



**URBAN
WASTE**
URBAN STRATEGIES FOR
WASTE MANAGEMENT
IN TOURIST CITIES



Selective collection of biowaste from hotels and restaurants

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Selective collection of biowaste from hotels and restaurants

What is the measure about?

Description and scope of the measure

This measure introduces the selective collection of biowaste (i.e. food waste plus green waste, if any) from hotels and restaurants through door-to-door collection or bring banks systems.

Nowadays, there is an increasing number of cities that include separate waste collection systems as a strategy to increase the recycling rate of the different waste fractions as well as to improve the quality of separation. The selective collection can be carried out by the municipality or through private waste collectors and the service is offered not only to households and residential areas but also to commercial businesses such as restaurants. Waste fractions subject to be separately collected include paper, plastic, glass and biowaste, among others.

The selective collection of biowaste in cities has a great number of benefits (e.g. saving of landfill space, avoidance of greenhouse gas emissions, etc.) and it facilitates the separated treatment for production of high-quality compost or biogas.

In door-to-door collection systems, the restaurant should separate biowaste at source and place it in a specific bin outside the front/back door in order to facilitate the collection by the authorised collection service provider, according to the frequency (daily, weekly) and schedule (time of collection) arranged. Instead of door-to-door systems, biowaste could also be transported to containers located in specific collection points or areas from which it will be picked-up by the authorised waste manager. This is the so-called bring bank system.

Integration in a waste management plan

The selective collection of biowaste can be integrated in the sustainable development plan, waste management plan or waste recycling strategy/policy of any municipality or city council. If the restaurant or hotel is located within an area with commercial waste collection service already in place, it would be possible to register and request biowaste collection as with the rest of businesses.

How to implement this measure?

Economic aspects to consider and potential solutions for the financing of the measure

Costs

- Costs related to the purchase of specific containers/bins for biowaste.
- Bio-waste collection is normally financed via municipal waste fees (tariffs are determined in the municipal waste removal ordinances).
- Although biowaste collection costs differ greatly from country to country, the following indicators developed by the IPCC for the EU can be taken as reference¹:
 - Biowaste collection: 10-400€/ton
 - Composting separated biowaste: 35€/ton for open-windrow operations and 50€/ton for in-vessel processes

Possible costs savings

- The selective collection and treatment of biowaste from hotels and restaurants reduces costs in the sense that this fraction will not be treated together with the mixed fraction, avoiding incineration or landfilling costs. In average, the general costs of incineration and landfilling of residual waste in EU are²:
 - Incineration of residual waste: 64€/ton
 - Landfilling residual waste: 56€/ton

Revenues

- With the selective collection of biowaste hotels and restaurants can produce compost, which could be labeled and sold to interested actors, like farmers, after a quality control process has taken place. In average, the selling market price in Europe for agricultural purposes is 6.1 €/ton³.

Financing options

- Within URBANWASTE pilots could look for authorized organizations that can collect, transport and manage the biowaste and that use those to make compost or biogas. These companies usually provide their service for free, so there won't be any additional costs for the hotel/restaurant involved.

¹ Source : IPCC (https://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch10s10-4-7.html)

² Source : IPCC (https://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch10s10-4-7.html)

³ J. Barth, F. Amlinger, E. Favoino, S. Siebert, B. Kehres, R. Gottschall, M. Bieker, A. Löbig and W. Bidlingmaier (2008). *Compost Production and Use in the EU. Report for the European Commission DG/JRC*

Type of stakeholders to involve

For the effective introduction and successful implementation of the proposed measure the following stakeholders should be involved:

- Municipal government
- Waste management department of local authorities
- Waste management company/local authority in charge of municipal waste collection
- Hotels and restaurant managers and kitchen staff
- Waste management & treatment companies (composting and biogas plants)
- Supplier of containers and bins for separate disposal and collection of biowaste

Description of the operational steps to follow

In case the service of selective collection of biowaste is not provided, the following steps could be followed:

