

Technical Assistance for Assessment of Türkiye's Potential On Transition to Circular Economy EuropeAid/140562/IH/SER/TR

Activity 3.2.3. Training of Trainers on integrated waste management in line with Circular Economy

Assessment of Alternative Collection Methods in the EU and Good Practices in line with Circular Economy

Ankara, 10-11 October 2024

Onur Akpulat, Deputy Team Leader











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	Cities (densely populated areas)				Towns and suburbs (intermediate density areas)				Rural areas (thinly populated areas)					
	Door-to- door - separate	Door-to- door - co-mingled	Bring point (>5/km²)	Bring point (<5/km²)	Civic amenity site	Door-to- door - separate	Door-to- door - co-mingled	Bring point (>5/km²)	Bring point (<5/km²)	Civic amenity site	Door-to- door - separate	Door-to- door - co-mingled	Bring point	Civic amenity site
Residual waste	Х					х					х			
Paper and cardboard		хх	х				xx	Х		X		Х	х	Х
Ferrous metal		XX	Х				XX			Х		Х	X	Х
Aluminum		XX	Х				XX			x		х	X	Х
Glass	х		Х			Х		Х					Х	
Plastic		XX					XX					Х	X	
Bio-waste														
Food	X (NC)		X (NC)			X (NC)		X (NC)					X (NC)	
Garden waste	X (NC)				XX	X (NC)				XX				
Textile				Х	XX				Х	XX			х	XX
Wood					XX					XX			Х	XX
WEEE				х	Х				Х	Х			х	Х
Composite		XX					Х					Х	Х	









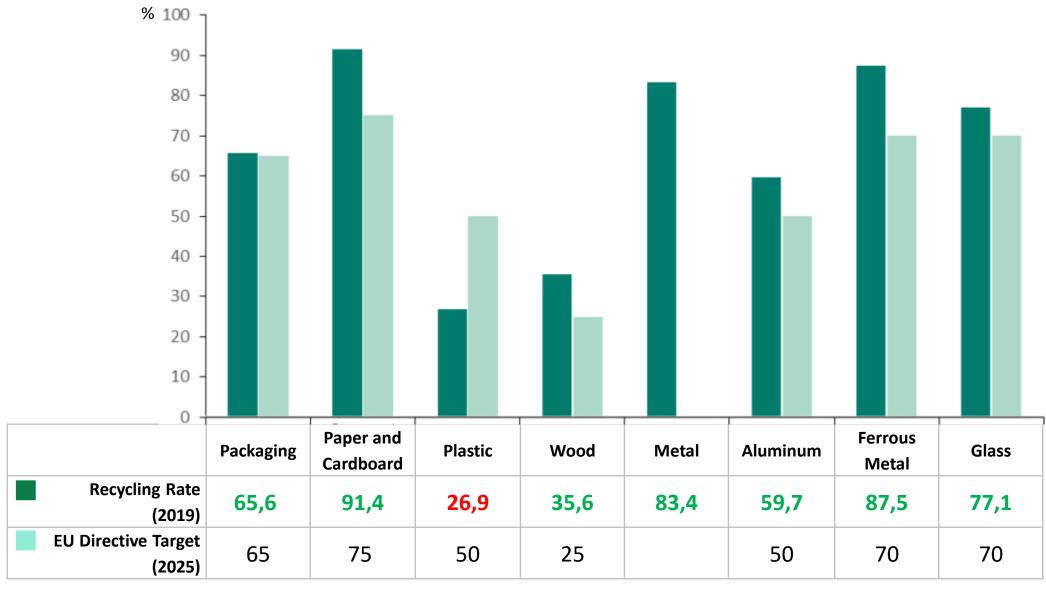




- In France, abandoning any kind of waste on public or private roads is punishable by a fine.
- Payment within 45 days of the infringement is **135 Euro**.
- After 45 days, the fine is 375
   Euro.
- Failure to pay will be referred to the court, which may impose a fine of up to 750-1500 Euro.

