



BEYOND PLASTIC MED,
Committed to a plastic-free
Mediterranean



Pilot project at La Badira Hammamet



Methodology

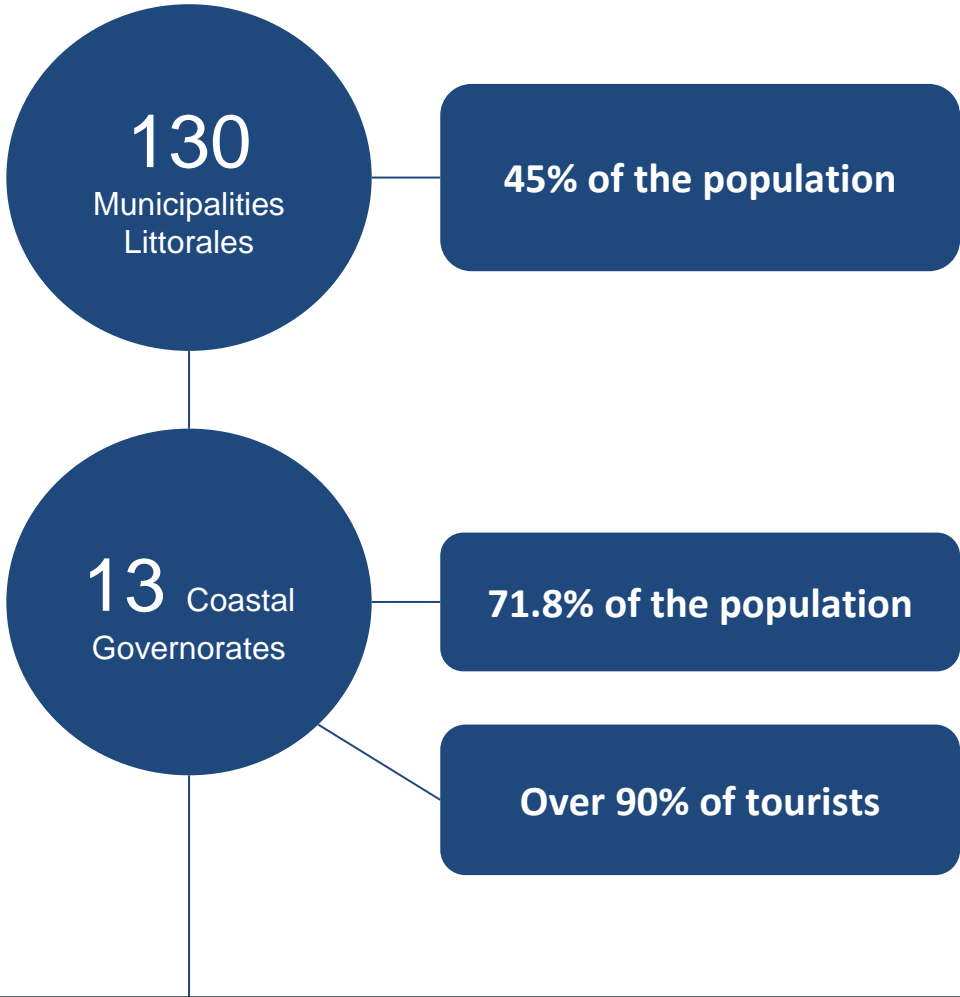
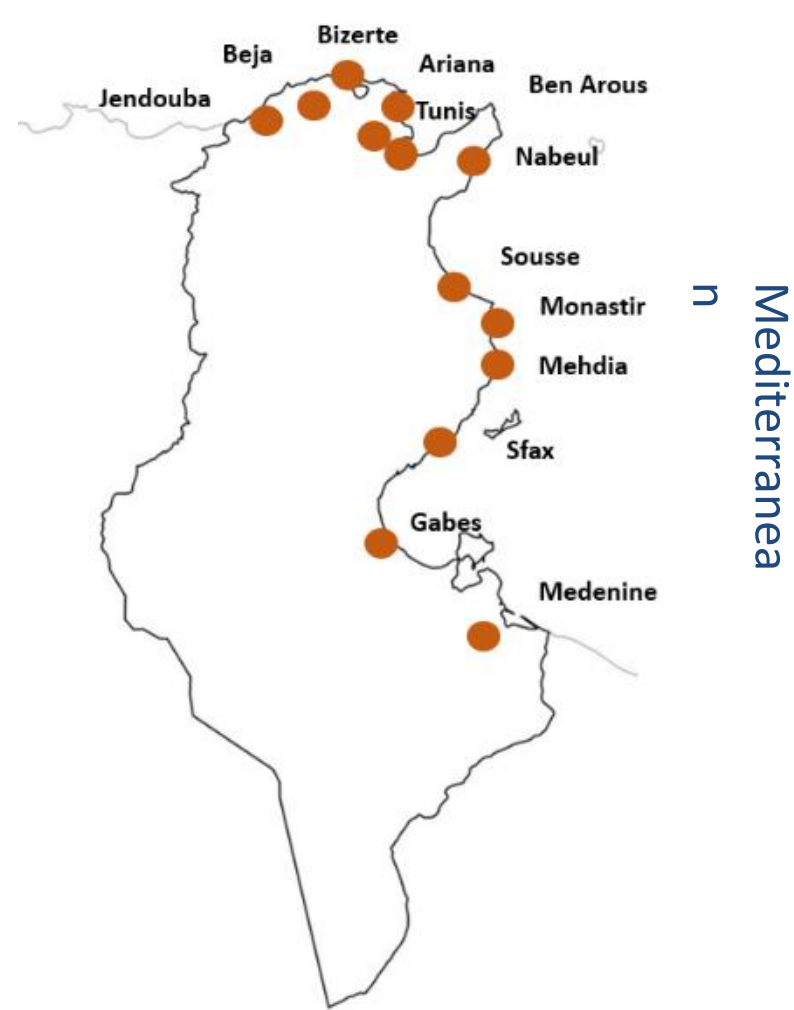
Data collection

