



Food Systems: a recipe for food waste prevention

Policy briefing

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Context

With the recent update of the Waste Framework Directive, a new definition of food waste has been established. This initial milestone paves the way for concrete and efficient policies in order to comply with the SDG's target of 25% food waste reduction by 2025 and 50% by 2030.

Food waste in the European Union is a multifold challenge, especially when compared to the rest of the world. In 2012, 88 million tons of food were wasted in the EU - equating to 173 kg of food waste per person¹ – against the 6-11 kg/person/year of sub-Saharan Africa and South and South East Asia².

Food Waste is therefore considered as:

- An **economic issue**, as costs associated to food waste in Europe were estimated at around 143 billion euros³
- An **environmental issue**, as it generates around 8% of the annual greenhouse gas emissions⁴ and 24 billion metric tons of fertile soils are lost every year⁵
- A **social issue**, as in 2017 within the European Union 42,9 million people could not afford a complete meal every second day⁶
- An **ethical issue**, as in 2017, 821 million people or 10.9% of the world population ,were suffering from undernourishment⁷

In order to effectively tackle this issue, it is needed to take into account the whole food system as the losses begin at the earliest stages of production.

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

² Gustafsson, J., Christel Cederberg, Ulf Sonesson, and Andreas Emanuelsson. *The Methodology of the FAO Study: Global Food Losses and Food Waste-Extent, Causes and Prevention*–FAO, 2011. SIK Institutet för livsmedel och bioteknik, 2013.

³ FUSIONS. "Estimates of European Food Waste Levels." European Commission, 2016.

⁴ FAO. "Food Waste - Food Safety - European Commission." Food Safety. Accessed October 30, 2018.

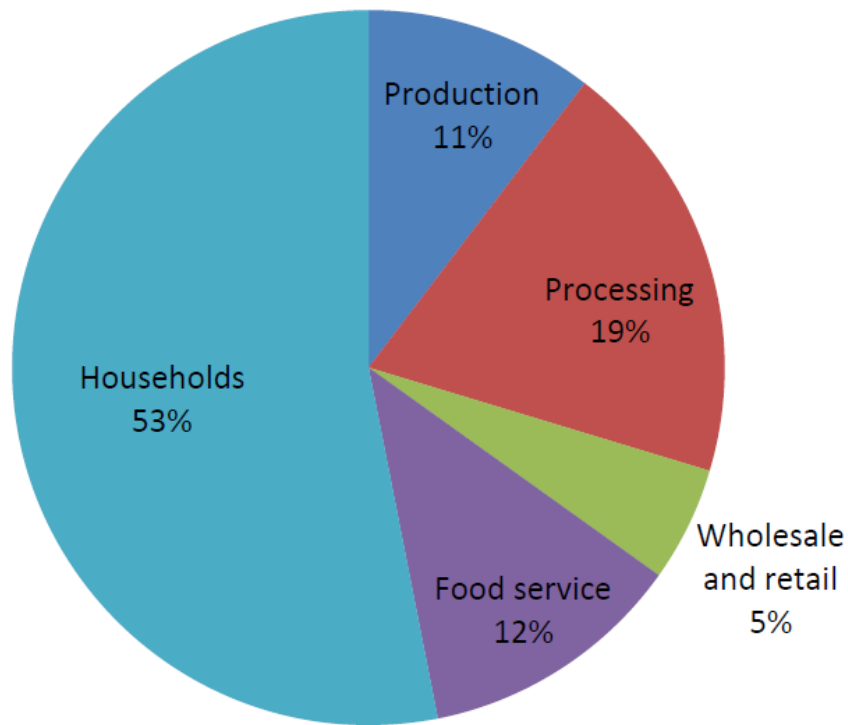
http://www.fao.org/food/safety/food_waste_en/

⁵ "Evaluate Land to Halt Annual Loss of 24 Billion Tonnes of Fertile Soil, Expert Panel Says." UN Environment. Accessed November 7, 2018. <http://www.unenvironment.org/news-and-stories/press-release/evaluate-land-halt-annual-loss-24-billion-tonnes-fertile-soil-expert>.

⁶ EUROSTAT, 2018

⁷ FAO. "SOFI 2018 - The State of Food Security and Nutrition in the World." www.fao.org, n.d. <http://www.fao.org/state-of-food-security-nutrition/en/>.