**Source**: French Government, 2024. <a href="https://www.service-public.fr/particuliers/vosdroits/F36492/0?idFicheParent=F31963#:~:text=D%C3%A9poser%2C%20abandonner%2C%20jeter%20ou%20d%C3%A9verser,amende%20est%20de%20135%20%E2%82%AC.">https://www.service-public.fr/particuliers/vosdroits/F36492/0?idFicheParent=F31963#:~:text=D%C3%A9poser%2C%20abandonner%2C%20jeter%20ou%20d%C3%A9verser,amende%20est%20de%20135%20%E2%82%AC.</a>



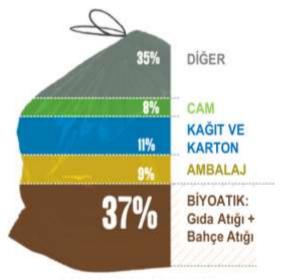




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Residual waste			XX			Х		Х			Х		Х	
Paper and cardboard			XX			х		х			Х		Х	
Ferrous metal			XX				X	Х				X	X	
Aluminum			XX				Х	Х				Х	х	
Glass			XX			Х		Х			Х		Х	
Plastic			XX				X	X				X	Х	
Bio-waste			XX			Х		X						
Food											Х		X	
Garden waste											Х		Х	
Textile				Х	XX					Х				Χ
Wood					XX					Х				Χ
WEEE					XX					Х				Х
Composite			XX				X	Х				Х	Х	
Bulky waste	XX				XX	Х				X	Х			Χ
Used cooking oil				x	х				x	x			X	X

**Source**: European Environment Agency, 2023. <a href="https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to">https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to</a>









#### ORGANIC FRACTION

Number of deliveries Amount in €

BRACKET 1 → + 51 /year = 30€ BRACKET 1 → + 77 /year = 50€

BRACKET 2 → 25 - 51 /year = 50€ BRACKET 2 → 41 - 77 /year = 70€

BRACKET 3 → 9 - 24 1/2 /year = 80€ BRACKET 3 → 13 - 40 1/2 /year = 100€

BRACKET 4 → -9 10 /year = 120€ BRACKET 4 → -13 10 /year = 150€





DIMARTS RESTA



DIMECRES ORGANICA ENVASOS





DIJOUS

DIVENDRES ORGÁNICA PAPER/CARTRÓ





DISSABTE

DIUMENGE













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Residual waste	XX					XX					XX			
Paper and cardboard	Х		Х		Х	Х		Х		х	Х		Х	X
Ferrous metal		X	X		x		X	х		x		X	X	X
Aluminum		Х	Х		х		Х	х		х		Х	Х	Х
Glass				XX	х				XX	Х			XX	Х
Plastic		Х	Х		Х		Х	Х		Х		Х	X	Х
Bio-waste	XX		Х		Х	XX		Х		Х	XX		X	Х
Food														
Garden waste														
Textile	Х			XX	Х	Х			XX	Х	Х		XX	Х
Wood					XX					XX				XX
WEEE			Х	Х	Х			Х	Х	Х			Х	Х
Composite		Х	Х		Х		Х	Х		Х		Х	Х	Х
Pharmaceutical					XX					XX				XX

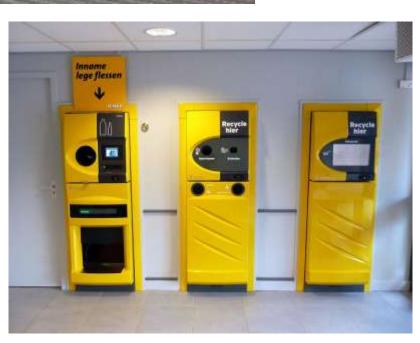
**Source**: European Environment Agency, 2023. <a href="https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to">https://www.eea.europa.eu/publications/many-eu-member-states/early-warning-assessment-related-to</a>

