



# Reducing food waste at the local level

GUIDANCE FOR MUNICIPALITIES TO REDUCE FOOD  
WASTE WITHIN LOCAL FOOD SYSTEMS



Slow Food

In the European Union, it is estimated that 20% of food produced is wasted or lost.<sup>1</sup> Not only is this contributing to the climate crisis - if food waste were a country, it would be the 3rd greenhouse gas (GHG) emitter - but it also causes unnecessary stress on the environment, the food chain and the waste management system. On top of this, it is an inherent ethical issue exacerbating food insecurity. Therefore, there is a strong and urgent need to tackle food waste to make it an issue of the past through the transition to a sustainable food system. Tackling food waste requires action all across the supply chain as it currently is a systemic consequence of our food system. And it can only succeed if municipalities, whether urban or rural, work together with the farming communities and food producers in the green belts surrounding cities and in rural areas. It is through a holistic approach towards sustainable, fair and healthy food production that we will be able to reduce (and eventually eliminate) food waste in a long-lasting way. Within the European Union (EU), existing legislation remains insufficient to act in an ambitious way in this regard. Only the 50% reduction target by 2030 for consumers and retail is mentioned in the Waste Framework Directive and hasn't been made mandatory.<sup>2</sup> However, the recently adopted Farm to Fork strategy paves the way for mandatory targets to be adopted, which will be based on the measurement of food waste levels that Member States have to record by 2022. The EU and national governments will have to be ambitious in proposing binding commitments and concrete measures to accelerate the needed transformation towards a waste-free food system.

If European and national legislation have to push for this transition, the local level also has a crucial role to play. Increasingly, regions and municipalities are considered as key actors in the circular economy and sustainable food system as they're the one implementing concrete measures on the ground, and represent the level of governance which is closer to citizens and local businesses. Additionally, through their unique position in the food supply chain, cities have the ability to stimulate their direct (through green public procurement, public canteens or municipal markets) and indirect environment (peri-urban agriculture, citizen's consumption...) to create a waste-free local food system.

[1] FUSIONS. "Estimates of European Food Waste Levels." European Commission, 2016.

[2] Directive 2008/98/EC, Art.9.1(g).

## INTRODUCTION

High levels of food waste are a direct outcome of an unsustainable industrial food system founded on a mechanism of wastage and overproduction, and which treats food as a commodity. The drivers of food waste are many, as food waste occurs at several levels from the field to the table, and all across the supply chain. Tackling the problem of food waste therefore requires acting at all those stages, and acting both on prevention and on re-using unavoidable food waste.

Achieving food waste prevention requires a holistic approach that looks at the food system as a complex and interrelated set of agricultural, economic, social and cultural practices.

Although there is no universal definition, a sustainable food system should contribute to the following dimensions:<sup>3</sup>

- Health - contributing to wellbeing by taking into account the impact of the system on health and potential contamination;
- Ecological - remaining within the planetary boundaries;
- Economic - ensuring economic viability, fair revenues and creating jobs;
- Social - providing access to food satisfying everyone's need and without creating inequalities;
- Ethical - producing ethical food through transparency and producer's responsibility;
- Resilience - improving a system's capacity to prepare and react to forthcoming changes.

In the EU legislation, food waste is defined as "any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans" <sup>4</sup>about to be wasted. In order to ensure that national efforts against food waste are informed by a solid evidence base, Member States are required by the EU to measure food waste, and report on progress made, at the following stages:

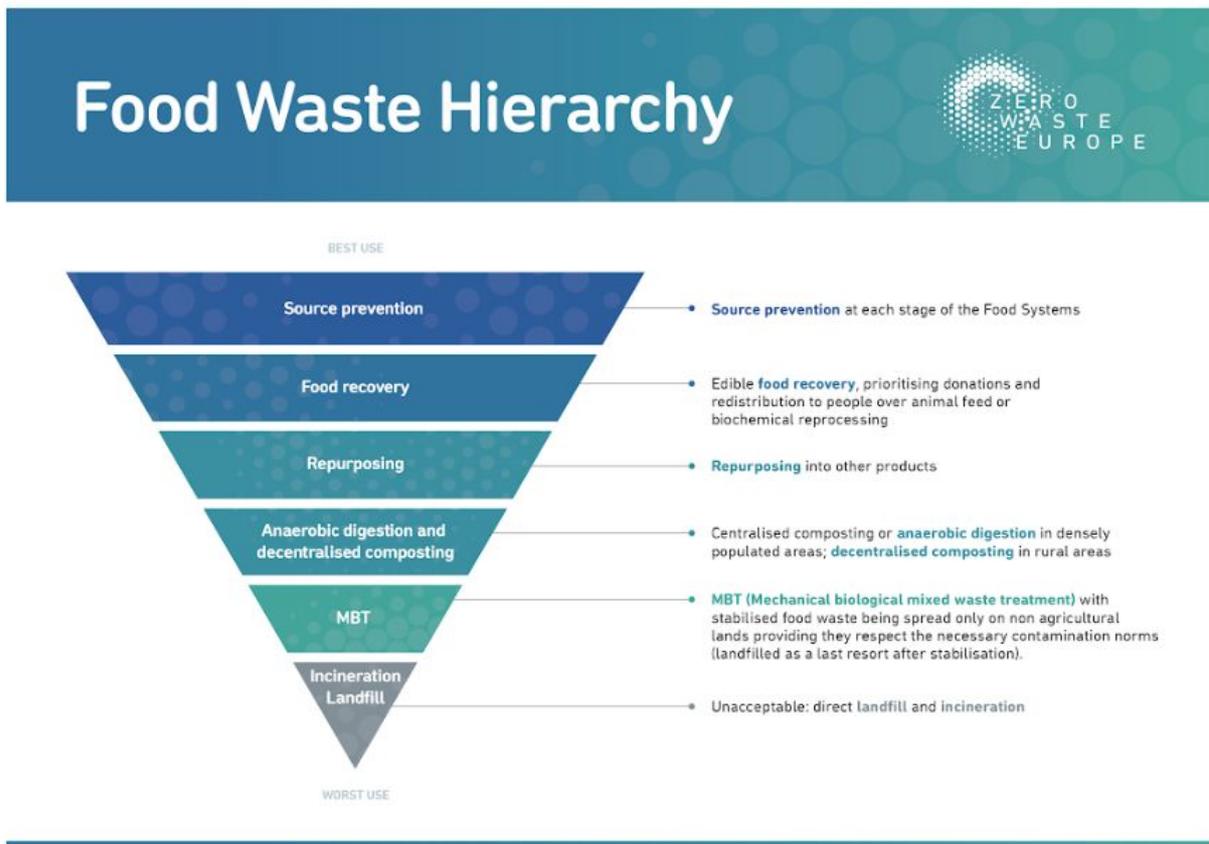
- primary production;
- processing and manufacturing;
- retail and other distribution of food;
- restaurants and food services;
- households.

