



Food waste

A Policy Brief from the Policy Learning Platform on
Environment and resource efficiency

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Summary

This policy brief highlights policies and approaches which have been taken to prevent and reduce food waste, with focus on EU waste policy developments and regional actions.

What is food waste?

According to the EU-funded research project FUSIONS, “*Food waste is any food, and inedible parts of food, removed from the food supply chain to be recovered or disposed (including composted, crops ploughed in/not harvested, anaerobic digestion, bio-energy production, co-generation, incineration, disposal to sewer, landfill or discarded to sea)*”.¹ Drink and liquid waste, fish discarded to sea and waste of any materials that are ready for harvest, but which are not harvested, are included in FUSIONS’s definition of food waste, making its perimeter wider and broader than many other existing definitions. FUSIONS also considers inedible parts of food such as skin or bones as food waste in order to support the development of resource efficient and sustainable food systems in the EU.

The food supply chain in Europe, reaching from agriculture and fisheries to the food and drink industry, had a turnover of EUR 3.9 trillion in 2013. All these activities have an impact on the EU’s environment and beyond, due to imports of food and feed. The food system in Europe is a major consumer of energy and water and a large emitter of greenhouse gases and air pollution.² Therefore, when food is lost or wasted, the resources (e.g. water, land, nutrients, labour and energy) that were used throughout its value chain are also lost, leading to negative environmental and economic impacts. Hence, reducing food waste has great potential for improving resource efficiency, and reducing environmental impacts and economic costs associated with the food system.

Policy context

Preventing and reducing food waste, while ensuring the safety of the food chain, is an issue with societal, economic and environmental dimensions. The ways in which food is produced and consumed also has an impact on other important objectives and targets across a range of European policy areas such as climate change mitigation and adaptation, the bio-economy, biodiversity and nature protection.

The amount of food waste that is generated in the EU is difficult to quantify, as there is no harmonised methodology to define and measure food waste along all stages of the value chain. In 2012 it was estimated that approximately 88 million tons of food is wasted in EU, equating to 173 kilograms of food waste per person. Considering that the total amount of food produced is 865 kg/person, this would mean that 20% of the total food produced is wasted. More than 50% of food waste is generated by households and the costs associated with food waste in the EU-28 were estimated at around EUR 143 billion (FUSIONS, 2016).³

¹ <https://www.eu-fusions.org/phocadownload/Publications/FUSIONS%20Definitional%20Framework%20for%20Food%20Waste%202014.pdf>

² EEA report No 16/2017 “Food in a green light”

³ <http://www.eu-fusions.org/phocadownload/Publications/Estimates%20of%20European%20food%20waste%20levels.pdf>



Supporting the transition to a more resource efficient Europe, the EU and its Member States are taking action in response to the pressing need to reduce food waste. The European partners are committed to meet the food waste reduction target adopted by the United Nations General Assembly as part of the 2030 Sustainable Development Goals (SDGs). The 2030 SDGs aim to reduce food losses in production and supply chains and halve the per capita food waste at retail and consumer levels. Actions proposed by the European Commission include:

- reforms promoting better understanding and the use of date marking (including possible legislative reforms);
- the facilitation of food donation to food banks;
- support measures to increase the use of unsold food and by-products as a resource in animal feed production without compromising food safety (EC, 2015).

Designed to support the achievement of the Sustainable Development Goals (SDGs), the EU Platform on Food Losses and Food Waste was launched by the European Commission.

The EU Platform on Food Losses and Food Waste (FLW)

Bringing together European and national public entities, international organisations as well as actors in the food value chain including consumer- and other non-governmental organisations, [the EU Platform on Food Losses and Food Waste](#) aims to support all actors in defining measures needed to prevent food waste, sharing best practice and evaluating progress made over time. In addition to plenary meetings, the Platform also operates in sub-groups to examine specific aspects and/or questions related to food waste prevention. Three such subgroups have been established to date:

- [Mandate: Sub-group on food donation](#)
- [Mandate: Sub-group on food waste measurement](#)
- [Mandate: Sub-group on action and implementation](#)
- [Roadmap: Sub-group on action and implementation](#)
- [Mandate: Sub-group on date marking and food waste prevention](#)