## NETHERLANDS 🚑









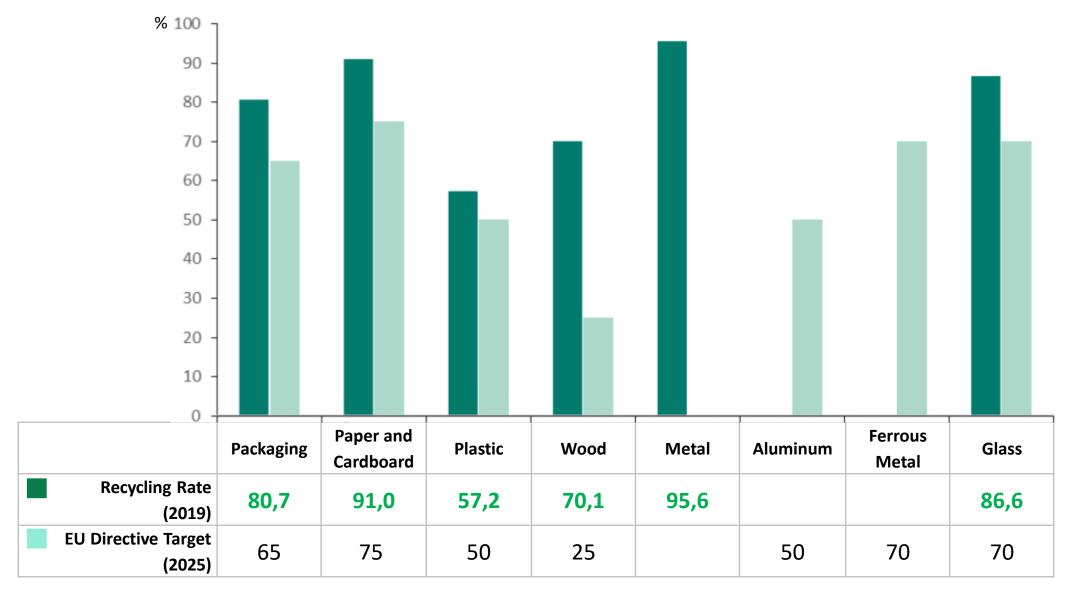


### Pay as You Throw (PAYT)

Tariffing system	Municipalities (%) (number of municipalities)	Households (%)	Average number of households per municipality
Volume	3.4 (12)	3.1	20 228
Volume and frequency	23.3 (82)	16.7	15 707
Expensive bag	10.2 (36)	8.4	18 108
Expensive bag and number of persons	2.3 (8)	1.2	11 232
Weight	0.9 (3)	0.5	12 648
Weight and frequency	3.2 (11)	2.7	18 210
Weight, frequency and number of persons	0.3 (1)	0.1	11 450
Volume, frequency and number of persons	6.8 (24)	4.5	14 517
Total PAYT	50.4 (177)	37.3	16 221
Number of persons	44.8 (158)	57.0	27 871
Fixed tariff	4.8 (17)	5.8	26 135

**Source**: European Environment Agency, 2023, <a href="https://www.eea.europa.eu/publications/economic-instruments-and-separate-collection/technical-note-accompanying-the-eea/view">https://www.eea.europa.eu/publications/economic-instruments-and-separate-collection/technical-note-accompanying-the-eea/view</a>

## NETHERLANDS 🚑



# The Current State of CASs in the EU

Commission Decision (EU) 2020/519 of 3 April 2020 on a sectoral reference document on best environmental management practices, sectoral environmental performance indicators and measures of excellence for the waste management sector under EMAS Regulation (EC) No 1221/2009

#### Environmental Performance Indicators for CASs

- Easy accessibility to CASs, e.g. without car
- Number of CASs per 100,000 inhabitants
- Number of different waste fractions collected at CASs
- Availability of product/material exchange areas at CASs aimed at promoting reuse
- o 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 in CASs.
- Product/material exchange areas aimed at promoting reuse in CASs
- Pay As You Throw (PAYT) covers waste delivered to CASs.
- Awareness campaigns are systematically implemented for different target groups (e.g. students, citizens, CAS users)
   and the annual budget is at least EUR 5 per capita.

## The Current State of CASs in the EU

- There are a total of **4367 CASs (fixed+mobile)** in **Italy** in 2022. This corresponds to approximately **7 CAS** per 100,000 inhabitants.¹
- In Croatia, there are a total of 417 CASs (fixed+mobile) in 2022. This corresponds to approximately 11 CAS per 100,000 inhabitants.²
- In **Denmark**, there were a total of **364 CASs** in 2019. This corresponds to approximately **6 CAS** per 100,000 inhabitants.³
- In Ireland, There are a total of 117 CASs in 2024. This corresponds to approximately 2 CAS per 100,000 inhabitants.4
- He ln the UK, There are a total of 855 CASs in 2022. This corresponds to approximately 1 CAS per 100,000 inhabitants.5
- In **Türkiye**, There are a total of **+3000 CASs** (**fixed+mobile**) in 2024. This corresponds to approximately **4 CAS** per 100,000 inhabitants⁶
  - 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