[3] Galli, Francesca, Elena Favilli, Simona D'amico, and Gianluca Brunori. A Transition towards Sustainable Food Systems in Europe Food Policy BluePrint Scoping Study, 2018.  
[https://www.researchgate.net/profile/Francesca-Galli-2/publication/325248769\\_A\\_transition\\_towards\\_sustainable\\_food\\_systems\\_in\\_Europe\\_Food\\_policy\\_blue\\_print\\_scoping\\_study/links/5b028a56a6fdccf9e4f68f42/A-transition-towards-sustainable-food-systems-in-Europe-Food-policy-blue-print-scoping-study.pdf](https://www.researchgate.net/profile/Francesca-Galli-2/publication/325248769_A_transition_towards_sustainable_food_systems_in_Europe_Food_policy_blue_print_scoping_study/links/5b028a56a6fdccf9e4f68f42/A-transition-towards-sustainable-food-systems-in-Europe-Food-policy-blue-print-scoping-study.pdf)

[4]REGULATION (EC) No 178/2002. Art.2.

The Waste Framework Directive also requires Member States to prepare food waste prevention programmes, encourage food donation and other redistribution for human consumption to meet the [Sustainable Development Goal 12.3](#), to reduce food waste at the retail and consumer level by 50% by 2030. However, those provisions are not binding and lack technical guidelines regarding the type of measures to adopt to effectively tackle food waste. In that sense, this approach should be complemented by the use of the following food waste hierarchy with the aim of:

1. Preventing systemic food waste through addressing the cross-sectoral causes of food surplus;
2. Distributing and donating food when it cannot fulfill its primary purpose;
3. Properly treating food that cannot be eaten through the promotion of recycling - composting or methanisation - while avoiding any disposal option.



Through their unique position, municipalities can act in a holistic way to prevent food waste through transitioning towards a local sustainable food system. Redistribution and donations should remain solutions of last resort, and need to be complemented by rethinking the local food system.

By adopting an integrated approach and acting on preventing food waste from occurring in the first place, a municipality can trigger other positive impacts on the local economy and health and will make its food system more resilient and fair. Local and systemic thinking about food and food waste prevention can strengthen the local economy through the creation of jobs with positive impacts benefitting the city. It can also promote food biodiversity (i.e. the array of varieties, breeds and processed foods unique to given regions), support urban or peri-urban sustainable food production, making organic and healthy food available for the local population. At the end of the loop, bio-waste collection from unsaved food will be able to serve as fertiliser for local crops, thus closing the nutrient loop.

With these guidelines, we aim to illustrate and give concrete examples on what a municipality can do to reduce food waste as part of a wider transition to sustainable food systems including providing financial incentives or financial support to local initiatives, designing regulatory frameworks, but also providing physical spaces, advice, promoting food donations, and raising awareness around the issues of food waste. This document will specifically focus on what the municipality can do in terms of concrete action but also more broadly, to stimulate the local food system. Indeed, synergies can be created easily as business or citizen initiatives will be more likely to happen if the local government fosters sustainable and low-waste food environments, and encourages collaborations among all actors.

The following guidelines include case studies that show examples of municipalities that are successfully reducing food waste, as well as indications on how municipalities should:

1. Plan and strategise in order to prepare and adopt a holistic plan that aims to reduce food waste within the frame of a wider transition to a sustainable food system;
2. Stimulate the local food system through community-supported agriculture and initiatives that reduce food loss at the primary level;
3. Create a local food environment that encourages a wide-range of public and private actors to develop food waste prevention activities;
4. Raise awareness and educate about the value of food through educational program or impacting campaigns stimulating citizens to reduce food waste;
5. Develop a proper bio-waste management system to ensure food waste is valorised into fertiliser in the case it cannot be prevented.

