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URBAN STRATEGIES FOR
WASTE MANAGEMENT
IN TOURIST CITIES



Food waste prevention at buffets and restaurants

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Food waste prevention at buffets and restaurants

What is the measure about?

Description and scope of the measure

It is estimated that around 12% of the total food waste in Europe is generated at tourist establishments such as buffets, restaurants, catering and canteens¹. This issue requires special attention as it immensely contributes to the total municipal solid waste generation in many tourist cities in Europe.

To cope with this problem there exists a large number of actions and measures requiring different levels of commitment from the involved stakeholders but that are very effective and specific to target food waste prevention. In this respect, restaurants, bars and hotels can do a lot to reduce and minimize the amount of food waste by incorporating simple recycling and waste reduction strategies that would eliminate much of the waste otherwise mixed with residual waste and thrown away.

Some examples include:

- Prevention sign based (on consumer incentives or penalties)
 - consumers would be encouraged to take on its meal tray only the amount of food strictly necessary to meet its appetite. If at the end of the meal, the tray is shown empty and without leftovers, the consumer would receive an incentive or symbolic reward
- Adjustment of dishes size
 - evaluate and adjust the size of your meal portions if you find they are consistently being returned unfinished – and price offered menu items accordingly (remember that most people prefer food quality over quantity)
- as a side measure to prevent other waste fractions, use serving containers in sizes that meet the portion needs of your menu items without having excess packaging material
- Re-use of edible leftovers
 - E.g. vegetable and meat trimmings could be re-used for soup stock
- Preparation of foods to order
 - E.g. just in time ordering to minimize waste due to over-preparation

¹ Stenmarck, A., Jensen, C., Quedsted, T., Moates, G., Buksti, M., Cseh, B., Juul, S., Parry, A., Politano, A., Redlingshofer, B. and Scherhauer, S., 2016. *Estimates of European food waste levels*. IVL Swedish Environmental Research Institute. (<http://eu-fusions.org/phocadownload/Publications/Estimates%20of%20European%20food%20waste%20levels.pdf>)

- Adjust inventory levels on perishables to minimize waste due to spoilage or dehydration and incorporate a good stock rotation policy
 - if a lot of dairy products are expired or vegetables or fruits get too dried, it might be a sign that a lot of products are being stocked and it is not being rotated properly

Whenever food waste cannot be prevented, consider donation of any extra food to a food

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.

How to implement this measure?

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

Costs

- Some of the examples of practices mentioned above will involve no extra cost for the buffet of restaurant implementing them. Nevertheless, the adjustment of dishes size will require the acquisition of new plates or the purchase of a sign to raise awareness among customers, which is expected to be a minimal cost.

Cost savings

- By preventing food waste at restaurants or buffets the number of bin lifts per week can be reduced and with this, the amount of food waste to be landfilled or incinerated. As a reference, average costs of incineration and landfilling of residual waste in EU are²:
 - Incineration of residual waste: 64€/ton
 - Landfilling residual waste: 56€/ton
- In restaurants and bars serving meals, food waste can be a significant cost. Consider the following: the initial purchase cost of raw ingredients, the cost of storing the food, the cost of preparing and cooking the food and the cost of disposing food waste.
- 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 one 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 costs³

Financing options

- The prevention sign can be provided by the URBANWASTE project partners, following the design and the visual identity of the project.

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

³ *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>)

Type of stakeholders to involve

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

- Hotel or restaurant managers and staff
- Catering service providers
- Health, safety and environment responsible within the hotel, restaurant, etc.
- Kitchen staff (i.e. chef, kitchen assistants, etc.)
- Tourists/customers
- Food banks, NGOs and charities working on food waste prevention and donations

Other possible stakeholders to involve

- Waste management department of local authorities
- Waste management company/local authority in charge of municipal waste collection
- Trade and hoteliers associations
- Local sanitary agencies with a role on food safety surveillance

Description of the operational steps to follow

At municipal level

- Mapping of restaurants, hotels, canteens, etc. within the municipal boundaries.
- Organization of informative meetings and training sessions for identified establishments.
- Subscription of voluntary agreements and collaboration partnerships with participating establishments.
- Realization of communication campaigns at local level to engage participants.
- Regulative support to encourage establishments to implement food waste prevention measures (for instance, by reducing waste collection service taxes).
- Creation of a network with restaurants/buffets applying food waste prevention measures.
- Identification of those establishments thanks to a sticker/label recognizing the commitment on food waste prevention

At buffet/restaurant level

- The very first step should include the monitoring and identification of food waste so as to define an action plan and to address the challenges identified. Consider which type of food waste is being generated and where changes to reduce food waste could be made.
- Afterwards, a presentation and introduction of the measure should be provided to hotels and restaurant personnel, at all levels. Communication campaign materials and continuous support/training should be distributed to all stakeholders involved to ensure participation and a proper understanding and uptake of the measures.