- Reports
- Municipal waste management plan (PCGD) Hammamet
- Studies and waste characterisation campaign.

Interviews

- Municipality of Hammamet (Cleaning Department)
- Hotel la Badira

Tunisia: characteristics of coastal areas

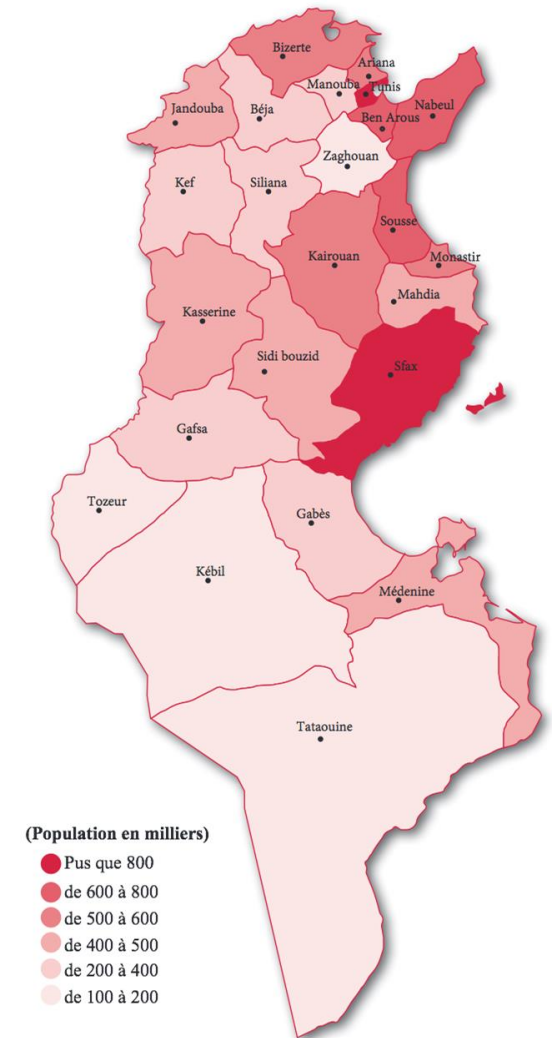


PART I

Waste management in Tunisia

Tunisia: characteristics of coastal areas

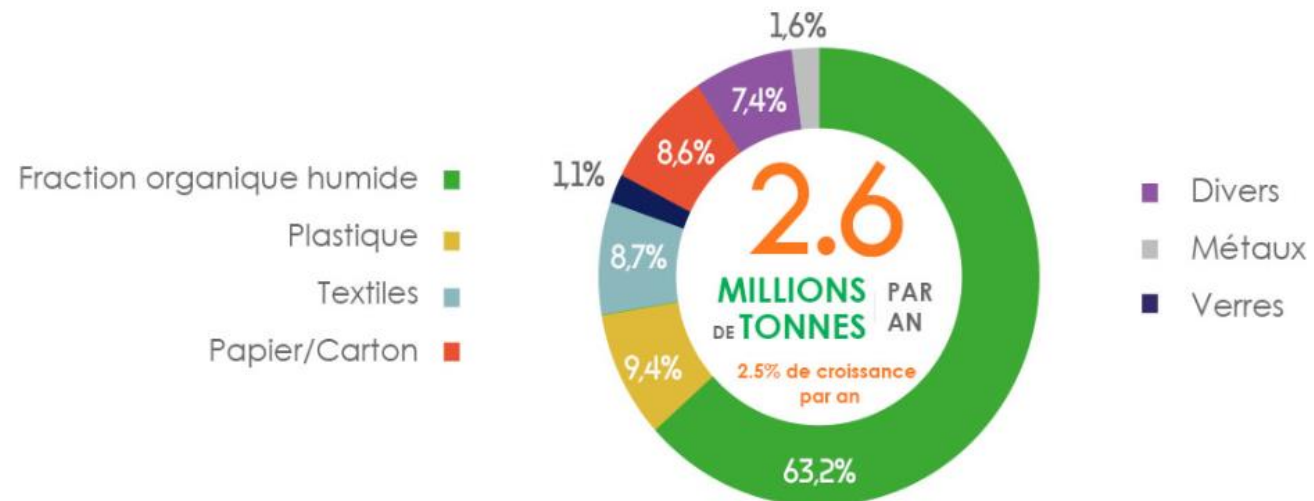
- Tunisia's coastal governorates (13 governorates) and municipalities in direct contact with the coast (130 municipalities) are the authorities responsible for waste management in their areas.
- The total length of Tunisian land in contact with sea level is 1,670 km (APAL).
- The demographic intensity of the coastal governorates is 71% of the national population. Coastal municipalities account for 45% of the national population.