Reference 1: RAEE, 2019. https://www.raeeitalia.it/it/press.html

Reference 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

**Reference 3:** Danish Waste Association, 2019. https://stateofgreen.com/en/news/recycling-centres-rival-major-tourist-attractions-in-number-of-visitors/

Reference 4: REPAK, 2024. https://repak.ie/recycling/recycling-centres-bring-banks/

Reference 5: Anyjunk 2022. https://www.anyjunk.co.uk/blog/2022/03/06/map-of-uk-civic-amenity-sites/

Reference 6: MoUCC, 2024. Zero Waste Information System

Reference 7: EC, 2020. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020XC1106(01)

# STOCKHOLM, Sweden

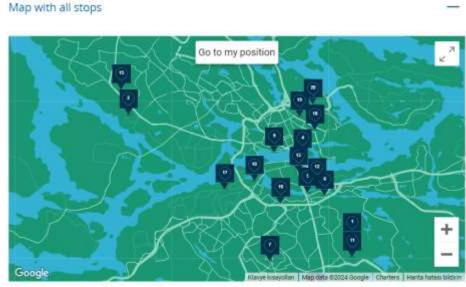
- Stockholm Water and Waste Management Company
- The company is responsible for drinking water supply, wastewater treatment and waste management in the municipalities of Stockholm and Huddinge.
- The company serves 1.5 million citizens every day.
- In addition to the collection of household waste, the company is responsible for 8 large CASs, 17 small CASs and 230 mobile CASs in the city.





### Tour list Pop-up recycling

Places where we stay



**Reference**: Stockholm Water and Waste Management Company, 2024.

https://www.stockholmvattenochavfall.se/har-lamnar-du-avfall/lamna-avfall-privatperson/har-lamnar-du-avfall/atervinninascentral/aterbruket-i-skarholmen/



#### CASs are of four different types;

- 1. CASs with **large open areas** and areas reserved for different waste types, which are also common in our country (Businesses can leave their wastes for a fee.)
- 2. Closed CASs in large indoor areas within the city, accessible only to citizens, with different application units such as repair centres, second-hand donations, social areas, etc.
- 3. Common mobile CASs (container and truck type)
- 4. Small type CASs that can only be opened automatically by citizens without personnel or with a key borrowed from petrol stations



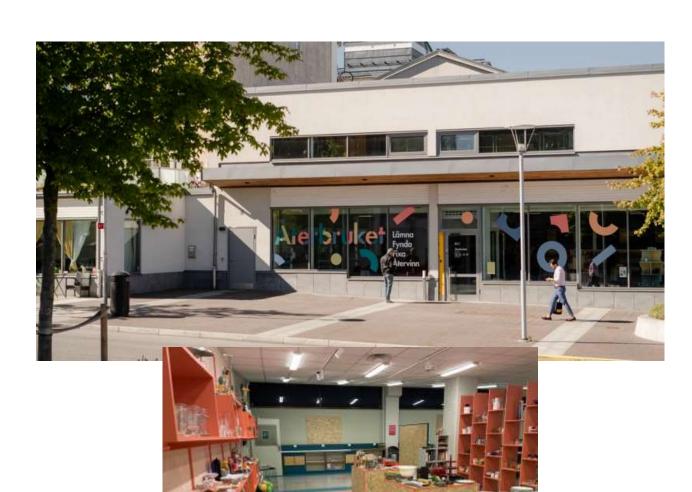


**Reference**: Stockholm Water and Waste Management Company, 2024. https://www.stockholmvattenochavfall.se/har-lamnar-du-avfall/lamna-avfall-privatperson/har-lamnar-du-avfall/atervinningscentral/aterbruket-i-skarholmen/



#### Large indoor CASs in urban areas

- Citizens can leave their waste without paying a fee without the need for an ID or card.
- Wastes/second-hand products brought to the centre are classified by the staff according to recycling or reuse status.
- There are "Opportunity corners" in the CASs and citizens who bring waste/products can get another product they need free of charge in return for the product they bring from this corner.