At municipal level

- A selective collection service should be in place with the support of the local government. This service could be provided either by the municipality or by private authorised waste collectors.
- Knowledge exchange with other municipalities experienced in the implementation of separate collection of biowaste is highly advised.
- Provide the restaurants/hotels with a map that registers all the areas served by a door-to-door selective biowaste collection service (with specific schedules) and the biowaste bring banks in order to help them accessing the system.
- Regulative support to promote and encourage bio-waste generators to separate organic waste and comply with the requirements of the collection service (e.g. schedule for collection, correct separation of waste at source, etc.) should be established (for instance, by reducing waste collection fees).
 - In regions where biowaste selective collection is not compulsory for large generators (and is not at their charge), the municipality could influence it by charging an additional fee to those generators not implementing a biowaste selective collection.
- Municipalities could provide free biowaste collection bins to restaurants (as it often happens with households).

At hotel and restaurant level⁴

- Definition of responsibilities
 - Appointing of a responsible person (coordinator) to coordinate the implementation and assessment of the measure (at management level).
 - Training and appointing of a responsible person supervising the correct separation of biowaste at source and the disposal in the right bin (at kitchen level). Additionally, a “green team” including other staff members could support this task.
 - Every member of the kitchen staff must participate and be involved in the separation and disposal of biowaste.
 - Keeping periodic meetings between coordinator and all staff/person in charge of separating/disposing bio-waste.
 - The restaurant must be responsible and ensure that all organic waste is properly separated in the respective container.
- Place the bins for separated biowaste close to where food waste is generated (e.g. kitchen, bar area, etc.) and make sure they are clearly labelled.
- The restaurant should include a dedicated area where larger bins/containers with biowaste can be stored and accessible for collection by an authorised waste manager.
- Awareness activities and training of kitchen staff. Stimulate and motivate workers and staff in the preparation and implementation of the measure (e.g. correct separation of food waste). Train and inform them of what can be included in the bin.
- Communication of results
 - It can be interesting to finally publish or release the results obtained after implementing the measure to motivate workers and encourage other restaurants to join selective collection of biowaste.

Gender aspects to consider

Attention has to be paid regarding gender balance during the mobilization of stakeholders.

Who will write or contribute to the ‘good practice manual’ if such a document is produced.

In hotels and restaurants, who will do the additional work required, and will this increase the work load? Attention needs to be paid to whether this will lead to gender imbalance in workload, and how this will be managed. Especially, who separates and takes to ‘bring sites’? It is also important to bear in mind the gendering of the trainer/trainee relationship, and whether expertise can be found amongst the people already doing waste management tasks (e.g. food preparation).

⁴ *Guía de hoteles más sostenibles (2010). Ajuntament de Barcelona – Agenda 21 – Publicacions – Guías de Educación Ambiental*
(http://w110.bcn.cat/MediAmbient/Continguts/Continguts_Transversals/Educacio_Ambiental/Documents/Fitxers/Guia_Hotels_Sostenibles_CAT.pdf)

Examples of good practices

- In Lisbon (Portugal), the municipality started in 2005 to selectively collect kitchen waste from restaurants, canteens and hotels via door-to-door collection schemes (biowaste collection has not been provided to households yet). Afterwards, the biowaste is sent to an anaerobic digestion plant managed by Valorsul. The quantity of annual collected biowaste has been steadily increasing from approx. 7,000 tons (in 2005) until more than 23,000 tons (in 2015).⁵
- A similar measure, although carried out in hotels, is the “Iniciativa del Gremio de Hoteles de Barcelona”, which was an agreement signed by the municipality of Barcelona together with an association of more than 300 hotels with the common goal of increasing the sustainability levels in Barcelona. In this agreement, the municipality offered to hotels discounts in public tariffs and waste generation taxes, and promoted waste reduction (including biowaste) and separate collection campaigns while informing hotel managers about waste collection systems. This agreement acts as a framework to support involved hotels in complying with legislation regarding biowaste management and collection.⁶
- Also in the region of Catalonia (Spain) a pilot project on separate collection of biowaste and biological treatment started in 1996 and is still going on. Bio-waste from households but also from commercial producers as markets, restaurants and caterers are collected via road containers or door-to-door schemes. Consequently, the separate collection of biowaste is currently available for 95% of the population in Catalonia and the municipalities are distributing aerated bins in combination with compostable bags to decrease odors and insects. The treatment for bio-waste consists in composting and anaerobic digestion combined with composting processes.⁷
- The European project “SCOW” on the selective collection of organic waste for recycling in tourist areas developed, from 2013 to 2015, different low cost, technically simple and high-quality bio-waste collection and recycling models in territories with touristic areas and agricultural activity in Mediterranean zones. The goal of SCOW was to define and built up an innovative and sustainable bio-waste management system through effective collection and waste treatment into decentralised small-scale composting plants, situated near the bio-waste production areas and, at the same time, where the compost could be applied. The project contributed to the following outputs: a database of Good Practices,

