

DEEA

Department of Environment and Economic Activities

Selective collection of bio-waste in Setúbal

Projects financed by EU funds

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GOALS:

- Selective collection;
- Recycling and recovery of the organic part of urban waste with reduced deposition in landfill;
- Reducing of the general costs associated with sorting and landfill;
- Guarantee the fulfillment of the goals established in the *Waste Framework Directive* and the *Strategic Plan for Urban Solid Waste 2020*.

These objectives contribute to the commitment of the municipality of Setúbal with the purpose of **protecting the environment** and **promoting resource efficiency**, based on the operationalization of strategies for the waste sector and in **accordance with the principles inherent to the circular economy**.

1. Selective collection door-to-door of bio-waste project

1 st action: Organic waste collection door-to-door in the residential sector;

2 nd action: Organic waste collection door-to-door in catering services and others (restaurants, canteens, hotels, markets, cemeteries, etc.);

3 rd action: Collection of green urban solid waste;

4 th action: Communication and awareness.

The four actions will contribute to the increased quantity and quality of multimaterial recycling as well as the increase in the organic recovery of urban waste.

- Organic waste collected selectively by the municipality of Setúbal will be sent for biological treatment at the Setúbal Composting Plant or the Seixal Organic Recovery Plant, both explored by AMARSUL, a waste management regional company.



Figure 1: Seixal organic recovery plant

- Total amount of organic waste estimated: **10.155 ton / year**
- Estimated investment: **≈1.300.000,00€**
- Time: **24 months**

1.1. 1st action summary:

- Intervention area: **Areas where single-family housing predominates** (Azeitão, Sado and Pontes-Gâmbia-Alto da Guerra parishes);
- Target population: **24.237 inhabitants** (20% of the population of Setúbal);
- Number of households covered: 9.562 U;
- Population density: 2,5 inhabitants / accommodation;
- Capitation of solid urban waste in Setúbal: 1,14 kg / day;
- Organic fraction of Municipal Solid Waste (2017): 40%;

1.1. 1st action summary (cont.):

- Amount of organic waste estimated (residential sector): **4.034 ton / year**;
- Acquisition of equipment: **Containers** (22.000 containers of **10L** and **40L**) integrated in a monitoring system for the collected containers, through the integration of an identification chip and **4 waste collection vehicles** (16 m³) including chip-reading hardware and software (**innovative technologies**);
- 24 collection circuits, that collect twice a week; collection of 360 to 450 containers in each circuit;
- Hiring of 16 drivers and 20 operators.