## **1. Thinking and planning a strategy around food waste and the local food system**

Food loss and waste prevention is increasingly becoming core to reaching cities' climate objectives, as well as circular economy strategies, and schemes to foster sustainable food systems. There are many drivers of food waste occurring at all stages of the food supply chain that need to be addressed in a systematic way. Cities looking to cut down on food waste should therefore analyse the level and key drivers of food waste on their territory through a systemic approach, and design holistic food strategies that tackle the unsustainable food systems and food waste at the source(s) by involving a diversity of stakeholders from civil society, businesses, farmers, and decision-makers. Critical elements to the success of any food waste reduction strategy include raising awareness among all stakeholders, and implementing robust measurement frameworks.

In doing so, following the Food Waste hierarchy is key, indicating that cities should prioritize prevention and should therefore take action to avoid the generation of food waste in the first place. When prevention is impossible, food should be redistributed for human consumption before being recycled into animal feed, composted, or converted into energy through anaerobic digestion. Thus, food waste strategies should include a combination of actions across different sections.

## Case Study 1

# Paris and its multi-driven approach to tackling food waste

City: Paris

Country: France

Population: 2,183,055 inhabitants

Through its Circular Economy Plan and the Climate Action Plan, Paris aims to transform into a sustainable, responsible, and resilient city by implementing ambitious initiatives that respect the environment as well as improve the lifestyle and health of its citizens. Some of the positive effects of this comprehensive approach can already be measured since its circular economy sector is estimated to have enabled the creation of 66,500 full-time jobs (2.9% of Parisian jobs) and led to the reduction of 7% of total household waste.

One of the city's key initiatives composing the above-mentioned plans is the Plan to Combat Food Waste (*Plan de lutte contre le gaspillage alimentaire*) adopted in 2015 and which aims to reduce food waste by 50% by 2025. It is a multi-driven approach that involves all actors along the supply chain: from producers and retailers, to public catering and schools, to awareness-raising of citizens, and the treatment of organic waste to produce fertilizers to agriculture. The plan also includes the measurement of food waste reduction over time.

The key initiatives undertaken by the city of Paris to tackle food waste are:

- **Reducing food waste in public procurement** by involving restaurants and canteens in the implementation of good practices to fight food waste, developing training for kitchen staff and facilitators of schools to educate about sustainable food and food waste, and by supporting public catering to get involved in food donations.
- **Involving Parisian shops and food markets to fight food waste** by encouraging food businesses to sell near-expired food products, promoting bulk stores businesses that operate without disposable packaging, disseminating best practice sheets for private catering, and supporting the development of systems for the collection/processing and donation of unsold food in Parisian food markets through specialized local associations.

- **Raising awareness among citizens** by supporting and participating in the organisation of local awareness-raising actions and by designing and distributing awareness-raising tools on food waste.
- **The door-to-door collection of separated organic waste** including food waste generated by households, restaurants, and food markets. Between 2015 to 2019, from just over 50 food markets, the municipality was able to collect around 1,300 tons of organic waste. The city has also put up 30,000 new public bins and 554 composting sites to increase the uptake of recycling.
- **Collecting and transforming organic waste into bio fertilizer** in anaerobic digestion facilities, replacing chemical fertilizers. The bio fertilizer is then used in agricultural fields surrounding Paris.

## Case Study 2

# Milan and food waste reduction at the core of the city's food policy

City: Milan

Country: Italy

Population: 3,144,473 inhabitants

In 2015, the Municipality of Milan adopted a comprehensive Food Policy to create a sustainable food system which includes reducing food waste by 50% by 2030 as one of its key targets. To reach this target, the municipality worked with Assolombarda (the association of companies operating in the Metropolitan city of Milan) and the Polytechnic University of Milan, to develop innovative solutions to fight food waste. This collaboration led to the creation of the very first Local Food Waste Hub - a pilot project that recovers food surpluses from local supermarkets and canteens and redistributes it to people in need through local neighborhood networks. In 2018 alone, the city of Milan saved and donated 6,995 tons of food losses, equivalent to over 13 million meals. The project is still running today and continues to grow.

To support the reduction of food waste, the municipality of Milan worked in two important ways:

**Engaging with multiple actors:** The Municipality provided the public space for the Local Food Waste Hub needed for the stocking and redistribution of the recovered food, as well as the legal framework for the initiative. The city also collaborated with the Polytechnic University of Milan which developed a preliminary study and currently monitors the operations of the Hub and the impacts of the project. A food bank organization manages the actual food redistribution through the Hub, but other local charities are also engaged in the system. Finally, funding for the project was provided by a private investment fund.

**Providing “waste tax” reductions:** The project is also complemented by a tax reduction of 20% that rewards supermarkets and canteens that donate the food. Assolombarda created a label dedicated to food donations to signal the virtuous businesses.

In terms of economic benefits, in 2018, the total value of food donations was estimated at about 44 million EUR, to which can be added saved costs from treatment management, estimated at about 600,000 EUR. Moreover, for the first year pilot, the waste tax helped to incentivise an important number of big and small retailers as well as school canteens to join the project.