**Reference**: Stockholm Water and Waste Management Company, 2024. https://www.stockholmvattenochavfall.se/har-lamnar-du-avfall/lamna-avfall-privatperson/har-lamnar-du-avfall/atervinningscentral/aterbruket-i-skarholmen/



### **Repair Ateliers**



TRÄVERKSTAD

**Wood Atelier** 

**Textile Atelier** 

### Bicycle Atelier



**Reference**: Stockholm Water and Waste Management Company, 2024.

https://www.stockholmvattenochavfall.se/har-lamnardu-avfall/lamna-avfall-privatperson/har-lamnar-duavfall/atervinninascentral/aterbruket-i-skarholmen/



### **Opportunity Corners**





**Reference**: Stockholm Water and Waste Management Company, 2024.

https://www.stockholmvattenochavfall.se/har-lamnardu-avfall/lamna-avfall-privatperson/har-lamnar-duavfall/atervinningscentral/aterbruket-i-skarholmen/

# STOCKHOLM, Sweden

#### Wastes that can be dropped off in large closed CASs



#### Textiles and leather

e.g. household linens, clothes, shoes, bags. Whole, torn or worn, but not dirty or wet



#### Plain glass

e.g. glasses, mirrors, glass panes



#### **Sports equipment**

e.g. balls, skates, skis, ski equipment



#### **Household goods**

e.g. reusable cups, cutlery, plates



#### Small electronics

e.g. watches, electric toys, small household appliances and electrical appliances



#### **Porcelain**

e.g. pots, broken mugs and plates



#### **Bicycles**

All bicycles can be dropped off. Whole, broken or in pieces



#### TV/monitor

e.g. TV and computer screen



#### Wood - unpainted and painted

e.g. small wooden furniture that you can move yourself and wooden planks up to 120 cm in length



#### Cardboard/corrugat ed cardboard





#### Plastic, hard and soft

Plastic furniture and plastic items that you can carry vourself



#### Metals

e.g. laundry hangers, clothes hangers, frying pans, screws and nails



#### **Newspapers and recycled** papers

e.g. newspapers, magazines, flyers and recycled paper

items that do not belong to other groups that you can carry yourself (e.g. home decor, toys, CD/DVD, strollers, hand tools, household items, small furniture)

Reference: Stockholm Water and Waste Management Company, 2024. https://www.stockholmvattenochavfall.se/har-lamnar-du-avfall/lamna-avfallprivatperson/har-lamnar-du-avfall/atervinningscentral/aterbruket-i-skarholmen/

## STOCKHOLM, Sweden



#### Additional waste that can be dropped off in large open CASs



**Electrical and electronic** products and batteries e.g. white goods, small electronic devices, televisions and displays, cooker hoods, ovens, heaters, light bulbs and lamps, small batteries and car batteries



Hazardous waste e.g. fuel, fire extinguishers, paint, LPG, solvents, cleaning agents, spray cans, lighters



**Asbestos products** With certain sizing and packaging conditions



**Concrete and brick** With a maximum limit and under certain conditions



Soil and stone Maximum limit





**Gypsum** 



**Garden Wastes** e.g. fallen fruits, grass and leaves, plant parts, branches



**Waste Vegetable Oil** 



Metals

e.g. wheelbarrows, ladders, windows, screws and nails, frying pans, saucepans



Porcelain and insulation

e.g. tiles, washbasins, sanitary ware, bathtubs, washbasins.



**Upholstered furniture** 

Small upholstered furniture that you can carry yourself. Also tarpaulins and small carpets



**Packaging** 

Made of glass, metal, paper, plastic, newspaper and recycled paper.



**Tires** 

With or without rims. Maximum of 8 tires per visit



Wood - unpainted and painted

e.g. wooden furniture, impregnated wood, pallets

Reference: Stockholm Water and Waste Management Company, 2024. https://www.stockholmvattenochavfall.se/har-lamnar-du-avfall/lamna-avfallprivatperson/har-lamnar-du-avfall/atervinningscentral/aterbruket-i-skarholmen/

## GOTHENBURG, Sweden 🥀



#### **Alelyckan Recycling/Reuse Park**

- It has been developed as a pioneering facility
  where waste is repaired, processed and sold on-site
  for reuse.
- The park includes a processing and recycling plant and a second-hand shop, a workshop for the refurbishment of furniture and bicycles and a shop for used construction materials such as windows, cabinets, tiles and toilets and a café.
- The income from the second-hand shop is used to help people in need of support. The park is also used as a training ground for unemployed people to return to the labour market.
- In the construction of the buildings in the park, 80% construction and demolition waste was used.

