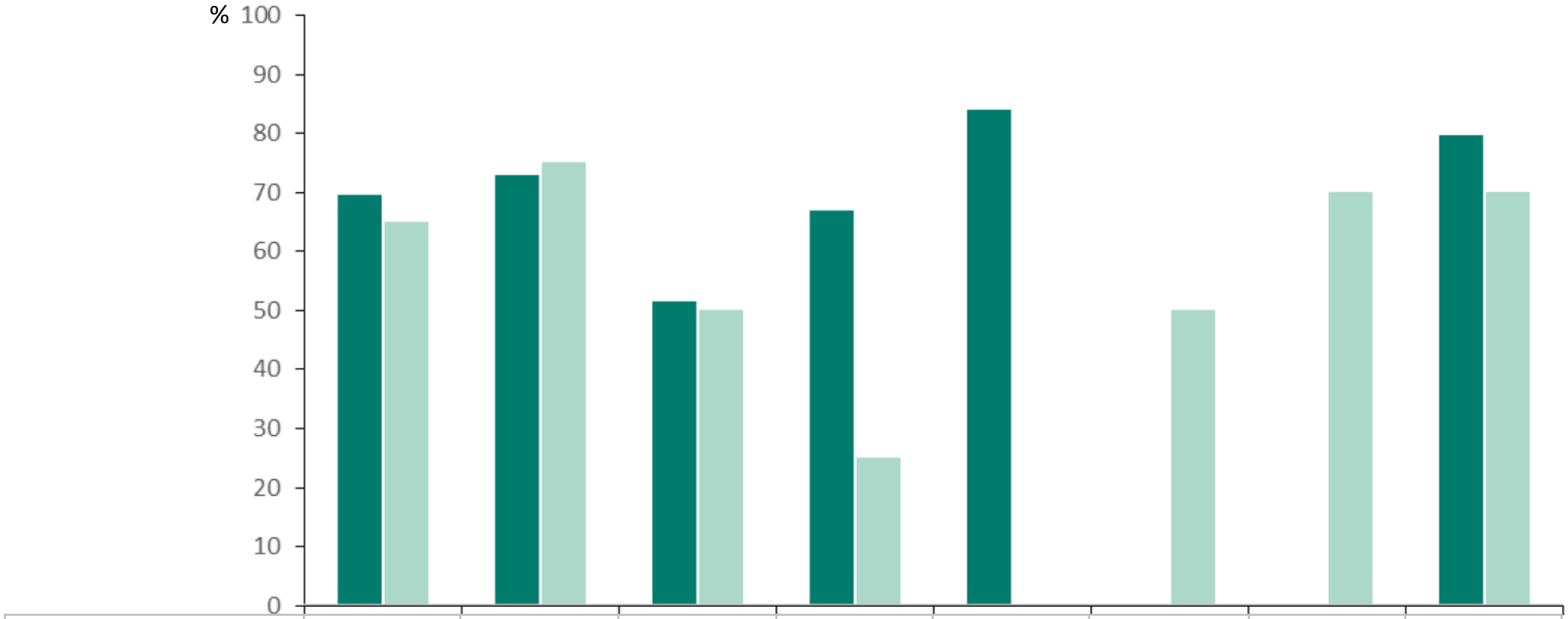
***Reference**: European Environment Agency, 2023. https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to*

SPAIN

	Cities (densely populated areas)					**Towns and suburbs** (medium density areas)					**Rural areas** (sparsely populated areas)			
	Door to door - separate	Door to door - mixed	Collection point (>5/km2)	Collection point (<5/km2)	Civic amenity site	Door to door - separate	Door to door - mixed	Collection point (>5/km2)	Collection point (<5/km2)	Civic amenity site	Door to door - separate	Door to door - mixed	Collection point	Civic amenity site
Residual Waste			XX			X		X			X		X	
Paper and cardboard			XX			X		X			X		X	
Ferrous metals			XX				X	X				X	X	
Aluminium			XX				X	X				X	X	
Glass			XX			X		X			X		X	
Plastic			XX				X	X				X	X	
Bio-waste			XX			X		X						
Food											X		X	
Garden waste											X		X	
Textile				X	XX					X				X
Wood					XX					X				X
WEEE					XX					X				X
Composite			XX				X	X				X	X	
Voluminous waste	XX				XX	X				X	X			X
Waste Vegetable Oil				X	X				X	X			X	X

Reference: *European Environment Agency, 2023.* https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to

SPAIN



	Packaging	Paper and cardboard	Plastic	Wood	Metal	Aluminium	Ferrous Metal	Glass
Recycling Rate (2019)	69.6	72.9	51.5	66.9	84.0			79.8
EU Directive Target (2025)	65	75	50	25		50	70	70