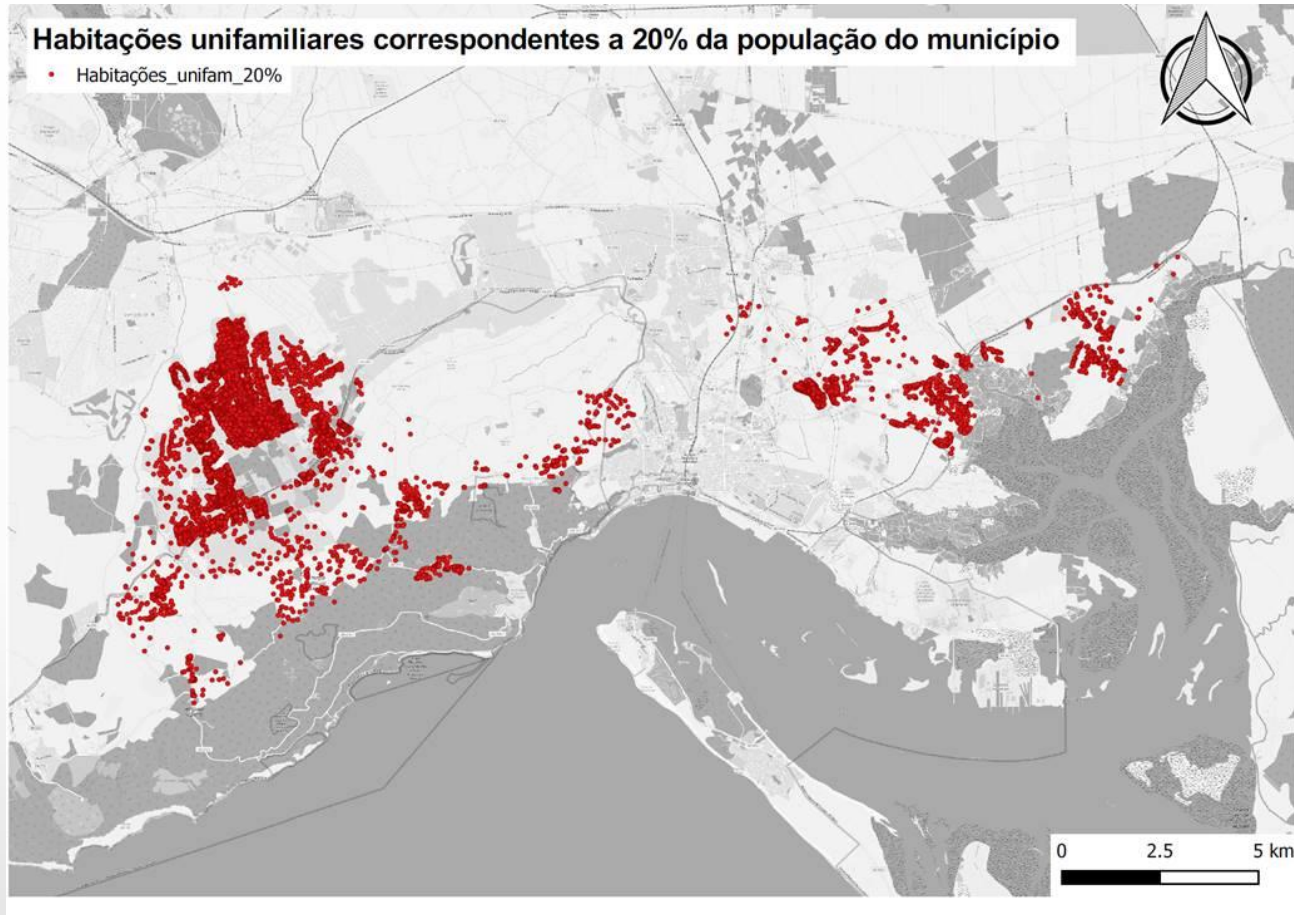


Figure 2: Accommodations included in the door-to-door collection project of bio-waste



Figure 3: Area of single family homes in Azeitão

1.2. 2nd action summary:

- Selective collection of organic waste in establishments (catering services and others) within the urban network and that use the disposal system available to all residents;
- 710 collection points (**300 containers of 800L** and **600 containers of 240L**, equipped with collection system monitoring chip);
- The collection of these containers will be included in the defined door-to-door circuits (1st action) or in a circuit created specifically for these producers.

1.2. 2nd action summary (cont.):

- Number of bio-waste producers (catering and similar): 473 U;
- Minimum capitation of bio-waste: 10 kg / day;
- Number of other bio-waste producers (municipal markets, cemeteries, canteens and cafeterias of educational establishments, daycare centers, among others): 237 U;
- Minimum capitation of bio-waste: 30 kg / day.
- Amount of organic waste estimated (commercial sector and others):
4.321 ton / year;
- Hiring of 3 drivers and 6 operators.

1.3. 3rd action summary:

- Collection of urban green waste to be carried out to 2 municipal waste reception centers for recovery (Azeitão and Setúbal);
- **4 polibenne containers** (25 m³ capacity);
- Amount of urban green waste estimated: **1.800 ton./year** (value that results from the history of the last 3 years in relation to the delivery of green waste by the municipality in the AMARSUL Ecoparks.

1.4. 4th action summary:

Plan for the general public

- Design of the awareness campaign and graphic development to media;
- Conducting an information campaign on the city's outdoors network;
- Massive campaign to relaunch the theme of selective collection. Use of outdoor structures for a campaign with an impact throughout the county;
- Advertising to awareness in the local press and radio;
- Advertising on the Setúbal City Council's website;
- Advertising on the social networks of the Municipality of Setúbal;
- Publication of news about the project (before , during the execution and at the end of the project).

1.4. 4th action summary (cont.):

Specific plan for segment of residents targeted by the project

- Pamphlets to publicize in meetings to the future users of the system;
- Creation of pamphlets for passive distribution in all mailboxes to publicize the project and raise awareness of the selective collection of biodegradable waste;
- Production of an awareness brochure, indicating the procedures to be adopted during the implementation of the project and the subsequent phase;
- Direct contacts with the population (door-to-door), and group meetings, to raise awareness and explain the procedures to be adopted.

2. Collective collection of proximity of bio-waste Project

1 st action: Selective collective collection of bio-waste in residential areas;

2 nd action: Selective collection of green urban solid waste;

3 th action: Communication and awareness.

- Total amount of organic waste estimated: ≈ **3.500 ton / year**
- Estimated investment: ≈ **818.500,00€**
- Time: **24 months**

2.1. 1st action summary:

- Intervention area: **5 neighborhoods of Setúbal with a predominance of buildings** (Afonso Costa, Monte Belo Norte, Monte Belo Sul), Nova Azeda and Vale de Cobro);
- Target population: **11.168 inhabitants** (9,2% of the population of Setúbal);
- Number of households covered: 4.346 U;
- Population density: 2,5 inhabitants / accommodation;
- Capitation of solid urban waste in Setúbal: 1,14 kg / day;
- Organic fraction of Municipal Solid Waste (2018): 43%;

2.1. 1st action summary (cont.):

- Amount of organic waste estimated (residential sector): **≈ 2.000 ton / year;**
- Acquisition of equipment: **4.346 containers of 20L, 61 semi-ground containers with limited access system, 3000L,** integrated in a monitoring system for the collected containers, through the integration of an identification chip, and **1 waste collection vehicle (16 m³)** that include chip-reading hardware and software (**innovative technologies**);
- 2 collection circuits, collect twice a week on each circuit; collection of 30-31 containers in each circuit.