populationdata.net

Composition of household waste in Tunisia

- The composition of waste in Tunisia is characterised by the dominance of the organic fraction (63.2%). (ANGed, 2021)
 - Update: 58% in 2024 (decrease).
- Plastic accounts for 9.4% of household waste (ANGed, 2021).
 - Update: 12.1% in 2024 (increase).
- The annual growth rate of waste generation is 2.5% (ANGed, 2021).
- The maximum distance is 50 km and the minimum is one kilometre between controlled landfills and Tunisia's coasts/beaches. (World Bank, 2021)
- Uncontrolled landfills are identified at distances of between 1 and 5 km (World Bank, 2021).



Plastic waste in Tunisia

(Source: World Bank)

- The annual quantity of poorly managed plastic waste has been estimated at 55.5 kt per year. (World Bank, 2021)
- 95% of the tourism sector is based in coastal areas.
- The Tunisian coast has an above-average daily flow of plastic, estimated at 9.5 kg of plastic per km of coastline every day. (World Bank, 2021)
- The annual coastal flow of plastic debris on beaches is estimated at 5.9 kt/year. (World Bank, 2021)
- Plastic waste represents the dominant fraction of waste on Tunisian beaches and coasts.
- The results of the World Bank's diagnosis show that Nabeul - Hammamet is a hotspot for plastic pollution (World Bank, 2021).



© Chaabane

Tunisia's waste management system

Municipal collection

Transfer centre

Landfill

**Circuit 1:
Landfill**

Informal collectors

Micro-businesses

ECO-LEF point
(ANGed)

Authorised or Export
recycling plants

**Circuit 2:
ECO-LEF public**

Micro-businesses

Recycling or export
plant

**Circuit 3:
Private sector**

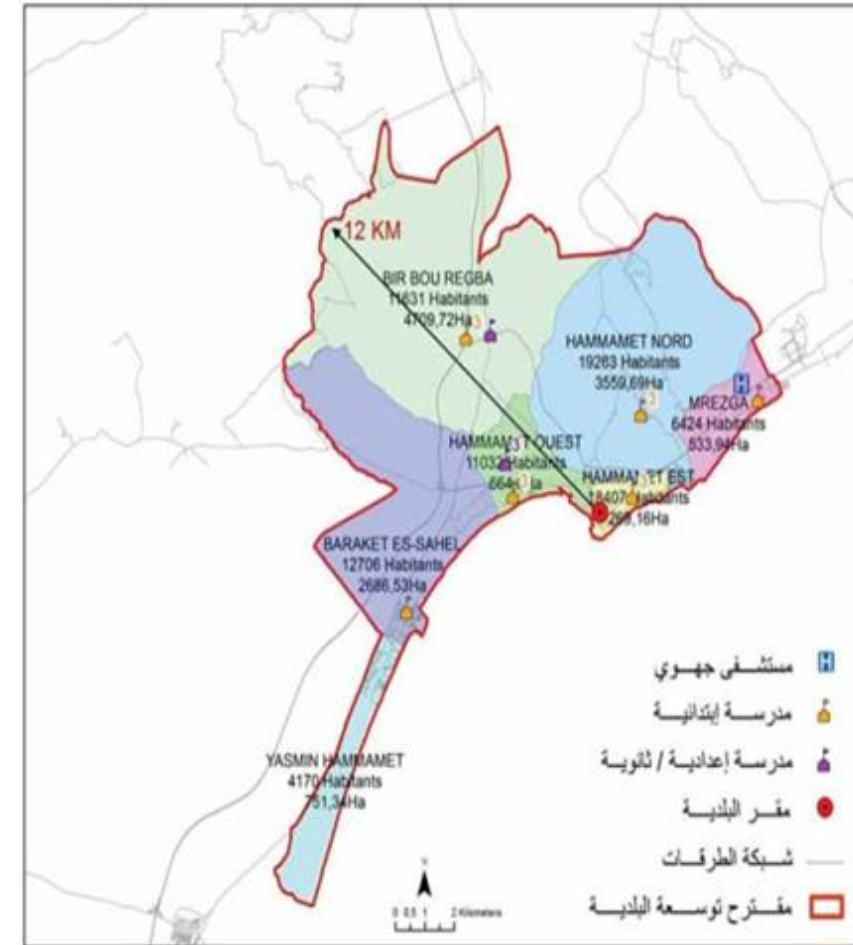
PART II

Waste management in Hammamet

The town of Hammamet : Features

Hammamet is a coastal town on the south-eastern shore of Cap Bon, on the edge of the Gulf, about halfway between Tunis (63km) and Sousse (84km).