The positive impacts from reducing food waste in the city also include important environmental benefits in the form of natural resources that were not employed to produce food, including land, water and greenhouse gas emissions, as well as social benefits, with the total number of meals distributed to people in need amounting to over 13 million in 2018.

### Case Study 3

## Porto and a cross-sectoral approach on the nutrient cycle

City: Porto

Country: Portugal

Population: 215,000 inhabitants

In 2017, the city of Porto in Portugal committed to become circular by adopting a Roadmap for Circular Economy in 2030. Food waste is a key part of this strategy, and the city also understood that reducing food waste requires a holistic approach to the local food system. In that sense, the city of Porto has already started implementing an integrated roadmap on food trying to build a sustainable local food system. This roadmap is divided into 4 blocks:

- **Promotion of local agriculture** through local and regional production. This means promoting urban and peri-urban agriculture. Since 2003, a network of vegetable gardens has been built and Porto now counts 13 of them. The gardens are managed by volunteers, but the city offers technical support such as management of monitoring. This initiative is complemented with the support given by the city to shorten the food supply chain. For instance, the city manages 6 fresh markets which act as a link between consumers and local producers.
- **Food waste prevention** through distribution of leftover food or dissemination of best practices. Among others, the municipal network of solidarity restaurants now counts three restaurants with a fourth one planned to open soon. This network aims to redistribute food which would otherwise have been wasted to people in need and gives 580 meals per day based on healthy and regular nutrition. Additionally, Porto, with the support of the waste management company, has launched an initiative where hotels and restaurants are given guidelines to serve adaptable portions and offer the possibility to take leftovers home.
- **Bio-waste management** through collection and composting. Bound by the European Union's legislation obligation to implement bio-waste separate collection by 2023, Porto's municipal waste company, Porto Ambiente, is quickly increasing the organic waste collection in the city. The process started 15 years ago and is now evolving into a multifold process including different ways of capturing the 26,000 yearly tons of organic waste, adapted to the density of the targeted neighborhood.

- **Raising Citizens' and local actors' awareness** through educational programs or education centers. For instance, the city has set up a network of municipal environmental education centers to inform citizens about urban gardening and how they can participate. In those centers, aquaponic farms or vermicomposting processes are being displayed to further educate citizens. During events and activities, the municipality of Porto distributes its environmental education program which specifically focuses on circularity and sustainable food.

## GETTING THE RIGHT ESTIMATION

When talking and acting about food waste, one key first step is to measure the wasted amount to build coherent policies. In Belgium for instance, the NGO Foodwin built a food waste calculator for local governments to help decision-makers assess and build food waste prevention policies. However, food waste measurement is often limited to the retail, food services and households levels while pre-retail food waste is likely to be widely underestimated and could represent up to 59% of the total EU food waste.<sup>5 6</sup>

Therefore, when thinking holistically about food waste, it is essential for a city to act and measure across the whole food supply chain. The effort made by Flanders to measure food waste across the whole supply is a good example of how to adopt a systemic approach.

[5] Baker, Gregory A., Leslie C. Gray, Michael J. Harwood, Travis J. Osland, and Jean Baptiste C. Tooley. "On-Farm Food Loss in Northern and Central California: Results of Field Survey Measurements." *Resources, Conservation and Recycling* 149 (October 1, 2019): 541–49. <https://doi.org/10.1016/j.resconrec.2019.03.022>. <https://www.sciencedirect.com/science/article/pii/S0921344919301296>

[6] Gustavsson, Jenny, ed. *Global Food Losses and Food Waste: Extent, Causes and Prevention; Study Conducted for the International Congress Save Food! At Interpack 2011, [16 - 17 May], Düsseldorf, Germany*. Rome: Food and Agriculture Organization of the United Nations, 2011. <https://www.fao.org/3/mb060e/mb060e.pdf>.

## 2. Transition towards a sustainable local food system

One of the main measures for cities to fight food loss and waste is to shorten food supply chains and promote urban and peri-urban food production.<sup>9</sup> Short food supply chains help reduce unnecessary food loss due to storage and transportations inefficiencies, in addition to the associated distribution costs, emissions, and excess plastic packaging. Besides strengthening short food supply chains, cities should support direct marketing channels and give financial or logistical support to all activities that forge close links between producers and consumers and producers that foster local economies– i.e. that reduce food miles, facilitate interaction and trust building between producers and consumers, and ensure fair prices for consumers.

Compared to industrial food systems, a local food system based on agroecological principles<sup>10</sup>, has the advantage of supplementing healthy, nutritious food with social responsibility, and prioritising ecological systems based on biodiversity, and promoting human, animal, and planetary health. Rather than treating food as a commodity, local food systems attribute more value to food, including social and cultural value. Municipalities play an important role in promoting local food systems, and can do this through participatory approaches, for example by supporting the creation of food policy councils which bring together representatives from all relevant sectors including food production, food consumption, food waste, academia, etc.