Food waste prevention

Moreover, food waste prevention was highlighted as a priority in the EU Communication on ['Closing the loop – an EU action plan for the Circular Economy'](#) adopted by the European Commission on 2 December 2015. In May 2018 Member States took further steps by agreeing on a set of ambitious measures to make EU waste legislation fit for the future, as part of the EU's wider circular economy policy. The new rules place a particular focus on waste prevention, including the prevention of food waste. Specifically, the new rules envisage the achievement of EU-wide food waste reduction target of 30% by 2025 and 50% by 2030. In addition, Member States should establish specific food waste prevention measures in their waste prevention programmes, including progress monitoring tools, awareness campaigns as well as incentives for the collection of unsold food products at all



stages of the food supply chain and for their safe redistribution, including to charitable organisations.¹

Food donation

Primarily food waste prevention should be addressed directly at source by limiting the generation of surplus food at each stage in the food supply chain. If this cannot be achieved, the best destination for food surplus, which ensures the highest value use of edible food resources, is to redistribute this food for human consumption. As part of the Circular Economy Action Plan, the Commission has adopted [EU food donation guidelines](#) in order to facilitate the recovery and redistribution of safe, edible food to those in need. Specifically, the guidelines aim to facilitate compliance of providers and recipients of surplus food with relevant requirements regarding food safety, food hygiene and liability; and promote common interpretation of the European rules by regulatory authorities in the EU Member States.

Addressing food waste at regional level

The [policy brief on sustainable management of biowaste](#) prepared in 2017 by the Policy Learning Platform highlights the benefits of sustainable management of biowaste. Most of these benefits such as avoided emissions of greenhouse gases, the creation of new jobs, the introduction of technical innovations as well as social gains also apply for tackling food waste. Many regions and cities are aware of these benefits and have already taken action to prevent and reduce food waste. However, there are still challenges to be addressed, specifically with regards to:

- developing regional food strategies that prioritise food waste prevention and the inclusion of sustainability criteria in public procurements aimed at reducing and preventing food waste;
- promoting the use of local, regional and seasonal products in catering services;
- supporting educational campaigns in schools focused on the issue of food-waste reduction;
- stimulating eco-innovation.

There are numerous examples of good practices from European regions and cities in addressing food waste. In the following chapter, we take a closer look at some of them.

Good practices from European regions

Previous interregional cooperation programmes prepared the ground for regions to exchange and cooperate and share their experiences. The current Interreg Europe programme also provides support to partners which intend to work together on the challenge of tackling food waste. Examples of good practices identified by Interreg Europe projects are provided below:

¹ <http://data.consilium.europa.eu/doc/document/PE-11-2018-REV-2/en/pdf>



- *Food donation:*



Last Minute Market, *CESME*

Last Minute Market (LMM) is an initiative addressing the need to reduce food wastage. Having started as a spin-off from the University of Bologna (Italy), the activities of Last Minute Market have expanded to other sectors. Today LMM is an entrepreneurial society working at national level in Italy focused on developing local projects for recovery of unsold goods in favour of non-profit organisations. LMM supports the creation of a solidarity network and facilitates the contact between non-profit institutions and businesses. The services offered by LMM include: recovery of surpluses (food, meals, medicines, books, non food goods, etc.); data analysis, loss and waste analysis, estimating the environmental and social impacts; training for schools, companies and institutions as well as communication, marketing projects and content production. Examples of successful recovery projects:

- *Recovery from retail sector:* After two years of work, 200 supermarkets did not throw unsold products away, but donated them to non-profit organisations. In 2017 the donated goods amounted to EUR 5.5 million.
- *Recovery of cooked meals not served by canteens:* the recovery of meals is active since 2004 and currently involves multiple structures: canteens, hospital cooking centres; school canteens and catering centers.

Collaboration with public authorities towards promoting zero-waste in legislation is another essential element of the initiative. LMM proved to be successful and can serve as an inspiring example for other regions interested in promoting action towards addressing food waste and promoting more efficient use of resources.

<https://www.interregeurope.eu/cesme/>





Food donation in Provence Alpes Côte d'Azur (France), [ECOWASTE4FOOD](https://www.interregeurope.eu/ECOWASTE4FOOD/)

Set up in 2015 by 5 departmental Food Banks, COOP de France Alpes Méditerranée, and by the Regional Federation of agri-food industries, [Fondalim](https://www.fondalim.com/) is an endowment fund that gathers 500 regional associations and food banks, 200 agri-food companies and 280 agri-food cooperatives in Provence Alpes Côte d'Azur region (France). Its main mission is to encourage food companies to help organisations involved in the distribution of food aid to provide access to quality food for all.