- **Climate:** The bioclimatic stage is the lower semi-arid.
- **Relief:** The local relief comprises two small, low-lying coastal plains.
- **Population, households and housing :** The population in 2018 is estimated by the municipality at 83,700 Hab. Given that it is a tourist town, the number of inhabitants increases approximately 3-fold during the summer season.
- **Economic activities:** The municipality of Hammamet is a tourist town, with an abundance of hotel units (120 hotels) and no industrial zones. The municipality of Hammamet was created on 19 November 1942 and is a coastal area with 14km of beaches. Hammamet's main economic activity is tourism, with its residential complexes, hotels, thalassotherapy centres and restaurants.
- **Tourist areas** located mainly in Hammamet SUD.



Tourism in Hammamet

- Tourism indicators in the Nabeul-Hammamet tourist zone are set to rise by 78% in 2022 compared with 2021, taking the region to the top of the national rankings in this field (Source africanmanager.com).
- Tourism indicators in the Yasmine Hammamet tourist area, for example, have shown an increase of over 51% in the number of tourists, from the start of 2023 to 10 March, compared with the same period in 2022 (Regional Tourism Commission).

Accommodation capacity by tourist region	2019	2020
Bed capacity for the Nabeul - Hammamet tourist region	41206	41259
Bed capacity in the Yasmine Hammamet tourist region	19602	19402

Waste collection in the municipality of Hammamet

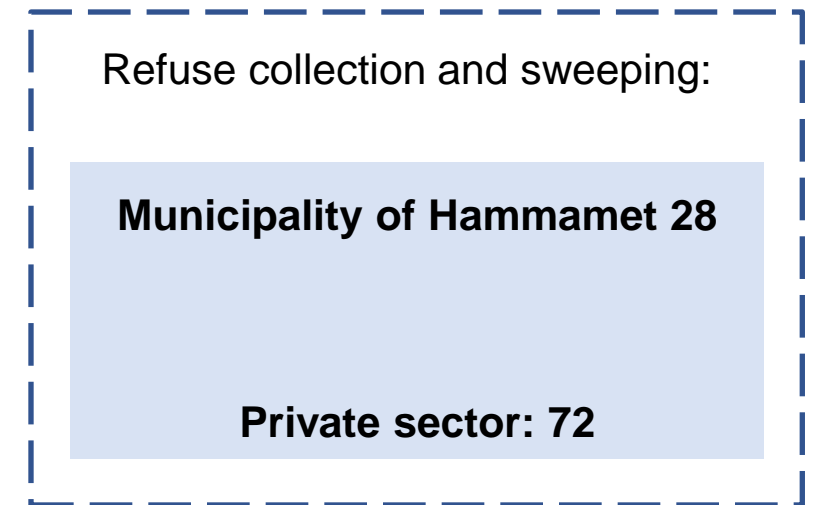
The municipality of Hammamet is divided into 4 household waste management zones:

Zone I: Hammamet Medina, where Hammamet Municipality is responsible for collecting and transporting domestic waste.

Zone II: District 2 (Manaret Hammamet) where the private company VALORIA is responsible for collecting and transporting domestic waste.