- Year of construction 2007
- Total area 30.000 m²
- Total cost 4 million euros
- Total 10 employees + volunteers (green business)
- Daily 300-400 visitors
- Annual turnover 1.2 million euros



# GOTHENBURG, Sweden

#### **Allelyckan Recycling Park**









#### **Allelyckan Recycling Park**

- The park receives a total of 6,430 tonnes of material per year.
- The plant in Gothenburg, a city of around 500,000 inhabitants, has **the potential to prevent up to 500 tonnes of waste per year** by ensuring that products are reused instead of being thrown away.
- The reduction corresponds to the greenhouse gas emission (1,300 tonnes CO₂e) from 430 cars each travelling 1,500 km.
- If all five large CASs in Gothenburg were converted into a Recycling Park, around 2,200 tonnes of waste could be avoided every year. This corresponds to more than 5% of all waste dropped off at recycling centres in the city.

	Allelyckan Recycling Park (tonness/year)	Conventional CAS (tonnes/year)
Reuse	358	52
Material Recovery	84	135
Energy Recovery	48	235
Landfill	4	72
TOTAL	(donated) 494	494

**Reference**: One Planet Network 2020. https://www.oneplanetnetwork.org/knowledge-centre/projects/pioneering-recycling-park-alelyckan-prevents-almost-400-tonnes-waste-each

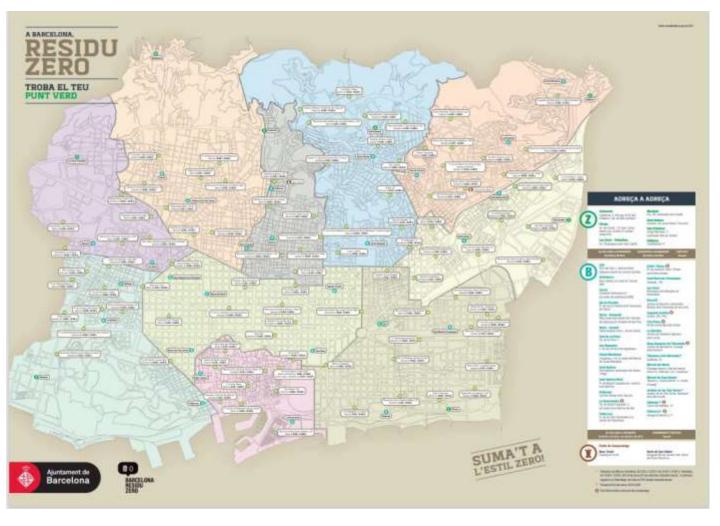
ACR+, 2012. https://www.acrplus.org/images/project/Pre-waste/Best_Practices/Pre_waste_30_SE_Alelyckan_reuse_park_17_07_20121.pdf

### 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.
  - 5 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





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



#### **Regional Type CAS**

- 15 Regional GreenSpots (ZGP)
- It is used by about 10 % of total users.

#### Waste that can be dropped off:

- Electrical and electronic devices
- Fluorescences and light bulbs
- Vehicle batteries and accumulators
- Cables
- Clothes and shoes
- Coffee capsules
- Large cardboard
- Ink and toner cartridges
- Cosmetic
- Vehicle filters

- Plant protection, herbicides and pesticides
- Wood and furniture
- Beds
- Metals: aluminum, stainless steel
- Edible oils
- Engine oils
- Paints, glues, varnishes, solvents
- Plastic: buckets, bottles
- Small car tires
- Styrofoams



- Aerosols and sprays
- X-ray films
- CDs and DVDs
- Videotapes and cassettes
- Pruning and garden waste
- Cleaning products
- Asbestos cement
- Construction waste
- Thermometers
- Plain glass, mirror, window

