



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



Food tracking device

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 690452-2





Food tracking device

What is the measure about?

Description and scope of the measure

More than 40% of the waste generated at tourist establishments such as bars, restaurants and hotels with buffet serving meals is considered as food waste. This issue requires special attention as it immensely contributes to the total municipal solid waste generation in many tourist cities in Europe.

A first step in a systematic reduction of food waste is to quantify the problem in order to generate knowledge on how much is wasted, when is it wasted and what is wasted. Waste reducing measures can then be designed and prioritised based on where the problems are largest. Quantitative data can then be used to follow up on specific measures simply by comparing how much was wasted before and after the implementation. The use of the food waste tracker is therefore recommended to be used in combination with other actions to reduce food waste.

The food waste tracker can also be used as a direct measure to reduce food waste either by increasing awareness when the quantity of wasted food is visualised, or when the data is used to reduce over production. Since overproduction is a common problem in professional kitchens, statistics of food waste (especially serving losses or buffet waste) can be used to forecast the purchases and production of food so that the margins can be trimmed. When less food is produced in vain less waste are generated.

Integration in a waste management plan

The proposed measures can be easily adopted and included in the waste management plan of the restaurant or hotel. Every Environmental Management Systems, such as ISO 14001 or EMAS, which entities can be certified against include waste management plans and strategies where food waste prevention measures can be integrated. Since this measure focus on quantification the food waste tracker also produces necessary key figures to be used to document the development.

How to implement this measure?

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

Costs

- Costs of developing and installing the food track device in restaurants and buffets.
- Cost of maintaining the software of the device.

Cost savings

- It is estimated that the value of a kg of food waste costs the restaurant's owner about 2€. Therefore, if you are disposing of a ton of food waste a year, you are throwing away 2,000€ of potential profits. If you decrease your food waste by 25% you not only decrease your waste costs, but you could also potentially save up to 500€ on food and energy related costs¹.

Financing options

- Within the URBAN-WASTE project, the food track device and training is provided free of charge to interested restaurants and hotels within the pilot cases.

Type of stakeholders to involve

For the effective introduction, implementation and continuous operation of the proposed measure a number of key stakeholders should be involved. These include (*whenever applicable*):

- Kitchen staff (that uses the device to quantify waste)
- Kitchen managers (that uses the statistics to improve production planning)
- Hotel or restaurant managers (that uses key figures for benchmarking and systematic improvements)

Other possible stakeholders to involve:

- Waste management department of local authorities
- Waste management company/local authority in charge of municipal waste collection
- Hoteliers associations

¹ *Calling time on waste. A publican's handbook to a leaner, greener cost base.*

(<http://www.tipperarycoco.ie/sites/default/files/Publications/Calling%20Time%20on%20Waste.pdf>)

Description of the operational steps to follow

The food waste tracker helps the restaurant to simplify the procedure of quantifying food waste, this is done in the following steps:

1. The device is delivered to the kitchen.
2. The kitchen manager and/or members of staff are introduced to the food waste tracker by SLU, how to use it and how to interpret the collected data to facilitate a process of waste reduction. During the introduction the kitchen can receive help in setting up the device and adjust individual settings.
3. The kitchen staff/managers use the food waste tracker to quantify food waste and incorporate follow up meetings or similar in their day to day routines in order to use the generated statistics to facilitate a continuous improvement with focus on food waste reduction.
4. In order to keep the device performing as expected the kitchen staff can call technical support to get help during the project.
5. The performance of each kitchen is followed by the project since the recorded statistics are collected in a cloud service accessible for research purposes.

Gender aspects to consider

The first challenge concerning the implementation of this measure is to get staff engaged, therefore men and women need to be engaged equally.

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.