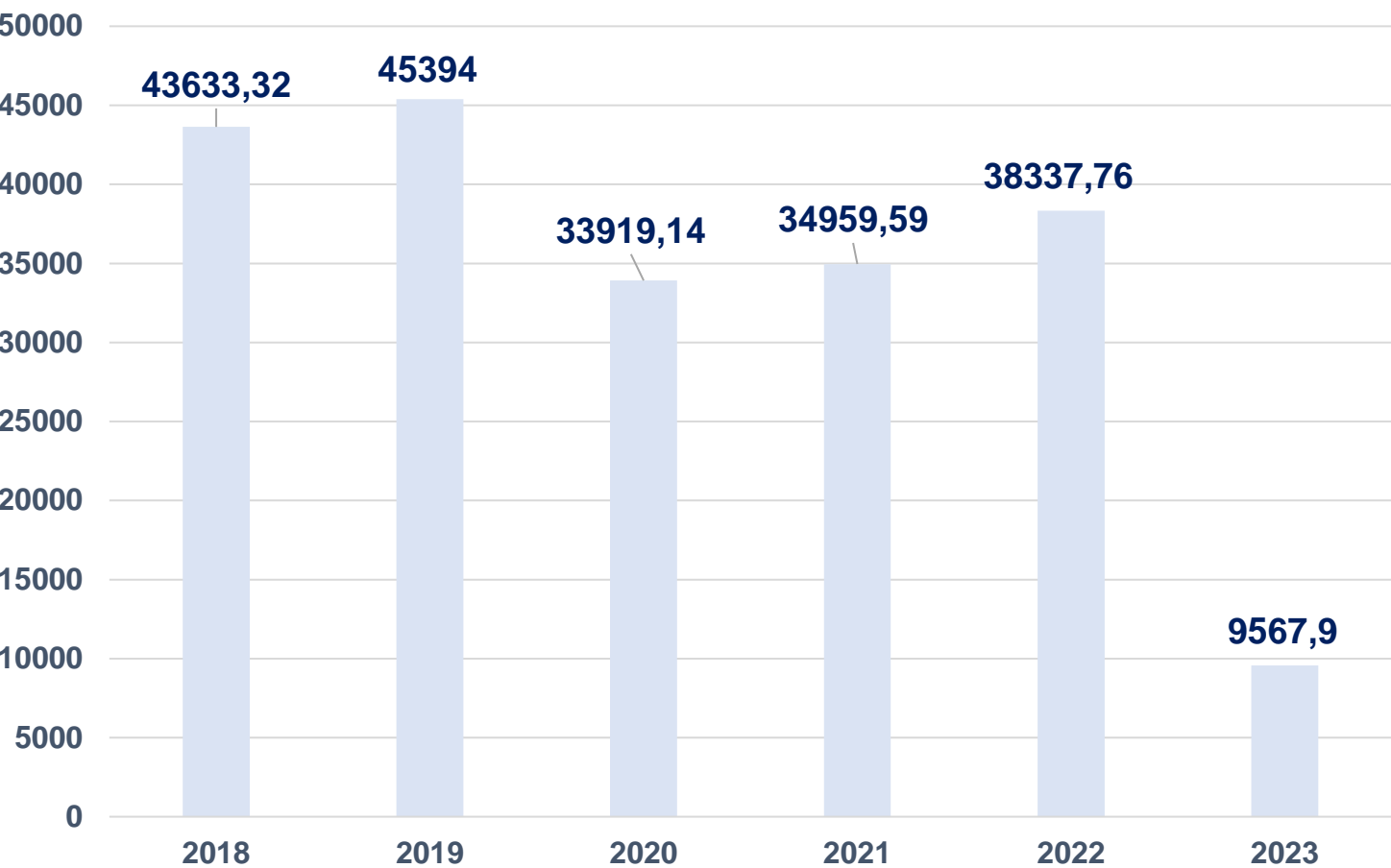
Zone III: Borough 1 (Bir Bouregba) where the private company SOPPTAS is responsible for collecting and transporting domestic waste.

Zone IV: Borough 3 (Mrezga) where the private company SOPPTAS is responsible for collecting and transporting domestic waste.



In addition to waste collection, two road sweeping companies, Société Said Jalel and Société Gdoura, are also active.

Quantities of waste generated in Hammamet (per year)