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



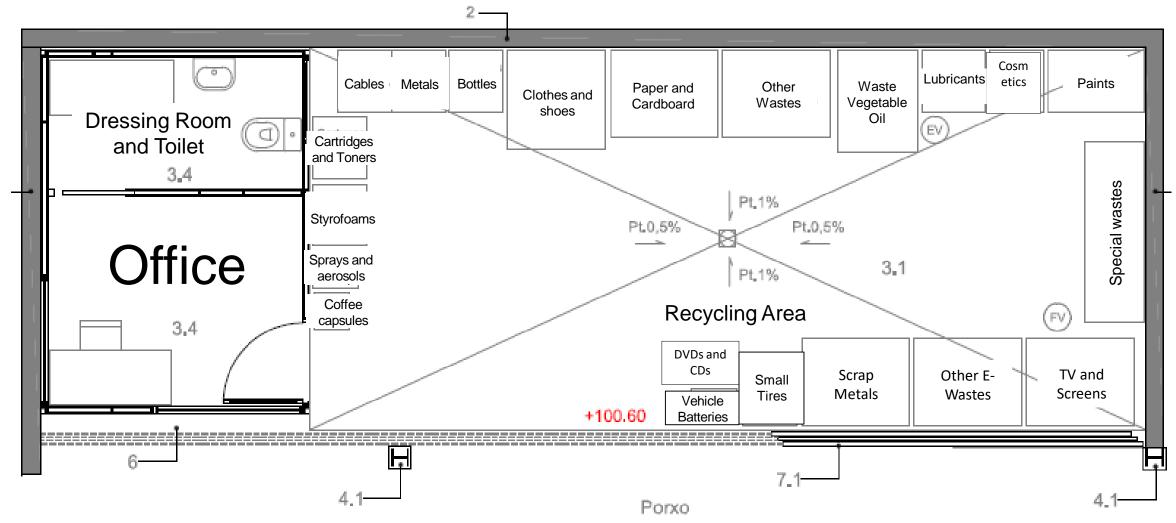
#### **Neighborhood Type CAS**

- 28 Neighborhood Green Spots (ZGP)
- It is used by about 65 % of total users.
- They are built as permanent structures. Implementation period (basic project, technical project approval, implementation project, tender and construction) is 18 months.
- Dimensions: 14.40 x 4.70 m
- Utilisable area: 57 m²
- The cost of implementation is about 350,000 euros (VAT included).



# BARCELONA, Spain

#### **Neighborhood Type CAS**



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

# BARCELONA, Spain

#### **Mobile Type CAS**

- Mobile Green Spot (MGP) with 9 vehicles and 100 stops
- It is used by about 25 % of total users.
- 1 School Green Spot (SMGP)
- It is used for educational purposes by making workshops in schools.





#### **Green Spot User Card (Pay As You Throw Application)**

- It is linked to the household's water supply contract and enables a reduction in waste management fees.
- As it is linked to the household, it can be used by everyone living in the same household.
- It can be requested from staff at Green Spots and is completely free of charge.
- Up to 14 % of the fees paid for the collection and treatment of municipal waste generated in households, which are included in water bills.
- This ranges from 1 % for two green dot uses per year to 14 % for 15 or more uses per year.