Refocus of European food aid has driven a revision of the business model applied by food banks. In Provence Alpes Côte d'Azur region a regional network was created with the purpose to encourage industries and agri-food cooperatives to donate through a user-friendly online platform. The online platform was set-up with the support of energy agency and the French government.

Digitisation of food donation at regional level helps to provide fresh food in a short time to food banks. How does this work in practice? For instance, when a local baker has 15 kg of bread surplus at 8pm, he/she can inform the Fondalim network at 6pm through the app, so that a local charity can click on the offer and pick up the bread at 8pm. In addition to providing services and advice to food banks and food industries, Fondalim is developing a similar scheme for management of biowaste at local and regional level. The activities of Fondalim resulted in 400 t of donated food/year and 60% tax exemption for companies donating food.

<https://www.interregeurope.eu/ECOWASTE4FOOD/>





- *Innovative actions in addressing food waste:*



Food Crossing District, [TRIS](#)

The EU-funded [Food Crossing District](#) project is an example of a systemic approach for industrial symbiosis at regional level which allows to capture more value from resources and to reduce waste deriving from food industry. Key actors involved are two regional laboratories of the Emilia-Romagna region, Italy, a high technology network and two large companies representing the supply chains addressed.

Focusing on tomato and wheat supply chains, the main goal of the project is to develop and test solutions for the reuse and valorisation of food waste, by generating opportunities for new market products. By applying innovative and low environmental impact technologies for the tomato supply chain, waste skins and seeds are used to naturally enrich olive oil and obtain a new oil for the food market. From waste products of the wheat supply chain, wheat germ oil and defatted oil are produced for the food market as well as for other markets.

The ongoing project is a positive example for other regions on how to encourage the deployment of new technological solutions in agri-food sector and promote industrial symbiosis at regional level.





Better eat for less throw: addressing food waste in Avignon hospital, **[ECOWASTE4FOOD](#)**

At the Avignon hospital, annual costs spent on food is EUR 2 million and food waste was estimated 100 tonnes per year in 2016. In average for a meal with a price of EUR 2.16 EUR, food worth EUR 0.57 was discarded. Since 2011 the hospital has been donating unconsumed meals to the Red Cross. Since 2016 an action plan has been implemented focusing on:

- optimisation of the software for meal orders;
- promotion of seasonality for fresh food as well as short supply chains;
- matching nutritional intake with patients' needs;
- training staff about good practices;
- improving the hotel service;
- collecting bio-waste and setting up a separated bio-waste chain.

Further to that, a mix of technological and social innovative actions have been carried out to identify and monitor areas for reducing food waste. For example, at the onco-hematology service, food waste has been halved thanks to cold dishes while wasted bread has been reduced to 4% instead of 30% when stored at ambient temperature. At the end of the year, 1 tonne of food has been avoided in this service. This was achieved by installing a software for ordering patients' meals and managing the preparation of food portions. A smart low temperature oven has facilitated slow and better cooking. Home-made meals, traditional Provence food recipes, new format of individual trays have also significantly contributed to reduce food waste. Training of staff was also provided. As a result of these measures:

- food portions' leftovers have been reduced from 90,000 to 9,000 individual trays;
- between 2016 and 2018 one tonne of wasted food was avoided;
- 90% of food recipes were prepared at the hospital;
- Saving of EUR 50,000 was achieved on meat purchases thanks to the smart oven;
- Patients are satisfied with new cold meals (64% satisfied, 22% very satisfied).

This practice is eco-innovative, as it breaks stereotypes at hospitality catering level, especially in a kitchen providing 840,500 meals per year. It can serve as a positive example for other regions addressing food waste objectives. The project is supported by Provence Alpes Côte d'Azur Region, the French government and the environmental and energy agency.

<https://www.interregeurope.eu/ECOWASTE4FOOD/>



- *Raising awareness regarding food waste:*



Addressing food waste in schools, [ECOWASTE4FOOD](#)

Weigh and Think project ([Pesa i Pensa](#)) which started in 2014 is implemented in more than 20 schools in the region of Catalonia (Spain). The project aims to encourage school children to reduce food waste through daily weighing of food served in the canteen. The Weigh and Think method consists of five steps:

- separating food waste into four bins;
- weighing every day in a systematic and precise manner;
- recording data by means of an app: meals served, waste generated;
- thinking: analyse data related to the generated waste and
- proposing: set targets to be achieved with the children.