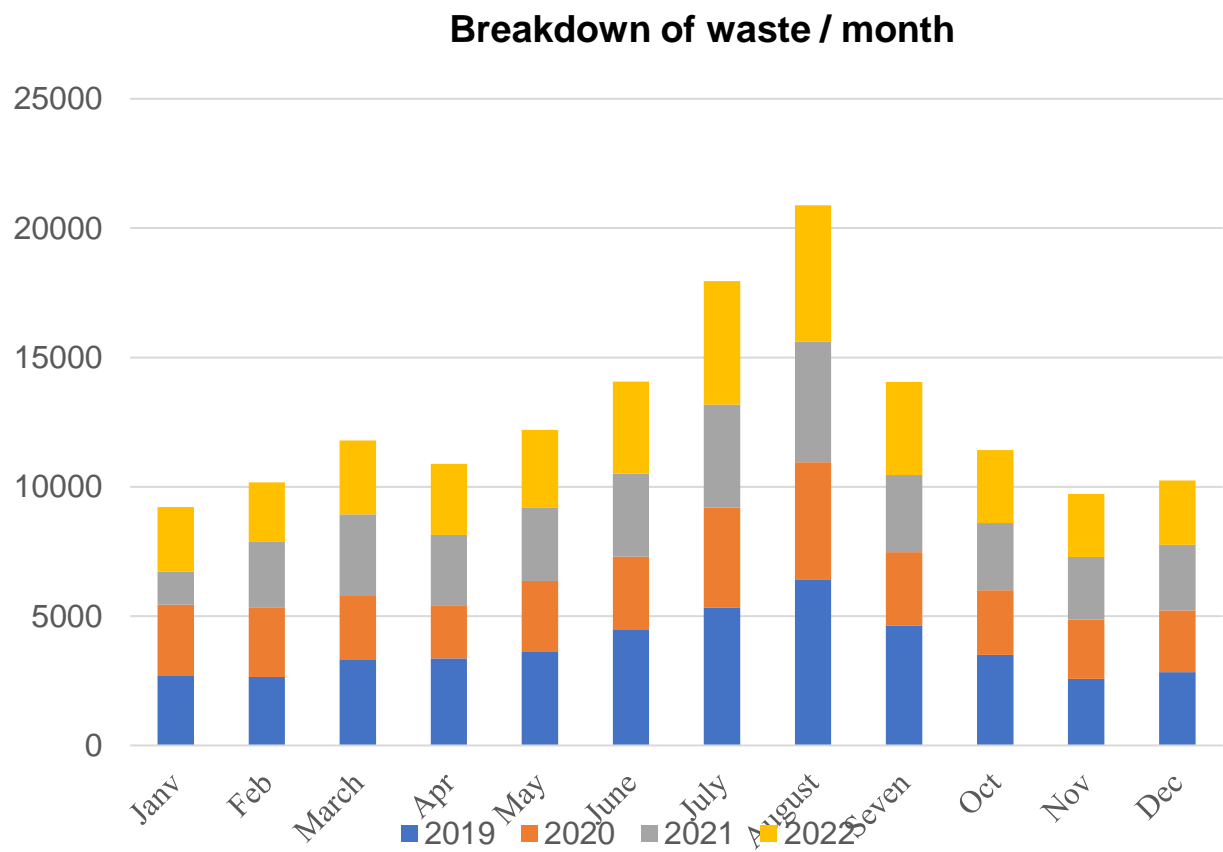


The figure shows changes in the quantity of waste generated and collected by the municipality of Hammamet from 2018 to 2022 (statistics for 2023 are incomplete).

The drop in quantities in 2020 and 2021 is due to the COVID19 period and the considerable drop in tourism activity in Hammamet.

In 2023, the municipality estimates a quantity close to or greater than that of 2019.

Variation in quantities of waste generated in Hammamet (per month)

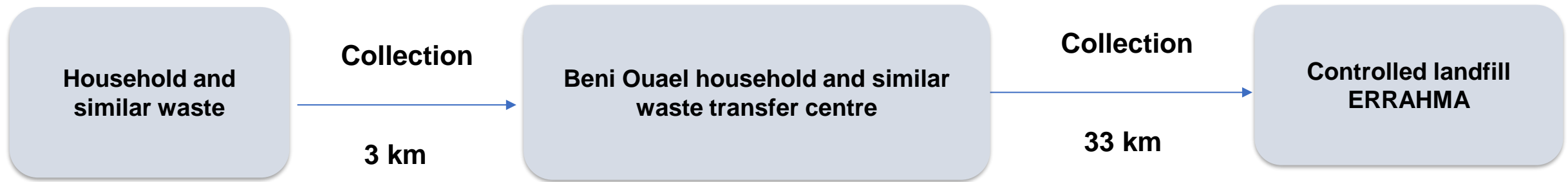


The increase in waste production is justified by the growth in the population, tourist activities and the expansion of the municipal perimeter, given that Hammamet is a tourist municipality.

This quantity varies throughout the year. It is highest in August and lowest in January (around 2.5 times).