## Case Study 4

# Gent en garde, the food policy council and community-supported agriculture

City: Ghent

Country: Belgium

Population: 262,000 inhabitants

In the past years, the city of Ghent has been leading an ambitious plan to develop a local and sustainable food system through the setup of a food policy council. The council was created in 2013, as part of the city's food strategy and now brings together 32 representatives and stakeholders from the local food system such as civil society, agricultural organisations and entrepreneurs. The council's role, which is managed by the Municipality, is to develop a food strategy, connect stakeholders, disseminate knowledge and support new food projects. In 2019, the work was rewarded as the Gent en Garde strategy won the UN climate action award. In 2020, it led to the adoption of Ghent's 2020-2025 Climate plan to further transition towards sustainable food systems through actions on food donation, promotion of a plant-based diet and short food supply chain. To do so, Ghent implemented the following actions:

- **Community-Supported Agriculture** in the De Goedinge: In 2018, De Goedinge, 10-hectares of land owned by the City of Ghent, was made freely available for local farmers, after replying to a tender issued by the city, with the aim to produce sustainable food sold to Ghent's inhabitants. The project follows the principles of community-supported agriculture with a seasonal subscription and the participation of shareholders in the project.
- **A local food shop, Vanier**: The city of Ghent supported the project of the Vanier start-up, that is now operational. Vanier consists of a webshop where shops, the food service industry sector and catering can have access to a variety of local and sustainable food producers to develop short supply chains.
- **Support for community vegetable gardens**: The city of Ghent offers support and education for inhabitants and schools in charge of participatory gardens. An online help desk has been developed to help the 42 schools and 25 community gardens that are part of the project.

- **Mapping sustainable food initiatives including free fruit-picking:** The city has developed an online interactive map where citizens can see a list of several sustainable initiatives related to food. Among others, citizens can find around 40 locations where they are invited to freely pick fruits about to be lost.

## The Fruta Feia “Ugly Fruit” initiative that reduces food losses at farm-level while shortening food supply chains

The Fruta Feia “Ugly Fruit” initiative is a consumer cooperative which has the objective to reduce vegetable and fruit waste due to their non-conformity to the major retailers’ aesthetic standards - shape, color or size - in 14 national delivery points in Portugal. This private initiative links producers left with food surplus with consumers who can enjoy a food basket at a reduced cost. So far, the initiative links 307 producers with 7,383 consumers and enables the saving of 3,336 tons of food waste.

The success of this project relies on:

- The collection of **non-conforming fruit and vegetables from local producers** otherwise left rotting in the fields, preventing important amounts of food losses, sold at a discounted price to consumers.
- The **help of volunteers to assemble the fruit and vegetable baskets.** The project therefore stimulates citizens’ engagement as they have an active role in solving the problem of food waste.

One way municipalities can help the reduction of food waste at the farm level is by providing financial or logistical support to such projects. For instance, in Portugal, the Municipality of Alameda supported Fruta Feia by providing public spaces needed for managing the distribution.

## Case Study 5

# Mouans-Sartoux food waste strategy to promote 100% organic meals in municipal canteens without raising costs

City: Mouans-Sartoux

Country: France

Population: 10,000 inhabitants

Since 2012, all the food served in the canteens of Mouans-Sartoux is organic. In order to afford this, the municipality followed an ambitious strategy to fight food waste, which involved multiple actors, including farmers, students and their families, school teachers, and canteen cooks. In canteens, food waste is weighed daily, and amounts to an average of 38g per meal compared to the 150g national average. This impressive drop in food waste of 80% allowed to reduce the cost of meals: between 2008 and 2012, the cost of meals went from 1.92 EUR to 1,86 EUR, and the share of organic food increased from 25% to 100%. Currently, 70% of the food served is local and 96% of the children eat at the school, ensuring that once a day, they benefit from a healthy, balanced and organic meal.

The main actions carried out by the Municipality are:

- **Setting up of an organic municipal farm**, which provides 85% of the vegetables to 3 school canteens, representing 1300 meals a day. Moreover, three farmers are employed, full-time, by the Municipality.
- **Reduction of the costs** thanks to considerable reduction of food waste, facilitating the purchase of food from local producers, common management of the three canteens, and introduction of more plant-based meals.
- **Reducing food waste** by promoting the following best practices: offering 2 portion sizes, (small and large), daily monitoring of food waste, and on-demand service for hot meals and desserts. In addition, Mouans-Sartoux doesn't follow the national dietary recommendations, and instead adapts menus to the appetite and preferences of the children, which means they are more likely to finish their plates.
- **Educational activities to students** by implementing nutrition classes, gardening, cooking, meetings with producers, and general teaching about the value of food.

The project led to diverse positive spillover effects for families and the wider community as school children's families became more aware about their food choices, which led to a preference to a more local, healthy, and organic diet, and less wasted food, thanks to the messages delivered by their children learned at school.

### 3. Create a local food environment that enables a low-waste sustainable food system

Too often, the responsibility of making sustainable choices such as reducing food waste is put on households and individuals, who are encouraged and expected to make responsible consumer choices. However, this focus on “consumer responsibility” misses the point that choices are constrained and shaped by a whole range of physical, economical, political and sociocultural influences, most of which are beyond an individual’s control. Cities have an important role to play to design and promote sustainable “food environments” which make the sustainable and responsible choice the easy choice. In this light, cities can create local environments which facilitate food waste reduction through providing support to local initiatives, and acting to ensure that food from low-waste food systems is more widely available and accessible, for example in public institutions.