⁵ Câmara Municipal de Lisboa (<http://www.cm-lisboa.pt/en/living-in/urban-cleaning/waste-disposal/>); Lisbon: Door-to-door selective collection (Regions For Recycling) (http://www.regions4recycling.eu/upload/public/Good-Practices/GP_Lisbon_door2door-collection.pdf)

⁶ Guía de hoteles más sostenibles (2010). Ajuntament de Barcelona – Agenda 21 – Publicaciones – Guías de Educación Ambiental (http://w110.bcn.cat/MediAmbient/Continguts/Continguts_Transversals/Educacio_Ambiental/Documents/Fitxers/Guia_Hotels_Sostenibles_CAT.pdf)

⁷ Catalonia: Biological Treatment and Separate Collection of Biowaste (Regions For Recycling) (http://www.regions4recycling.eu/upload/public/Good-Practices/GP_ARC_Biowaste-collection.pdf)

a technical study of the key elements and management options, guidelines defining the SCOW management model and monitoring protocols, a handbook on small-scale composting facilities management and a database with the result indicators of the implemented management models.⁸

- In the city of Copenhagen, most tourist establishments (e.g. restaurants, hotels, etc.) have made arrangement with private waste collectors, though some are serviced by the municipal waste collection. In general, all companies have a responsibility to sort their waste properly and make sure that it is treated environmentally appropriate. Biowaste is among the categories of waste to be separated and collected.⁹

⁸ SCOW EU Project (<http://www.biowaste-scow.eu/>)

⁹ D2.7 – *Compendium of waste management practices in pilot cities and best practices in touristic cities*. Urban strategies for Waste Management in Tourist Cities.

Guidance for setting up monitoring indicators

Two groups of indicators are to be set:

1. The first group aims at monitoring involved stakeholders:

- Restaurants involved **[number]**
- Total number of restaurants in the pilot area **[number]**

These two data will enable to compute the following indicator:

- Percentage of restaurants or hotels involved: $\text{Restaurants involved} / \text{Total number of restaurants in the pilot area}$ **[%]** (the pilot area can be the whole city or a part of it: down town, old town, port area...)
- Mapping of restaurants that implement the measure **[Name and address]**
- Employees trained on biowaste collection **[%]**

- Bins for biowaste collection distributed **[number]**
- Frequency of biowaste collection with door-to-door system **[day/week]**

2. The second group aims at monitoring biowaste production in involved restaurants and the performance of the measure:

- Quantity of biowaste collected **[kg]** or **[number of bins]**: the number of bins or bags can be chosen as a unit of measurement if it is not possible to weight biowaste collected, the average weight of a fulfilled bin will have to be estimated beforehand for further calculation
- Number of customers **[number]**

These last two data will enable to compute the following indicator:

- Quantity of biowaste collected per capita: $\text{Quantity of biowaste collected} / \text{Number of customers}$ **[kg / customer]**