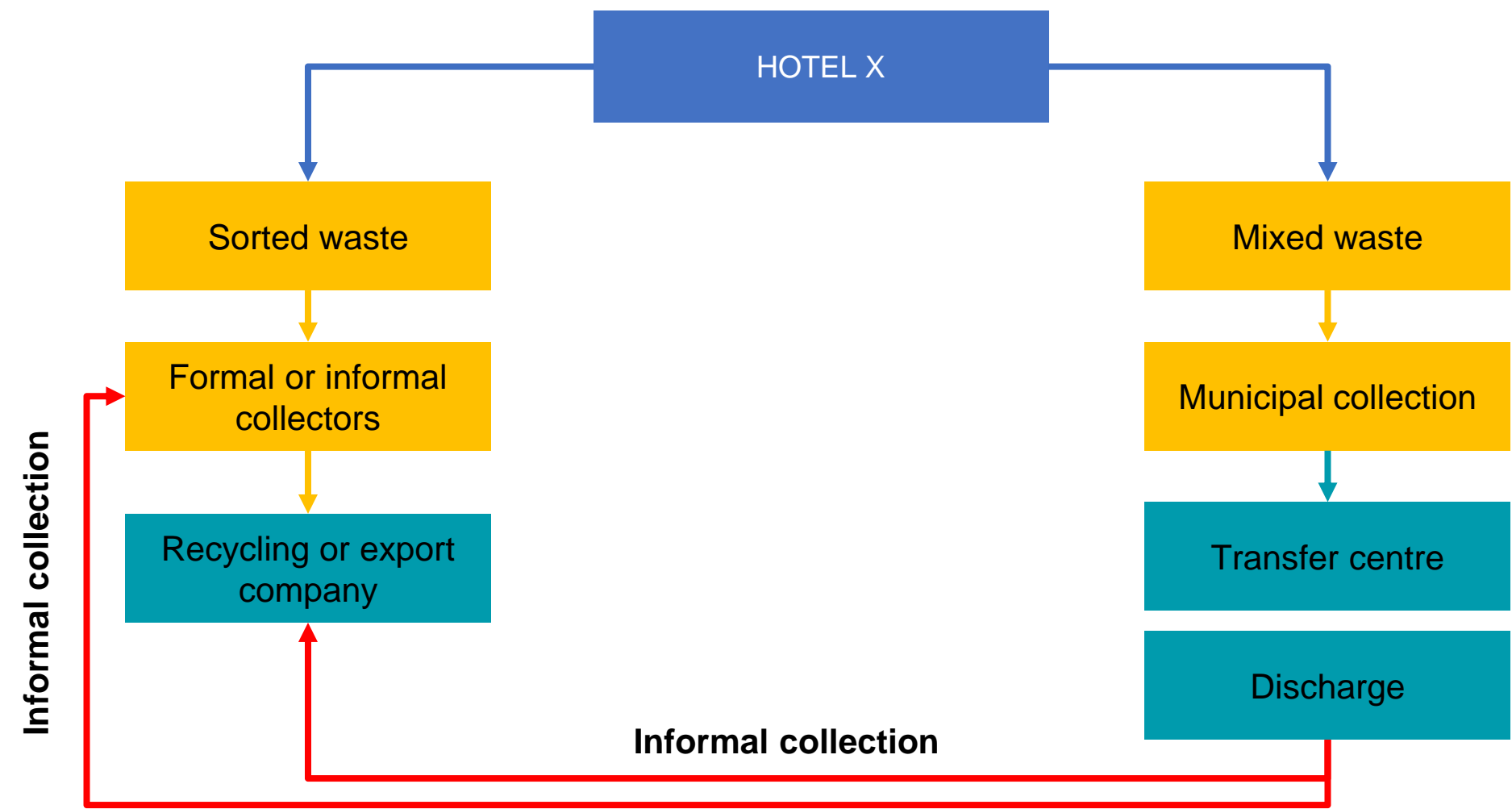
The specific production of waste in the municipality of Hammamet in 2018 is estimated at 1.43 kg/person/day (the number of inhabitants in 2018 is estimated at 83633) and the density of waste varies from **0.4 to 0.6 m3 /tonne**.

Mixed household waste circuit in Hammamet



- Today, the mixed household waste collected by the municipality is transported to the Béni Ouael waste transfer centre.
- The waste is then transported to the Errahma controlled landfill, some 33 km from Hammamet, for treatment by burial.
- The landfill is currently experiencing a number of social problems and is in danger of closing (like several other landfills in Tunisia). To date, there is no alternative. The government is working to find a solution.
- Transport and treatment are expensive for the municipality and ANGED. Prevention and reduction (through sorting and recycling) could reduce costs.

Waste management in Hammamet: Material flow of hotel waste



Waste management in Hammamet: Material flow of hotel waste

- There are currently two types of waste disposal at hotel level:
 - **Mixed waste:** generated in all cases, even if sorted at hotel level. This generally includes non-recyclable waste, organic waste, etc.
 - **Sorted waste:** in a special area of the hotel.