- Staff should be asked and interviewed for their input and assistance on what and how things can be done to minimize waste and could be rewarded for good ideas (besides increasing their participation and involvement). Including them in the decision-making process can translate into a higher productivity, better morale, lower costs and most importantly, less food waste generated.
- Along the implementation and operation phases of the measure, it is very important to promote the new activities to customers. Clients will not only appreciate the efforts and concern from the restaurant or hotel, but they may potentially increase their support too (which would be translated into economic benefits). Restaurants could make use of a specific and common sticker/label within the city to show their clients they are operating such a measure of reducing food waste.
- The last step should consist and conclude with measuring the efficiency of the actions adopted when comparing the results obtained after a trial period. The communication of results could follow, by sharing on the media or posting them, for instance.
- On top of it, new trusted employees should be periodically designated to be the “eyes and ears” for supervision and management of the measure as well as to identify areas where participation/cooperation is somehow not taking place (either by specific areas of the kitchen or certain staff members). Keep a conversation with those not participating so as to determine if they understand the importance of the measure and the reasons behind their low interest.

Gender aspects to consider

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

Communication campaign needs to be gender sensitive to avoid favouring one sex or another in the wording or the pictures used.

Example of good practices

- The campaign “Conscious consumption, Respect Environment” organised in Oeiras (Lisbon) on food waste prevention at buffets was based on consumer incentives to take on the meal tray only the amount of food strictly necessary to meet the nutritional needs and/or appetite. If at the end of the meal, the tray (soup, dessert and bread) is shown empty/without leftovers, the consumer received a poker chip equivalent to 10 g of non-perishable foods that are donated to charity institutions. The measure was proven to be an innovative solution to reduce the production of organic waste⁴.
- “Menu Dose Certa” (*Right Portion Menu*) initiative was created by the Intermunicipal Waste Management company of Greater Porto (LIPOR), responsible for the management, recovery and treatment of the Municipal Waste produced in the eight associated municipalities around Porto.⁵ The pilot experience started in 2008 when a restaurant agreed to participate in the initiative. After the characterization of the waste generated in in May and June 2008 they served the size of the portions so they would have less food wasted. As a result, it was possible to reduce the amount of food waste generated by 48,5 kilos per customer at the restaurant per year. Thanks to this initiative, LIPOR was awarded with the Portuguese Sustainable Development Awards for its campaigns on waste prevention in 2009. Given the fact that the “Menu Dose Certa” was a success, LIPOR decided the same year to start the project “Dose Certa Project”. At the moment, 11 restaurants and 29 canteens have already implemented the project. The “Dose Certa Project” allows to reduce:
 - Kitchen waste flow: 0.34 kg/meal/year
 - Customer waste flow: 2.79 kg/meal/year
 - About 30% of the food waste generated in the kitchen and by the client.

⁴ Case study: *Conscious consumption, respects environment*. EWWR Guide of Good practices. (http://www.ewwr.eu/docs/case_studies/EWWR_Guide_GP_EN_LD.pdf)

⁵ Waste Prevention Best Practice Factsheets: *Menu Dose Certa* (http://ec.europa.eu/environment/waste/prevention/pdf/MenuDoseCerta_Factsheet.pdf)
Dose Certa na Restauração (<http://www.lipor.pt/pt/residuos-urbanos/prevencao/dose-certa/dose-certa-na-restauracao/>)

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 food waste prevention at buffets and restaurants is implemented 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:

Depending on the means at disposal for monitoring, different fractions of organic waste can be estimated separately in % (see measure n°20: Food tracking device):