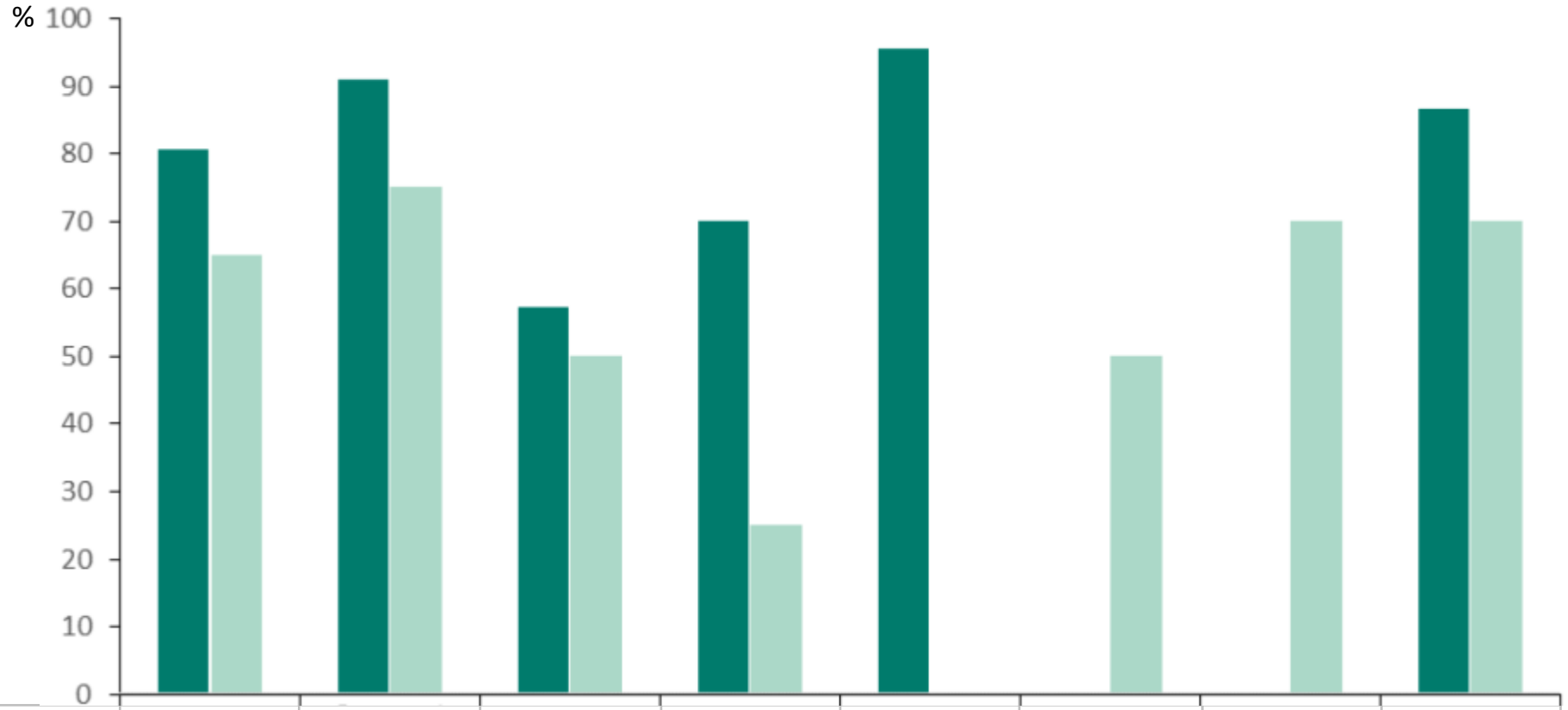
***Reference**: European Environment Agency, 2023. https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to*

NETHERLANDS

	Cities (densely populated areas)					**Towns and suburbs** (medium density areas)					**Rural areas** (sparsely populated areas)			
	Door to door - separate	Door to door - mixed	Collection point (>5/km2)	Collection point (<5/km2)	Civic amenity site	Door to door - separate	Door to door - mixed	Collection point (>5/km2)	Collection point (<5/km2)	Civic amenity site	Door to door - separate	Door to door - mixed	Collection point	Civic amenity site
Residual Waste	XX					XX					XX			
Paper and cardboard	X		X		X	X		X		X	X		X	X
Ferrous metals		X	X		X		X	X		X		X	X	X
Aluminium		X	X		X		X	X		X		X	X	X
Glass				XX	X				XX	X			XX	X
Plastic		X	X		X		X	X		X		X	X	X
Bio-waste	XX		X		X	XX		X		X	XX		X	X
Food														
Garden waste														
Textile	X			XX	X	X			XX	X	X		XX	X
Wood					XX					XX				XX
WEEE			X	X	X			X	X	X			X	X
Composite		X	X		X		X	X		X		X	X	X
Pharmaceutical					XX					XX				XX

Reference: *European Environment Agency, 2023.* https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to

NETHERLAN



	Packaging	Paper and cardboard	Plastic	Wood	Metal	Aluminium	Ferrous Metal	Glass
Recycling Rate (2019)	80.7	91.0	57.2	70.1	95.6			86.6
EU Directive Target (2025)	65	75	50	25		50	70	70

***Reference**: European Environment Agency, 2023. https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to*

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Thanks for your attention.

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