According to the Waste Agency of Catalonia, 35 kg of food are wasted per person per year in the region of Catalonia, which corresponds to a loss of EUR 842 million. From the second month onwards and in a sustained way, food wastage in schools was reduced by 35% and waste generation dropped by 50%. The Waste Agency of Catalonia has estimated that wastage could be reduced by 75 tonnes every day, given that this project could contribute to a 5% reduction of the total amount of food wasted in the region. More than 2,000 school children are involved in Pesa i Pensa initiative. The awareness-raising campaign has been set up by the Waste Agency of Catalonia.

<https://www.interregeurope.eu/ECOWASTE4FOOD/>





What can regions do next?

Across Europe, a wide range of initiatives to prevent and reduce food waste are underway at national, regional and local levels. Regions and cities have relevant instruments to address this issue and play a key role in the process of transition to circular economy. Specifically:

- Regions can set action plans for food waste prevention and reduction as part of their long-term visions and strategies for waste prevention and circular economy development. For example, in 2015 Provence Alpes Côte d'Azur Region (France), partner in ECOWASTE4FOOD project, started to draw up a circular economy roadmap which sets out the guidelines and strategic measures to be implemented in every domain of the circular economy, including food waste. Since 2013 the PACA region has launched calls for proposals to support exemplary, innovative, unifying and replicable projects for combating food losses and waste in the food industry.¹
- Regional and local authorities can take action to raise consumer awareness on food waste by establishing focused educational programmes and providing practical tips to consumers on how to prevent food loss and waste. The effectiveness of such campaigns can be increased by using new media and technologies to reach out to consumers. Weigh and Think project implemented in Catalonia region (Spain) is a positive example of how educational and awareness raising campaign in schools can contribute to reduction of food waste.
- Regional and local authorities can facilitate food donation, provide incentives for the collection of unsold food products in food retail and food establishments, including their redistribution to charities. The initiative Last Minute Market and the experience of Provence Alpes Côte d'Azur region in food donation can be replicated in other regions interested in promoting action towards addressing food waste and more efficient use of resources.
- Accurate measurement to track and monitor food waste is essential for decision makers to take adequate action or adjust behaviour towards minimising waste. The example from Avignon hospital, ECOWASTE4FOOD is a positive step in this regard.
- In stimulating innovation for food waste reduction, policymakers need to focus on development of cooperation mechanisms with universities, other cities and regions, entrepreneurs and civil society organizations. The experience of Avignon hospital described above is an inspiring example of joint efforts of national and regional authorities to support technological and social innovative actions. Food Crossing District project was also made possible as a result of cooperation mechanisms.

¹ <https://www.interregeurope.eu/ecowaste4food/news/news-article/2886/reducing-food-waste-in-paca-region/>



Sources of further information

- EC, Roadmap to a Resource Efficient Europe, COM (2011) 571 final, 2011
- EC, A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy, COM(2011) 21, 2011
- EC. Closing the loop - An EU action plan for the Circular Economy. COM (2015) 614 final. Brussels, 2015
- EC, Communication on the Interpretative Communication on waste and by-products, COM(2007) 59 final, 2007
- EEA report No 16/2017 “[Food in a green light](#)”
- 2014, [FUSIONS Definitional framework for food waste](#)

Relevant initiatives and networks

- [The Milan Urban Food Policy Pact](#) represents the main framework for cities and international stakeholders active in the definition of innovative urban food policies for the management and governance of local food systems. Nowadays the pact is a new arena of debate and cooperation among cities, metropolitan and regional authorities.¹
- [Eurocities WG Food](#), 51 European cities, advocacy to EU Commission, partnerships for food policy projects, meetings and workshops;
- [ICLEI-RUAF CITYFOOD](#), joint advocacy activities, definition of the monitoring framework, joint meetings;
- [C40 Food Systems Network](#), participation to webinars on food related issues and climate change

¹ <http://www.milanurbanfoodpolicypact.org/wp-content/uploads/2018/04/Policy-Brief-Milan-Urban-Food-Policy-Pact-2018.pdf>

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