Example of good practices

- In spring of 2014, the Sustainable Restaurant Association (SRA) in the UK started running the scheme “Food Save” to help hoteliers and restaurants reduce their food waste. At the Bingham Hotel (London), waste from preparation, spoilage and leftovers from the plates were separated and weighed for over a month in order to identify the sources of food waste. The “Food Save” team visited the hotel every week to review the results and identify actions for waste reduction (in collaboration with the kitchen staff). Once the trial was completed, the General Manager reported that the first challenge was to get staff on board, as changing habits and getting people to implement new activities can be complicated. But key to the success of the trial was to present the project to staff from the beginning, not only with an environmental message but also engaging staff in the business through their financial responsibility for reducing waste. He claimed that allowing staff to share in the success by allocating part of the savings to a staff football tournament was very helpful to engage staff. As a result of this initiative, food waste weight was reduced by 30%, representing an annual reduction of 2.4 tons (and 6.5 tons including packaging). Moreover, £109 was saved in food waste costs per week, representing a saving of £7.581 annually.²
- The Novotel Warsaw Centrum is a 4-star hotel with more than 700 rooms, event spaces and a modern bar and a restaurant. With the Planet 21 programme, the hotel committed to reduce food waste by 30%. In order to achieve this result, a food tracking system was implemented in the kitchen in July 2016. Just after one week of measuring food waste in the kitchen, an average of 700 Kg was registered with the device. As a consequence, the team was able to quickly identify where waste was being generated within the operations carried out and make production adjustments. The staff at the hotel was empowered to identify opportunities that delivered quick results and they could access to regular data that were shared and daily discussed to track the impact on food waste and sustainability.
- After only 3 months of use, the 30% reduction target was overcome - in fact the Novotel Warsaw Centrum team managed to reduce their food waste by 67%. Moreover, by lowering food waste the hotel is saving an estimated of 111 tons of CO2 emissions every year, and this amount does not even consider energy savings from cooking less food or the reduction in water usage for growing, transporting and preparing the food.³

² *Reducing and Managing Food Waste in Hotels* (Green Hotelier) <http://www.greenhotelier.org/know-how-guides/reducing-and-managing-food-waste-in-hotels/>

A FoodSave Case study: the Bingham Hotel <http://www.foodsave.org/wp-content/uploads/2014/09/The-Bingham.pdf>

³ *Winnow Case Study: Novotel Warsaw Centrum, July 2017*

https://cdn2.hubspot.net/hubfs/650776/Case%20Studies/Case%20Study%20Novotel%20Warsaw%20_v2.pdf?t=1505841107382

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**]

These two data will enable to compute the following indicator:

- Percentage of restaurants 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**]

Additional indicators can be set to monitor restaurants or hotels implementing the following measures:

- half size portions proposed in the menu [**number**]
- incentives in order to avoid leftovers [**number**]
- reuse of edible leftovers in the kitchen/no food waste menu [**number**]
- just in time ordering [**number**]
- inventory on perishables/ stock rotation policy [**number**]
- waste monitoring using the Food Tracking Device [**number**]

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

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

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

- Quantity of waste produced per capita: $\text{Quantity of waste produced} / \text{Number of customers} [\text{kg} / \text{customer}]$

Time frame

It is recommended to start the monitoring at least one week before organic waste is collected separately 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).

Additional performance indicators:

Different fractions of organic waste can be estimated separately in %:

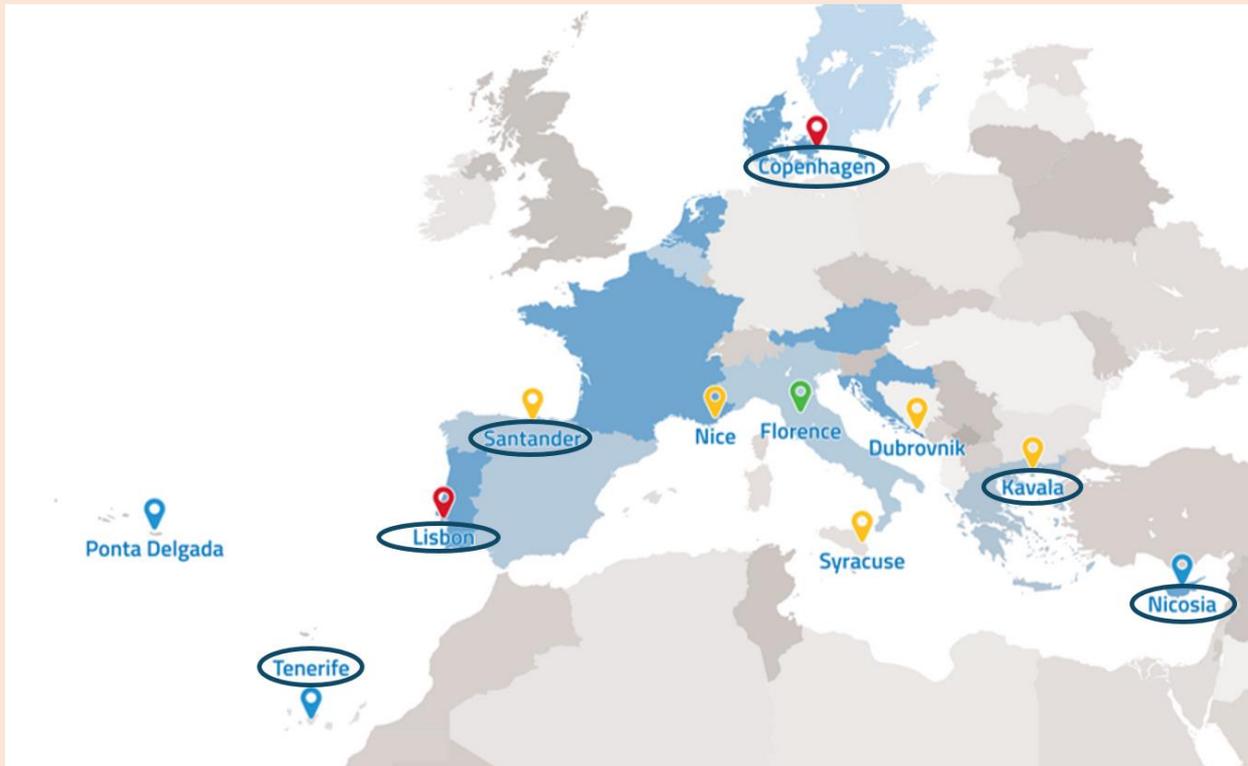
- Vegetables [%]
- Bread/pasta [%]
- Beef/lamb [%]
- Chicken/pork [%]
- Fish [%]
- Other to be specified [%]

These data can help to estimate the waste produced by different dishes of the menu.

Gender considerations:

- Who makes ultimate decisions in establishment? **[male-female]**
- Gender sensitivity of publicity/communication? **[yes-no]**
- Approximate gender distribution of extra work involved? **[% female]**

Lessons learnt from the implementation phase and fine tuning



Pilots implementing food waste tracking device within URBAN-WASTE

The food tracking device was implemented in **Copenhagen** in 4 hotels and one hostel, **Kavala** in 7 restaurants, **Lisbon** in 2 hotels, **Nicosia** in 7 facilities, **Santander** in 5 restaurants and **Tenerife** in 4 hotels.

In Copenhagen, Kavala, Lisbon and Tenerife the tracking device was implemented in combination with the food waste prevention measure (measure n°2).

The food tracking has permitted in some restaurants to assess the production of food waste of certain dishes. It led to the modification of their content.

High rotation of the teams and excessive workload brought some difficulties to ensure their training and good conditions for the use of the food tracking device.

Keypoints

- **Launch starting phase and training earlier (not in summer)**
- **Train the personnel at least one month prior to the implementation of the device and reduce the number of categories to characterize food waste.**
- **As far as possible rely on a stable and motivated team, turn-over of employees implies the multiplication of training sessions**
- **Functions of the food tracking device have to be revised to easier its use, to enable daily report and comparison between entities**
- **Register daily number of guests to calculate the value of food waste produced per capita.**