Time frame

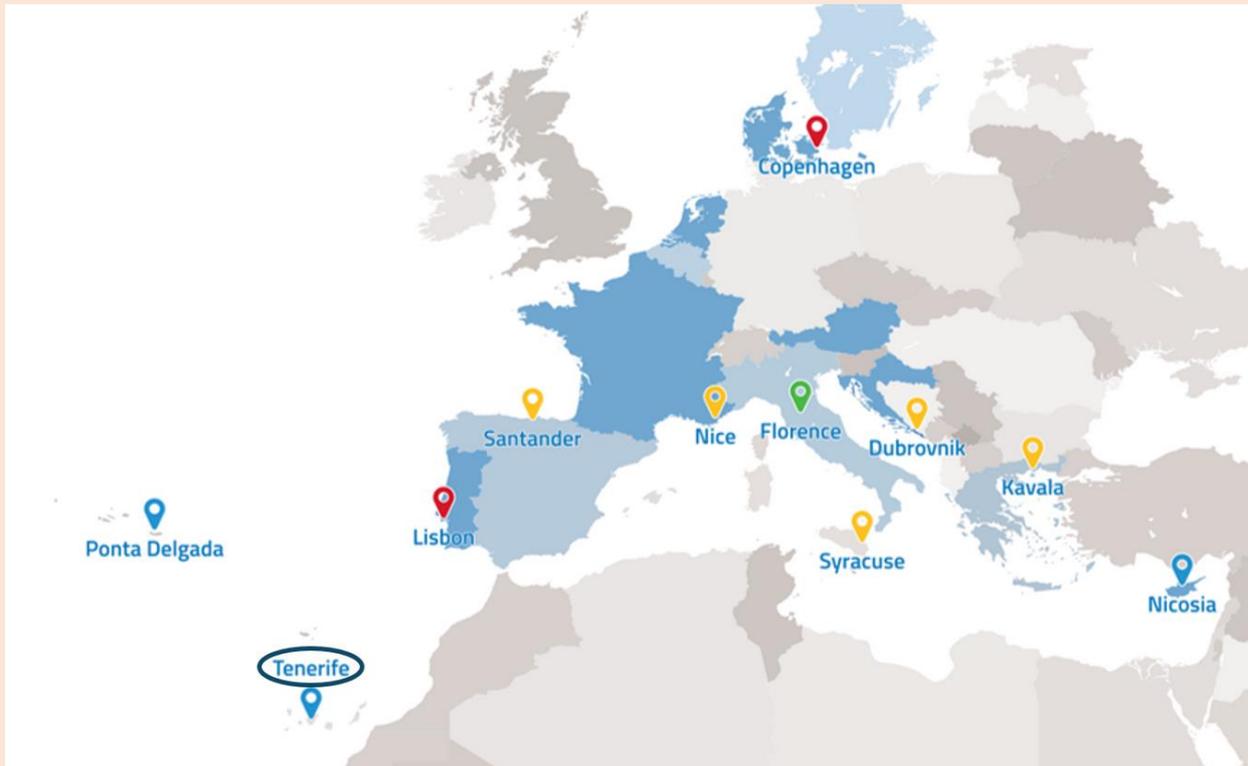
It is recommended to start the monitoring at least one week before the starting phase to assess the effect of the measure on waste production.

Quantity of waste produced and number of customers can be registered **continuously** (every day every week) or **randomly** (one day per week or every day one week per month).

Gender considerations:

- Who makes ultimate decisions in establishment? **[male-female]**
- Who separates the biowaste? **[%female]**
- Approximate gender distribution of extra work involved? **[% female]**
- Who manages the training? **[male-female]**

Lessons learnt from the implementation phase and fine tuning



Pilot implementing selective collection of biowaste from hotels and restaurants within URBAN-WASTE

In **Tenerife**, 6 hotels implemented the measure. More than 25% of staff was trained to sort correctly waste.

4,167 kg of organic waste were collected in 5 months and sent to the organic matter treatment plant.

A communication campaign was done in the hotels and reached about 5,400 tourists.

Key points

- **Putting effort in the training and the motivation of the team is crucial for the success of the measure implementation.**
- **Favour synergies and experience exchanges between hotels which simultaneously participate in measure to improve selective collection but also reduce buffet and kitchen waste.**