Figure 1: Division of Food Waste by sector within the EU in 2012⁸



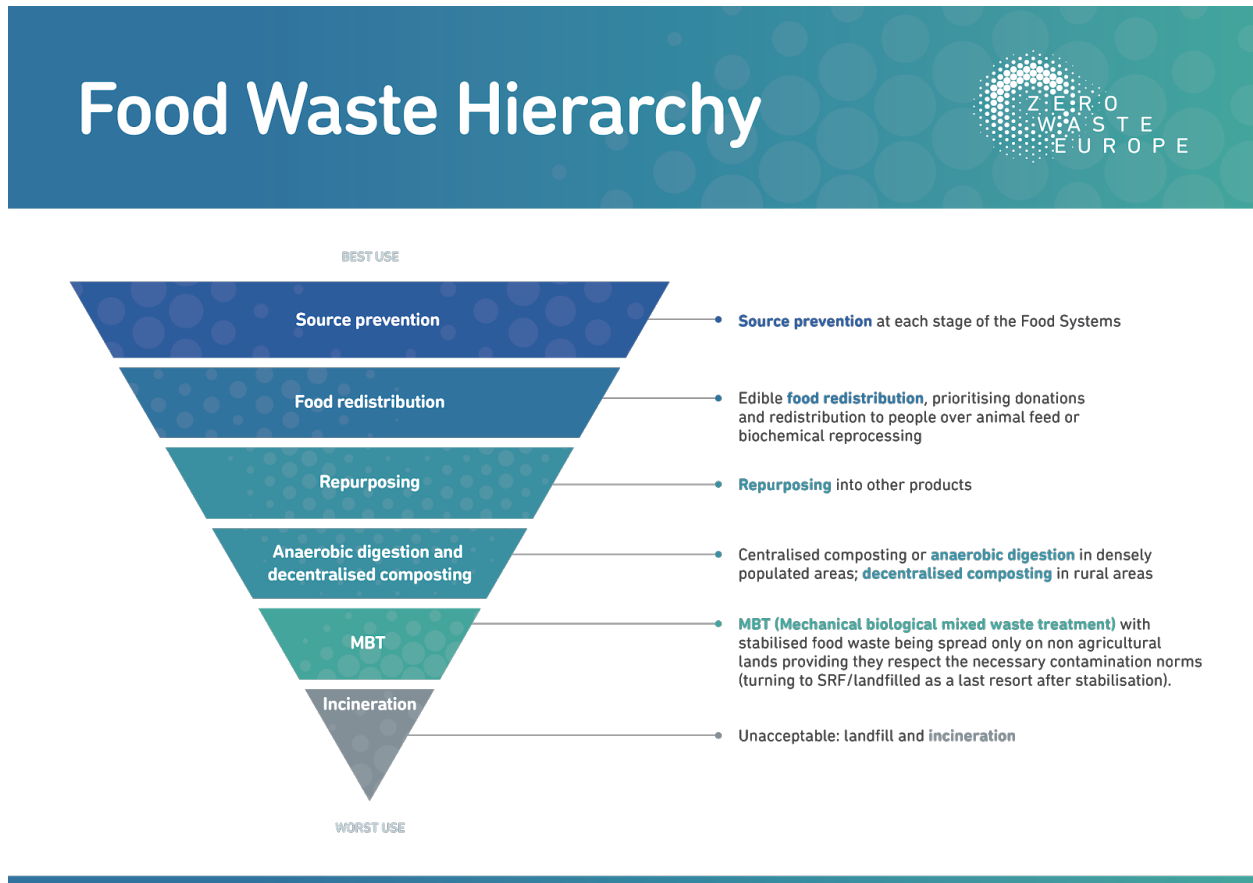
Overall direction

Above all, a specific food waste hierarchy should be defined and serve as a guideline for food waste policies. The general waste hierarchy is not suitable for food waste. By its specific characteristics and potential outputs, food waste is intrinsically different from other types of waste. Hence, food waste hierarchy should cover all food waste whether it is processed or unprocessed, sold or unsold. Donated or not donated.

The hierarchy should follow the stages illustrated in figure 2.

⁸ FUSIONS. "Estimates of European Food Waste Levels." European Commission, 2016.

Figure 2: The food waste hierarchy



Disposal through landfill (MBT included as of 2027) and incineration (Whether for energy recovery or not) should not be considered as an option.