Food environments can be defined as the “physical, economic, political and socio-cultural context in which consumers engage with the food system to make their decisions about acquiring, preparing and consuming food”.<sup>7</sup> Therefore, acting on food environments means acting on 7 different policy dimensions:<sup>8</sup>

- Food composition;
- Food labelling;
- Food promotion;
- Food provision & supply;
- Food retail;
- Food prices;
- Food trade & investment.

A wide range of actors must be engaged in reshaping food environments across these various levels, including national governments, EU institutions, local and regional authorities, food industries, public food procurers in schools, hospitals and local canteens, community initiatives, local farmers and so on. In particular, cities can act by supporting sustainable business practices regarding food waste, or stimulate food waste prevention practices by implementing them in public institutions (public procurement).

[7] [Food Policy Coalition policy briefing on Food Environments](#)

[8] Hawkesworth, S., R.J. Silverwood, B. Armstrong, T. Pliakas, K. Nanchahal, C. Sartini, A. Amuzu, et al. “Investigating the Importance of the Local Food Environment for Fruit and Vegetable Intake in Older Men and Women in 20 UK Towns: A Cross-Sectional Analysis of Two National Cohorts Using Novel Methods.” *International Journal of Behavioral Nutrition and Physical Activity* 14, no. 1 (September 18, 2017): 128. <https://doi.org/10.1186/s12966-017-0581-0>.

## Case Study 6

# Paris stimulates food redistribution in the city thanks to a Participatory Budget

City: Paris

Country: France

Population: 2,183,055 inhabitants

To stimulate citizens engagement and participatory democracy, municipalities can propose a Participatory Budget to finance local citizen-led projects. First developed in Porto Alegre, Brazil in 1980, the Participatory Budget allows citizens to have direct participation and decision-making on how to allocate part of a municipal or public budget. Provided by the city of Paris, the participatory budget works in the following way: any Parisian citizen can submit a project through the online platform according to defined criteria. If the project passes an admissibility analysis, it is then put to the vote by all citizens, and receives funding based on the budget allocation voted by the Paris' Council. Only then does the concrete implementation of the project begin, managed by the City of Paris from the study phase to its completion.

Such funding was offered to the "Solidarity Fridges" initiative in Paris in 2017. Food businesses (mainly restaurants) and community members which have left-over packaged food can decide to leave it inside the public fridge allowing those in need to get free food in an anonymous and non-stigmatising way. After considerable success, the initiative grew into an association, Les Frigos Solidaires (Solidarity Fridges) with the main goal of redistributing food that otherwise would go to waste.

The association is supported by the City of Paris within the framework of the participatory budget which awarded it with a grant to finance the installation of 15 fridges (at 1,300 EUR each). Through the participatory budget, any merchant or individual can apply to have a solidarity fridge, paid by the Municipality, and commit to be responsible for it.

The cooperation between the City of Paris and the association Les Frigos Solidaires led to:

- **Repurposing of food waste** through food redistribution in a free and non-stigmatizing way;
- **Promoting citizens' initiatives** by allowing them to be responsible for their own solidarity fridge and propose solutions to concrete local problems;
- **Incentivize and engage citizens** to become actors in their local food system by deciding how to allocate the city's resources or/and by becoming food savers themselves. Therefore, citizens have a voice regarding fundamental topics such as food waste, the right to food, social justice, and solidarity.

## Case Study 7

# Bruges and its zero food waste strategy for public buildings and events

City: Bruges

Country: Belgium

Population: 118,000 inhabitants

In 2015, the city of Bruges decided to adopt an ambitious plan to reduce food waste as part of its carbon emissions mitigation strategy. This led to a comprehensive strategy to reduce food waste within the city which started with a general analysis of the quantity of food wasted in Bruges and the setup of the Bruges Food Lab, a local stakeholder council on sustainable food. Among the many initiatives that have been implemented, Bruges has given a specific focus to food waste prevention in the public sphere:

- **A sustainable food manual for events:** Created by the Bruges Food Lab in 2016, the manual gives several recommendations for public events on using seasonal, local, organic, vegetarian and fair products. It also gives tips to prevent food waste, donate food about to be wasted or to compost, following the principles of the food waste hierarchy. In 2017, the city of Bruges adopted the guidelines and made them applicable for any events happening on the city's territory thus committing to only use sustainable food for public events. This has also been complemented by training civil servants on sustainable food.
- **Feeding the 5000 and the sustainable food festival:** In 2016, the city of Bruges and the Bruges Food Lab organised together a sustainable food festival with the objective of preparing 5000 meals only using food that would otherwise have been wasted. The festival was organised with the help of grocery and restaurants. The event was a success as there were no leftovers and it helped educate people about the topic.

**Prevention of food waste in healthcare:** In 2017, Bruges decided to focus on food waste in the public sector, starting from healthcare. The city's involvement in the process has been key as it helped health institutions to develop their own food waste strategy and to get funding from the regional authority. The strategy consisted of 5 main steps:

- Measuring food waste;
- Creating an action plan based on the measurement;
- Piloting small-scale solutions;
- Measuring the impact;
- Upscaling the solutions.

As a result, the participating actors changed their processes, reducing and adapting portions to the demand. It led to positive results, with one hospital reducing food waste up to 43%.