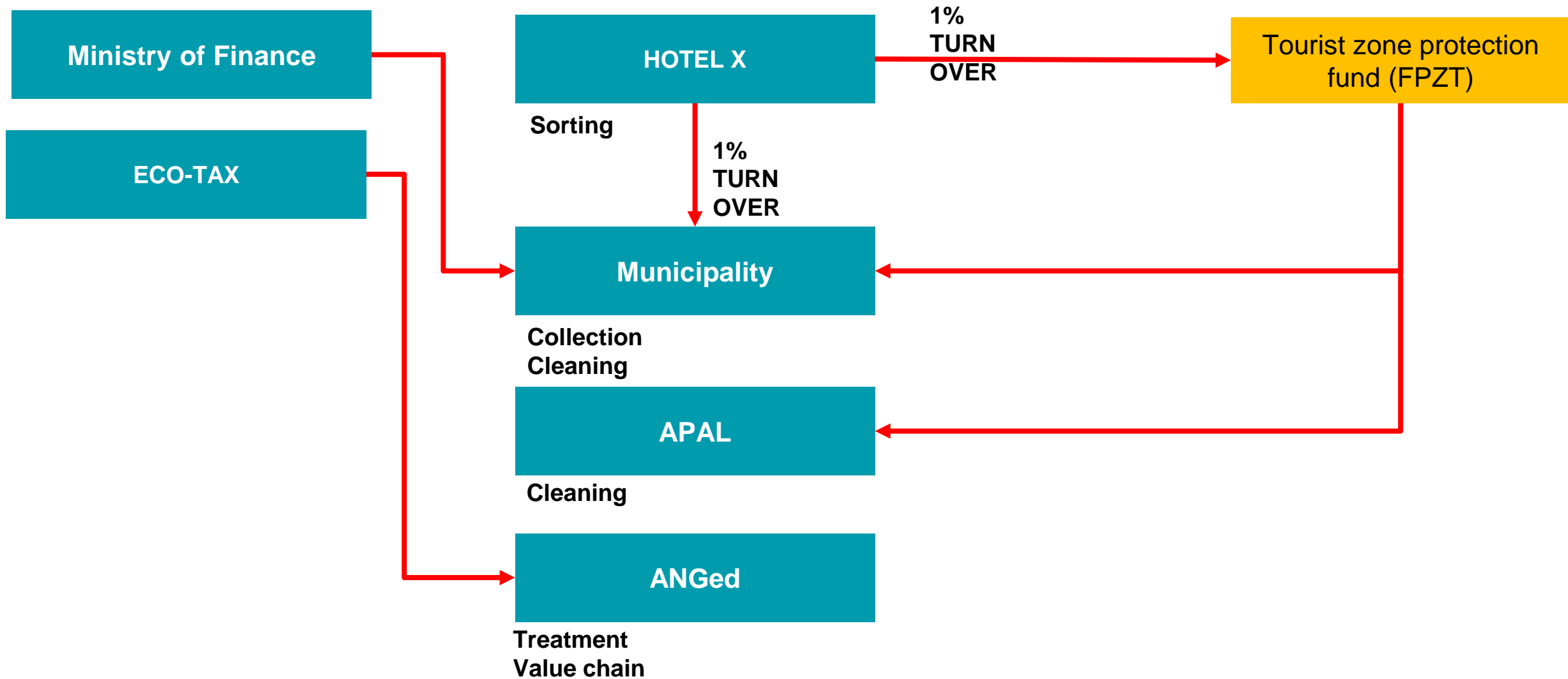
Mixed waste: Collected by the municipality from the hotel with a frequency of one or two passes per day. The waste is transferred to the transfer centre and then to landfill.

Sorted waste: generally collected by formal waste collectors after coordination with hotel managers for :

- Sale to an intermediary
- Sale at the ECO-Lef centre (ANGed)
- Local recycling
- Export

This will depend on the existing infrastructure and the network of collectors.

Financial flow of waste management in Hammamet (1/2)



Financial flow of waste management in Hammamet (1/2)

- Hotels pay 2% of their turnover: 1% to the fund for the protection of tourist areas, and 1% to the tourist municipality.
- Municipalities fund the collection and transportation of mixed waste to the transfer centre.
- ANGEd is financially responsible for transport to the controlled landfill and treatment.
- The municipality is financed by the State, and by the depollution fund (FODEP). The tourist municipality is supported by the Tourist Zone Protection Fund (FPZT).
- The FPZT also funds APAL's beach cleaning activities.
- FODEP finances 80% of treatment costs (landfill) through ANGEd. 20% is financed by municipalities (very low recovery rate).
- The FODEP finances packaging waste management schemes (ECO-Lef). Another part of the sector's budget comes from contributions from certain producers (on a voluntary basis).

Characterisation of hotel waste in Hammamet

Waste	%
Organic waste	55%
Plastic	14%
Paper / cardboard	17%
Textiles	1%
Glass	2%
Tinplate and tinplate compounds	2%
Aluminium and Aluminium Compounds	2%
Others (fine waste, etc.)	8%

(Chaabane, 2020)

Stretch film < DIN A 4 : **1.5%**.

Stretch films > DIN A 4: 1% (in %)

Plastic bags and carrier bags: **2%**.

PET beverage bottles: **7.8**

Other bottles (excluding PET beverage bottles): **0.6%**.

Other plastic packaging (excluding film and bags/bottles): **0.6%**.

Other plastics: **0.5%**.

- Characterisation of hotel waste in Hammamet indicates that 55% of the waste is organic in nature, giving the area's waste a high moisture content.
- Plastic accounts for a significant proportion (17% of waste generated).

Characterisation of household waste in Hammamet

Waste	%
Organic waste	67%
Plastic	10%
Paper / cardboard	6%
Textiles	2%
Glass	1%
Tinplate and tinplate compounds	1%
Aluminium and Aluminium Compounds	1%
Others (fine waste, etc.)	12%

(Chaabane, 2020)

Stretch film < DIN A 4: **0.5%**.

Stretch films > DIN A 4: **0%**.

Plastic bags and carrier bags: **4%**.

PET beverage bottles: **3%**.

Other bottles (excluding PET beverage bottles): **1%**.

Other plastic packaging (excluding film and bags/bottles): **0.5%**.

Other plastics: **1%**.

- The organic fraction at household level is higher.
- The plastic fraction is 10%, lower than at hotel level.