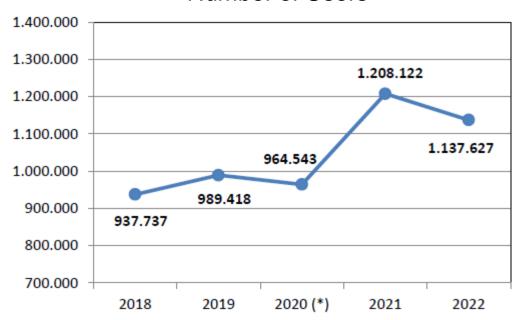




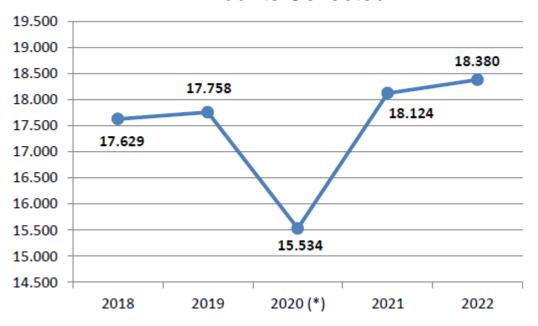


#### **Number of Users and Amounts Collected**

#### 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.



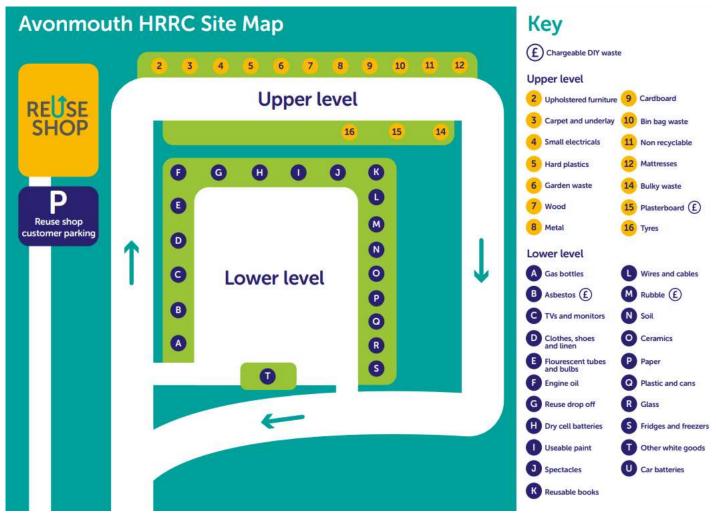
- Bristol Waste Company
- The company serves 0.5 million citizens every day.
- more than 800 employees
- 17 Million planned collections every year
- 160,000 tonnes of waste collection per year with 180 vehicles - 75,000 tonnes of which is composted or recycled
- The company is responsible for the city's street cleaning, waste collection and recycling services and 3 large CASs (Reuse and Recycling Centres).







#### **Accepted Wastes**

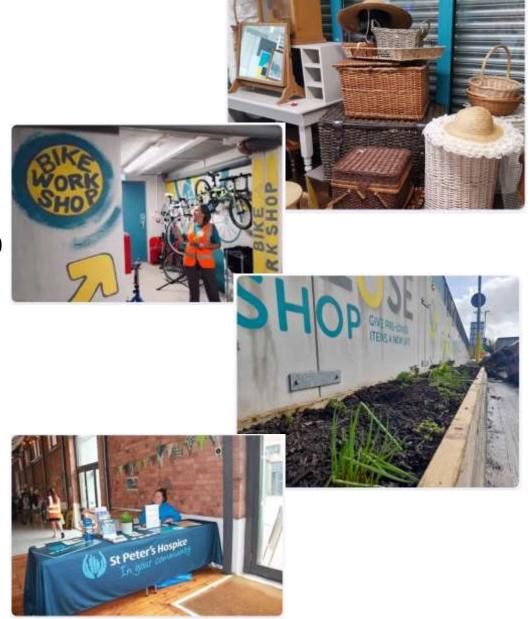


- Batteries
- Books, CDs and DVDs
- Cardboard and Paper, Newspapers and Magazines
- Electrical and Electronic Equipment
- Fluorescent lamps
- Glass Bottles and Jars
- Glasses
- Hazardous Household Waste
- Furnitures
- Lubricants
- Waste Vegetable Oils
- Paints
- Plastic Bottles
- Clothes, Shoes
- Sports equipment
- Bicycles and Scooters
- Garden Wastes
- Hard Plastics
- Metals
- Wood Waste
- Brick and Concrete Waste
- Roofing Materials
- Rubble and Soil
- Asbestos Waste
- All kinds of waste mixed with other DIY or construction waste



#### **Reuse Shops**

- All recycling centres have reuse drop-off points.
- Second-hand products can also be purchased from this shop where unused items can be dropped off.
- While the money raised in Reuse Stores is used to support operations, **a third of profits are donated to charity** (£41,000 so far).
- Some of the working computers are used in the Digital Inclusion Programme to help disadvantaged Bristol residents' access to employment and training.
- In 2023, **more than 50,000** unused items in 3 facilities were redirected for reuse through donations to stores and charities, enabling resources to be used for a longer period of time.





#### Sandton City Shopping Center CAS (Deposit Refund System Application)



#### Wastes accepted within the scope of DRS;

- Aluminum and Steel Cans
- PET, PP and HDPE Bottles
- Glass Bottles





#### Sandton City Shopping Center CAS (Awareness Raising Application)







## Thank You

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