According to this hierarchy, food waste policy should be a three-fold policy aiming at improving:

1. Food waste prevention
2. Food donation
3. Treatment of unsold and non-donated food

Indeed, an effective and ambitious strategy to tackle food waste has to cover the whole food system from crop to compost.

Recommendations by steps

Key recommendations on food waste prevention

As prevention always comes as the first step to a better food waste management, 3 overall policies should be adopted to effectively reduce food loss:

- Mandatory adoption of a food waste prevention program by member-states
- Binding food waste reduction targets supported by clear guidelines and measurement methods
- Comprehensive definition of Food Waste that includes each step of the food chain

Along with those overall objectives, measures should be taken at every step of the food system, from production to households:

Primary production (11% of FW) and processing (19% of FW⁹):

Food Waste in primary production is also called “side flows”, meaning “primary products that are intended to be consumed by humans but never enter the food chain”¹⁰. Side flows are mostly due to 3 reasons: apparent reasons¹¹ (such as appearance), causal reasons (such as weather or diseases) and underlying reasons (mostly economic such as overproduction or low prices). For instance, in Sweden, 13 to 31% of the carrots side flow is due to products non-accepted because of their size or shape. On the other hand, in Finland, green peas side flow is due to small scale production issues and requires the creation of new markets, otherwise the production is left unharvested. In a country like Australia (25 millions inhabitants), it has been found that only by avoiding food waste in primary production, 2.84 billion dollars (1.8 million euros) could be saved for primary producers¹². In order to avoid those losses, we recommend:

- Adapting CAP and CFP rules to include conditionalities and objectives on food losses reduction and make the food market fairer to farmers in order to prevent food waste linked to economic reasons
- Encourage the development of better agricultural techniques (cultivation, harvesting, sorting and storage) to improve quality, resistance to diseases or bad weather conditions and conservation over a long period
- Change consumers and retailers’ attitudes towards acceptable quality to render them more tolerant

⁹ FUSIONS. “Estimates of European Food Waste Levels.” European Commission, 2016.

¹⁰ Hartikainen, Hanna, Lisbeth Mogensen, Erik Svanes, and Ulrika Franke. “Food Waste Quantification in Primary Production – The Nordic Countries as a Case Study.” *Waste Management* 71 (January 1, 2018): 502–11. <https://doi.org/10.1016/j.wasman.2017.10.026>.

¹¹ Ibid

¹² Lapidge, Steven. *Primary Production Food Losses: Turning Losses into Profit*, 2015. <https://doi.org/10.13140/RG.2.1.1799.9525>.

Processing - including transportation and packaging (19% of FW):

Food waste during the processing step corresponds to an average of 33 kg per person per year. There are 2 main reasons to those losses; the bad conditions of transportation and the damaged or non-accepted products during the final product manufacturing¹³. For instance, livestock or fish damaged during transportation or milk spilled during pasteurization. To prevent those losses, we recommend:

- Shortening the supply chain by prioritising proximity production sold by retailers and reducing transportation time
- Rethink and improve food packaging to conserve food longer and optimise portions sizes¹⁴
- Establish food waste reduction targets for the biggest food companies
- Improve the necessary infrastructures for processing (road, trucks, electricity)

Wholesale and retail (5% of FW):

During the wholesale and retail step, about 4.6 millions tons of food are lost every year. The main reason is the damaging of the products during transport or storage. Aesthetic standards also play an important role as they're the cause of rejection for many products. Then, poor logistics during inventory and planning lead to surplus or expiry of products¹⁵. Preventing one ton of food from being wasted during that stage would allow to save up to 2.768 euros leading to major savings¹⁶.

Pilot projects showed that food waste in retail can be reduced with food donation schemes run by charities. For instance, 2 years after the launching of its food waste strategy, the city of Bruges already reduced 10% of the food waste in retail¹⁷. To further develop that, we recommend:

- Rethink hygiene and sales legislation for bulk shops (olive oils or specific PDO and PGI liquid products)
- Shorten the supply chain by promoting local retailers thus reducing transportation time
- Create fruits and vegetables with 'unconventional shapes' sections to re-adapt the customers to them.

¹³ "2018 Progress Report." Champions 12.3, September 24, 2018. <https://champions123.org/2018-progress-report/>.

¹⁴ "Plastic Packaging Failing to Prevent Food Waste Crisis, New Study Finds." *Zero Waste Europe* (blog), April 10, 2018. <https://zerowasteurope.eu/2018/04/plastic-packaging-failing-to-prevent-food-waste-crisis-new-study-finds/>.