## FORCING SUPERMARKETS TO ACT

A large share of food waste is happening in supermarkets or driven at the retail level. Although donation systems or business-to-consumers applications are solutions to absorb the surplus of food about to be wasted, those options do not question the overall system that is producing food waste. One solution is to change supermarkets' processes. The French startup Phenix is providing those services to supermarkets for them to improve their whole process and reduce food waste in a holistic way. Another needed option is to adopt a regulatory and binding approach, as France did by banning and fining the destruction of unsold products fit for consumption.

#### 4. Raising awareness and educating about the value of food

The issue, scale and impact of food waste remains poorly understood by citizens, in particular because food lost due to disrupted supply chains, overproduction, and inadequate storage remains largely invisible. Drivers of food waste generated at household level include inadequate management and planning of home activities related to food (shopping, management and home storage, meal preparation)<sup>9</sup> ; as well as confusion about “best before” and “use by” date labels, and the exposure of consumers to negative effects from advertising which may stimulate bad practices (bulk offers, big packaging sizes.)<sup>10</sup>

In addition, food waste is a consequence of the commodification of food and the loss of its deserved, respected value to humanity. At household level, this results in little value being given to food by consumers, hence a lack of concern to use it efficiently.<sup>11</sup>

It is therefore essential that cities contribute to raising awareness of the environmental, economic, cultural and ethical impacts of wasting food, of the value of food, and the consequences of our daily food choices. Cities should support civil society organisations for awareness raising activities and encourage the exchange of best practices among producers, manufacturers and retailers. It is also critical to educate children and bring food education into schools. Slow Food education projects are based on the belief that by widening understanding of where one’s food comes from, how it was produced and by whom, one can learn to unite taste and responsibility in daily choices and appreciate the cultural and social importance of food.

[9] Food Waste Drivers in Europe <https://www.mdpi.com/2071-1050/9/1/37>

[10] Food Waste Drivers in Europe <https://www.mdpi.com/2071-1050/9/1/37>

[11] [Slow Food Position Paper on food loss and food waste](#)

## Case Study 8

# Really Healthy School and its comprehensive approach to educate about the value of food

**Cities:** currently in more than 300 cities

**Country:** Czechia

The program **Really Healthy School (RHS)** is an initiative from Czechia heavily inspired by the Slow Food principles, which started in the city of Brno and has since expanded to over 300 cities in the country. The program aims to enhance the quality of food in school canteens and educate children on the value and importance of food, including on the issues of food waste.

The main goal of RHS is to create a healthy and sustainable food environment in public kindergartens and primary schools through a complete food education program. The program started in 2015 with 15 pilot schools, and today it is implemented in 480 schools, and involves more than 75,000 students.

During the first three years, RHS was funded by a private foundation and now relies mostly on public funding, both from national and international level, as well as funding from the Ministries of Agriculture and Environment and the City of Prague.

The multidisciplinary approach undertaken by RHS includes:

- **Educating children about food:** its ecological, economic, social, and health value, as well as where it comes from, and how it is cultivated and produced.
- **Supporting canteens:** through education and training to become more sustainable, and to cook food that is healthy and tasty. After joining the program, 86% of school cafeterias report that they use more locally sourced fresh and seasonal ingredients, helping to stimulate the local economy and shorten food supply chains.
- **Fighting food waste through specific tools and materials** given to teachers and students that raise awareness to the problem under the initiative: "I love food, I don't waste it". The activities aim to educate on how to store food in a proper way, how to plan food orders from producers, and how to donate to food banks. The goal is to make students active actors in fighting food waste.

The association behind RHS will continue its work on educating school children through the EU funded project, SchoolFood4Change, that aims to foster sustainability and health in schools. The project, which will start in January 2022 will directly impact 3,000 schools and 600,000 students across 12 EU countries.

## Case Study 9

# Ljubljana and the "Raise your voice against food waste" campaign

City: Ljubljana

Country: Slovenia

Population: 295,000 inhabitants

In 2013, Ljubljana's waste management company Snaga (now Vokasnaga) decided to go beyond a focus on waste management to actively promote reuse activities and waste prevention. In addition to this, in 2016, the city of Ljubljana committed to become a Zero Waste City and adopted a zero waste plan.

As food waste and awareness-raising are major tools to achieve the city's objectives, a large campaign on food waste prevention was started. The campaign called "raise your voice against food waste" aims to educate about the quantity of wasted food and to promote more sustainable habits regarding consumption and disposal of food:

- The core of the campaign was the organisation of a "bin strike" with bins carrying the following claim "Just because we are on the streets, it doesn't mean we're hungry!". The event was joined by the media, local NGOs and food service providers, and participants were given food containers to take leftovers from restaurants.
- In addition to this event, several communications tools were developed and disseminated, such as infographics on how to best preserve food and a video was also created with a bin singing a blues song to show its distress regarding wasteful habits.

## 5. Properly recycling food waste as the last resort

Where food cannot be used in any way for human or animal consumption, there is still a way to valorise it through composting or anaerobic digestion. Even non consumed food will have great value if properly recycled and reinjected in the nutrient cycle. At the level of a city, this means focusing on improving the local waste management system in order to properly collect and recycle biowaste.

Collection and recycling of biowaste will become mandatory in the European Union by the end of 2023 but many countries are still lagging regarding a wide implementation of this measure. Currently, it is estimated that only 16% of the theoretical potential of biowaste collection has been reached across the 27 member states. However, in some countries like Italy or Spain, several successful schemes have already been adopted and show great results at a local level.