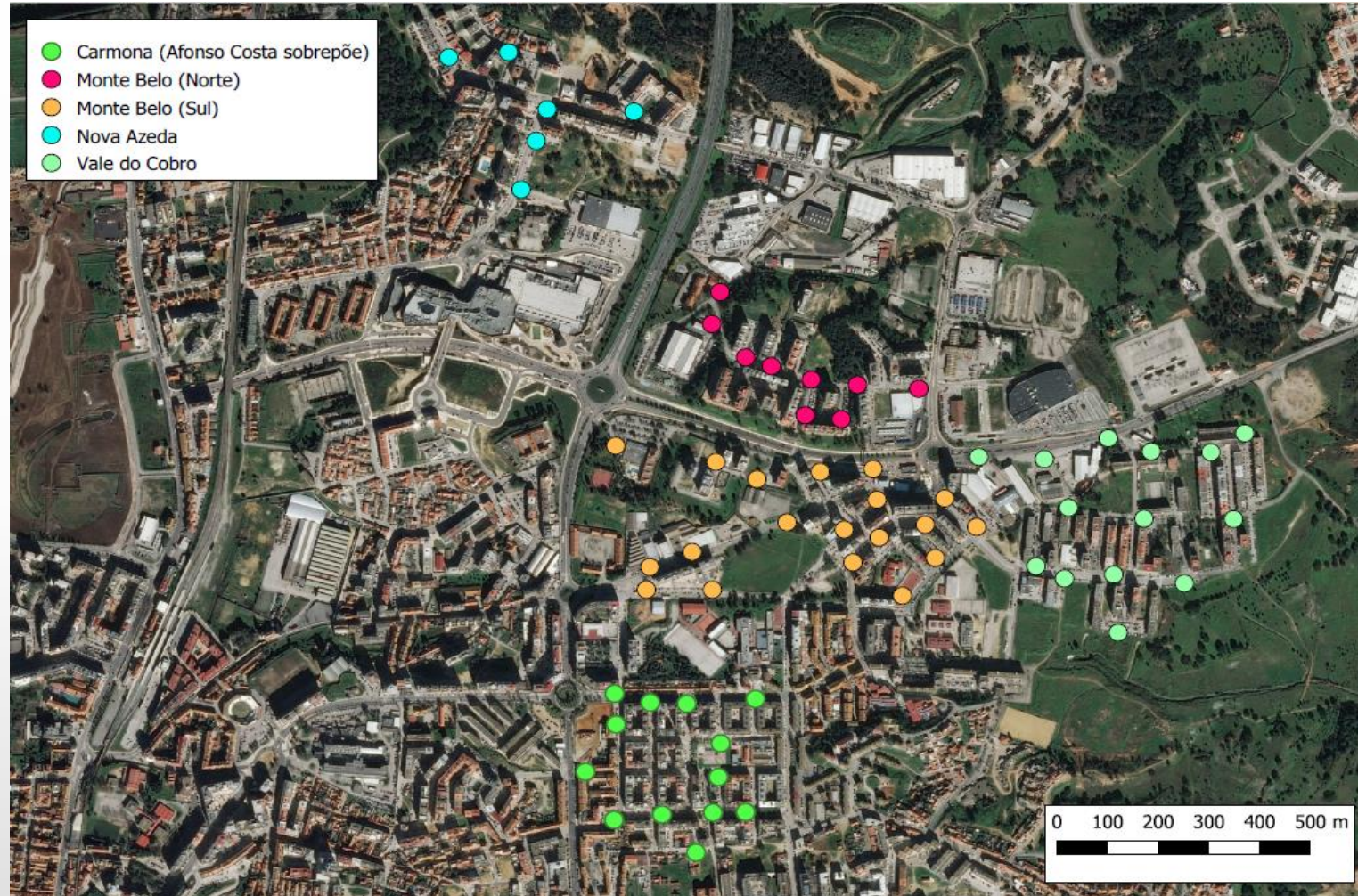


Figure 4: Undifferentiated waste collection points to be covered by the collective collection project



Figure 5: Containers to be used in the collective collection of bio-waste.

2.2. 2nd action summary:

- Collection of green waste resulting from cleaning activities and treatment of green spaces in the municipality. These activities may be carried out by municipal services in areas of municipal responsibility, or by residents, in their gardens/backyards, which will have a municipal green collection service, upon request;
- Amount of organic waste estimated: **1.500 ton / year**;
- Acquisition of equipment: **2 open box light vehicles** (3.500 kg);
- Hiring of 2 drivers and 3 operators (the same human resources as the 1st action, on different days).

2.4. 4th action summary:

(Identical to that for selective door-to-door collection)

The regional sistem:

https://youtu.be/Lnfob_qcyZY

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Thank you for your attention.