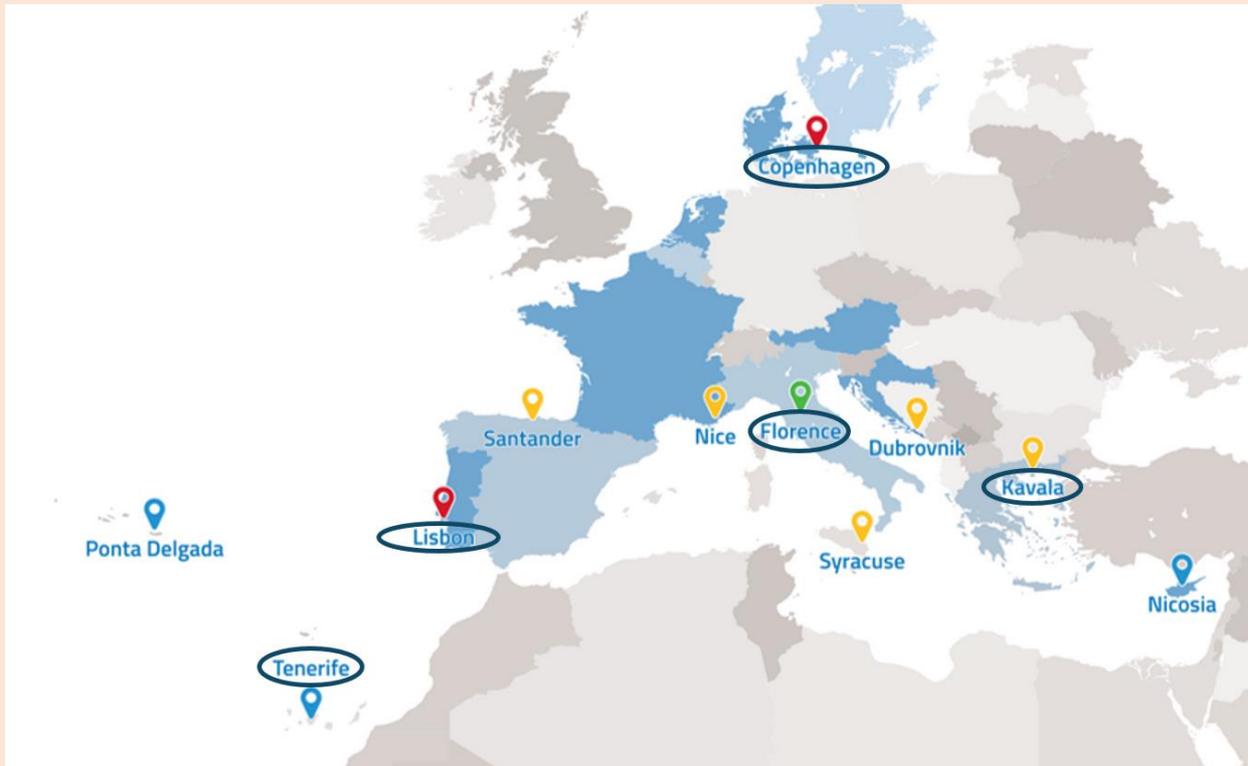
- Vegetables [%]
- Bread/pasta [%]
- Beef/lamb [%]
- Chicken/pork [%]
- Fish [%]
- Other to be specified [%]

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 prevention at buffets and restaurants within URBAN-WASTE

4 hotels implemented the measure in **Copenhagen**, 128 restaurants in **Florence**, 3 hotels in **Kavala**, 4 hotels (with 1 hotel school) in **Lisbon** and 4 hotels in **Tenerife**.

In Copenhagen, Lisbon and Tenerife the food prevention was carried out in combination with the use of a food tracking device (measure 20) in order to monitor volume and types of fractions of food waste. In Florence, the measure was combined with the distribution of doggy bags (measure 1).

Hotels and restaurant invited their guests to take reduced size portions and several trips to the buffet, to minimize waste. They also offered reduced portions and used reduced-sized plates (convex trays) at their buffet. The measure was accompanied by a smooth and friendly communication towards guests to raise their awareness about food waste.

Edible left overs at the buffet were reused for the preparation of other dishes (i.e. spaghetti sauce from cooked tomatoes). Salads that had long-lasting qualities was reused into other dishes. Other edible left overs that could not be kept longer were reused for the lunch of the employees.

In Lisbon, the food waste prevention in two hotels leads to a **reduction of organic waste of 7% and 25% respectively**.

In Tenerife, **3 hotels reduced respectively by 29%, 43% and 46%** food waste on a 5 months period of monitoring.

To be noticed, in Copenhagen, Hotels belonging to the same group (Guldsmeden) ran a competition to motivate the kitchen staff to continuously reduce food waste.

Key points

- **The setting up of simple measures can lead rapidly to the reduction of important volume of food waste**
- **Launch the start-up phase earlier (not later end of winter) with stakeholders and define incentives for the initial planning and implementation of measures**
- **As far as possible rely on a stable and motivated team, turn-over of employees implies the multiplication of training sessions**
- **Mobilize restaurants by visiting them directly at the start-up phase and call and/or email regularly restaurants to keep contact. Carrying out daily follow-ups is highly recommended and necessary**
- **Organize regular promotional events with press conferences and other media dissemination (TV, videos).**