When recycling biowaste, there are two options:

- **Composting or aerobic digestion:** Mixed with carbonated matter, the collected food waste is gradually degraded into compost by micro-organisms. This process occurs in open air, can take place in various ways and requires various infrastructure. It can be done with a simple home-composter at home or within an industrial plant where food waste is collected by trucks and brought to the plant. Composting requires low technology and is not capital intensive: food waste is degraded and turned into compost in order to be returned to the soil.
- **Anaerobic digestion:** the collected food waste is transported to a biomethanation plant where it is digested without oxygen. This fermentation process creates biogas which is then collected and can be used for heating systems or to fuel vehicles. After the digestion process, approximately 20% of the input remains, the digestate, which can then be composted and returned to the soil.

When a city decides to implement a biowaste collection and recycling scheme, there are several options that can be adopted depending on factors such as location, size or density. While anaerobic digestion will be suitable for cities with high population and density, relying on a centralised waste collection system, other options such as home-composting or community-composting will be more suitable for areas with less population and therefore, more space to compost.

## Case Study 10

# Milan and its centralised bio-waste collection scheme

City: Milan

Country: Italy

Population: 1,4 million inhabitants

In 2011, the city of Milan adopted a comprehensive strategy to collect and recycle food waste produced by its population. While it only collected 28 kilograms of biowaste per inhabitant in 2011, this figure quickly rose to reach 91 kilograms in 2015. Once collected, the waste is transferred to an anaerobic digestion plant where it is turned into biogas and composted afterwards. The success of the initiative relied on two main factors:

- **The comprehensive design of a waste collection scheme** for 1.4 million inhabitants and a densely populated area. Before the beginning of the roll-out phase, Milan first tested it with two pilots in 2008 and 2010. Only after those pilots did the roll-out phase start gradually, with one of the four city's neighborhoods every 6 months.
- **A wide communication campaign** including a plan to educate citizens about the new collection scheme and continued communication in order to maintain the sorting practice. Two months before the implementation of the scheme in a new area, a face-to-face meeting with households was organised with households to explain the system and give them the necessary tools and information including bins, bags and collection frequency. In parallel, a website in several languages as well as an application have been launched where citizens can find the relevant information relating to food waste collection, at any time.

## Case Study 11

# Pontevedra and its decentralised composting strategy

Province: Pontevedra

Country: Spain

Population: 960,000 inhabitants

In 2017, facing extremely low waste management results - with only 9% of the general waste being recycled - the province of Pontevedra and its 61 communes decided to adopt a plan to manage organic waste based on decentralised composting relying on several bio-waste collection and treatment options. The program, called “Revitaliza” aims at moving away from an expensive and capital-intensive system. Relying on decentralised composting - permitted by a low population density - through home-composting or community composting, the project relied on three main factors:

- **A careful design of the implementation plan** which first studies which composting option is the best given the area’s specificities. The options include home-composting, community composting and small composting plants for dense areas.
- **The flexibility for cities to opt in to different levels of engagement from voluntary to mandatory** and benefit from the province’s expertise and funding. When joining the project, municipalities can choose a first “voluntary option” to receive support from the province in the form of training and workers, and run the implementation of the system themselves. The second “mandatory option” entails that the province pays for the whole system to be implemented for 4 years. Once the system is up and running, municipalities can opt for a third option whereby the Revitaliza activities are made mandatory through a municipal ordinance.
- **A strong communication plan** for citizens before the roll-out phase in municipalities which have chosen to enter the project. For instance, in areas where a community composting option is chosen, in-person meetings are organised with inhabitants to explain how the system will work.

In 2019, after 3 years of running, the project has been implemented by 44 of the 61 municipalities and more than 2000 tonnes of bio-waste have been locally composted.

## CONCLUSION

Cities and municipalities are more and more recognised as key actors in developing a circular economy as they're the ones capable of implementing concrete measures on the ground. Although acting within the European and national frameworks, they can play an important role in building and encouraging a low waste and sustainable local food system. This briefing has been designed to provide a small glimpse of the many innovative and inspiring ways in which municipalities can act in a holistic way to reduce food waste with a wider objective of contributing to a sustainable food system that is healthier, ecological, economically viable, social, ethical, and resilient.

Overall, effective food waste prevention should encourage cities to rethink food production and distribution systems in the first place: evidence shows agroecological practices in and out of the field, hinged on local resources and respectful interactions between producers and consumers, do reduce food waste, while maintaining healthy soils, providing diversified diets and fighting climate change. Effective strategies led by municipalities can lead all actors in the food system to rethink their work comprehensively and to engage in synergic collaborations and innovative solutions.

Visit the Zero Waste Cities and Slow Food websites to find out more information about zero waste and sustainable food systems, and how to implement successful waste prevention & reduction policies at the local level.

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Zero Waste Europe is the European network of communities, local leaders, experts, and change agents working towards the elimination of waste in our society. We advocate for sustainable systems and the redesign of our relationship with resources, to accelerate a just transition towards zero waste for the benefit of people and the planet.



Slow Food is a global, grassroots organization, founded in 1989 to prevent the disappearance of local food cultures and traditions, counteract the rise of fast life and combat people's dwindling interest in the food they eat, where it comes from and how our food choices affect the world around us.



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