¹⁵ Lewis, H., J. Downes, K. Verghese, and G. Young. "Food Waste Opportunities within the Food Wholesale and Retail Sectors." Report. Institute for Sustainable Futures, UTS, August 22, 2017. <https://opus.lib.uts.edu.au/handle/10453/115674>.

¹⁶ FUSIONS. "Estimates of European Food Waste Levels." European Commission, 2016.

Gustafsson, J., Christel Cederberg, Ulf Sonesson, and Andreas Emanuelsson. *The Methodology of the FAO Study: Global Food Losses and Food Waste-Extent, Causes and Prevention*-FAO, 2011. SIK Institutet för livsmedel och bioteknik, 2013.

¹⁷ The Story of Bruges, Case Study, Zero Waste Europe. Available at: <https://zerowasteurope.eu/downloads/case-study-11-the-story-of-bruges/>

- Rethink the “Best before” and “Use by” labels to make them more understandable for consumers
- Improve promotion policies to ease the selling of food about to expire
- Review and improve food storage and sales management
- Review hygiene conditions preventing food donations
- Food donations promotion

Food service, including canteens, healthcare and HORECA sectors (12% of FW)

Experience shows that canteens, hospitals and the HORECA sector can significantly prevent their food waste generation by introducing small changes to their daily procedures. Good practices across the EU showcase for example how a hospital has been able to cut down their food waste by more than 40% in 2 years¹⁸. Similar cases appear in canteens, with reductions up to 35% within 2 months¹⁹. For that, we recommend:

- Regular food waste audits
- Elaboration of new protocols and procedures to prevent food waste
- Regular training for employees on food waste prevention
- Creation of a specific job dedicated to food waste prevention (e.g. “donation coordinator”)
- Portions adaptation, with several types of sizes
- Make doggy bags mandatory

Households (53% of FW)

Food waste occurring in households constitutes more than half of the total waste in the European Union. On average, one person wastes 92 kilograms of food every year. Most of the waste occurs due to an excessive quantity of food cooked but not eaten and to expired food according to “Best before” and “Use by” labels. This loss can be avoided by accompanying households in better managing the food they buy and cook as it is done in cities moving towards Zero Waste. To go further, we recommend to:

- Review and harmonise at the European level, the “Best before” and “Use by” labels to make them clearer
- Organise Information campaigns on best practices of grocery shopping (bulk shops promotion, guidelines to buying the right amount of food)

¹⁸ The Story of Bruges, Case Study, Zero Waste Europe. Available at: <https://zerowasteurope.eu/downloads/case-study-11-the-story-of-bruges/>

¹⁹ ECOWASTE4FOOD. “Food Waste Innovations,” November 4, 2017.

- Promotion of peer-to-peer food donation

Key recommendations on food waste redistribution

When food cannot be consumed for its primary purpose, food donation should be made easier for all the stakeholders involved in the food system:

- Conditions²⁰ to food donation – clear information to consumers, traceability, hygiene rules and determination of primary responsibility and liability in case of food safety issues – should be reviewed in order to ensure quality and safety without compromising the food donation.
- Fiscal incentives to food donation, i.e. harmonized VAT rates
- Increase funding for the Fund for European Aid to the Most Deprived (FEAD)

Key recommendations on food waste treatment.

When food cannot be eaten, it should be properly treated according to the waste hierarchy:

- Reuse measures for upcycling: repurposing food waste by selling it through alternatives channels (e.g. making jam out of damaged fruits)
- Binding targets for bio-waste recycling along with clear measurement methods and guidelines ensuring good quality of the outputs
- Ban on bio-waste going to landfill or incineration

Conclusions

Food waste is at the core of an environmental, social and moral systemic crisis that requires to reshape our food consumption and production habits. In that perspective, Zero Waste Europe strongly recommends to adopt a comprehensive strategy tackling food waste according to the following steps:

1. Food waste prevention
2. Food donation and redistribution
3. Treatment of unsold and non-donated food

²⁰ "COMMISSION NOTICE, EU Guidelines on Food Donation (2017/C 361/01)." *Official Journal of the European Union*, October 25, 2017.

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Zero Waste Europe is the European network of communities, local leaders, businesses, experts, and change agents working towards the same vision: phasing out waste from our society. We empower communities to redesign their relationship with resources, to adopt smarter lifestyles and sustainable consumption patterns, and to think circular.



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