



Milan Urban Food Policy Pact Monitoring Framework

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Indicator44: Total annual volume of surplus food recovered and redistributed for direct human consumption

MUFPP framework of actions' category: Food waste

The indicator measures the totality of available food recovered and redistributed for direct human consumption along the entire urban food supply chain, occurring from the time at which availability is recorded (in urban and peri-urban areas) until it reaches and is used by the final urban consumer as food.

Overview table

MUFPP Work stream	Food Waste
MUFPP action	Save food by facilitating recovery and redistribution for human consumption of safe and nutritious foods , if applicable, that are at risk of being lost, discarded or wasted from production, manufacturing, retail, catering, wholesale and hospitality.
What the indicator measures	The indicator measures the totality of available food recovered and redistributed for direct human consumption along the entire urban food supply chain, occurring from the time at which availability is recorded (in urban and peri-urban areas) until it reaches and is used by the final urban consumer as food.
Which variables need to be measured / what data are needed	Safe and nutritious food recovered and redistributed for direct human consumption at various system stages: <ul style="list-style-type: none"> ▪ Production ▪ Handling and storage ▪ Processing and packaging ▪ Catering ▪ Distribution and point of purchase ▪ Household/ consumption If desired: -Commodity or types of food recovered/redistributed for human consumption -Kcal or nutrition content of different types of food waste/loss
Unit of measurement <i>(i.e. Percentages, averages, number of people, etc.)</i>	-Tonnes or Kilograms of safe and nutritious food recovered and redistributed for direct human intake

Unit(s) of Analysis (i.e people under 5 years old, etc.)	-Weight of safe and nutritious food recovered and redistributed. If calculated on a quantity basis (volume), this can subsequently be transformed to dietary energy supplies (in kcal) per capita allowing consistent aggregation and comparison. -The indicator will be calculated on an annual frequency and can be broken down by commodity.
Possible sources of information of such data	-Social and welfare entities -Municipal agriculture -Records held by producers, processors, markets, retailers, caterers, and consumers -Food banks, other social and church organisations engaged in food distribution -Food purchase surveys -Food insecurity surveys
Possible methods/tools for data-collection	-Primary data collection: sampling and weighing -Secondary data analysis: previous studies or records
Expertise required	E.g. Socio-economic/regulatory/human nutrition
Resources required/ estimated costs	The costs of measuring recovered and redistributed safe and nutritious food directly and regularly, for example by sampling and weighing, can be prohibitive. Calculation of the indicator should rather rely on data records kept by various actors in the food supply chain (producers; processors, markets) or by organisations involved (agriculture department, food banks, NGOs, other social, community and church organisations recovering and redistributing food).
Specific observations	This indicator is closely linked to Indicator 41 “ <i>Total annual volume of food losses & waste</i> ”, which details instruction on weighing and calculations of total food loss and waste before any recovery and redistribution of safe and nutritious food for direct human consumption took place or any food waste context-based utilisation was implemented.
Examples of application	

Rationale/evidence

Achieving the Sustainable Development Goals implies engaging all actors of the global food system. SDG 12.3 calls for “*By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses*”. Food loss and waste prevention, reduction and management are key components of sustainable city region food systems. Globally it has been estimated (FAO, 2011) that 1/3 of all food produced for human consumption is lost or wasted in supply chains at the local, national, regional and global level. Consumer level waste accounts for 22% and distribution waste accounts for 12% of these losses, making such waste of particular relevance to peri-urban and urban areas.

Food loss and waste (FLW) is a symptom of an unsustainable food system that is undermined in its capacity to provide food and nutrition security for all. Food security and nutrition is achieved if adequate food (in terms of safety, quality, quantity and socio-cultural acceptability) is available and accessible for and effectively utilised by all individuals at all times for a healthy and active life. FLW directly impacts the availability and accessibility of safe and nutritious food for human consumption.

Recovery and redistribution of safe and nutritious food for human consumption has been highlighted as an important strategy for the prevention of food waste and for contributing to urban food security. According to a MANA-FAO 2015 study, 21% of the fruits and vegetables produced (1.4 million tonnes) in Colombia are lost every year.¹ The given volumes of food losses could, however, feed 9.5 million people for one year.²

¹ <http://www.fao.org/colombia/fao-en-colombia/colombia-en-una-mirada/en/>

² http://www.asohofrucol.com.co/archivos/biblioteca/Desperdicio_de_alimentos_en_Colombia.pdf

Current forms of recovery and redistribution of safe and nutritious food involve a variety of stakeholders in a diverse mix of initiatives, such as: gleaning networks, food banks (warehouse, direct service, virtual, mixed form), social supermarkets and community shops, food pantries, soup kitchens and community/charitable programmes, shelters, mixed form of social protection programmes that provides food, directly or indirectly, among other services (<http://www.fao.org/platform-food-loss-waste/food-waste/food-waste-reduction/country-level-guidance/en/>). Examples from actions taken by cities include:

Ile-de-France region (the region around Paris in France) concentrates the country's largest social inequalities and highest food waste rate. The causes of food waste are: (i) products close to or over "best-before date", (ii) size or other quality criteria of the food does not fit with the industries' requirements, or (iii) overestimated orders. In response to these challenges, social supermarkets emerged in France in the 1990s that sell food and consumer products at lower prices than conventional supermarkets and that restrict access to people living below a certain income threshold. The French Social Supermarket Network (ANDES) provides its consumers fresh fruits and vegetables, amongst others through its programme *Potager de Marianne*, which supplies social supermarkets with fresh fruits and vegetables likely to be discarded by local wholesalers, distributors, and food industries.

The Municipality of Medellin (Colombia) also recognises the importance of formulating national public policy guidelines to address prevention and reduction of food loss and food waste. It supports the SACIAR Foundation, the first food bank in Medellin. SACIAR runs: (1) The REAGRO programme, which is focused on the recovery and redistribution of safe and nutritious food for human consumption through food banks and (2) The NUTRIAMOR® programme, which is focused on food waste recovery and value addition for safe and nutritious food resources in the banana export supply chain. Left-over bananas are processed into powder and used as a supplement for young children, pregnant and breastfeeding women, and the elderly, in conditions of nutrition vulnerability³.

Local governments thus need further data on the types of food that end up in the waste stream, what proportion is edible versus inedible and what proportion of food suitable for safe human consumption is actually recovered and redistributed. The World Resources Institute has developed a comprehensive "Food Loss and Waste Accounting and Reporting Standard" to facilitate the quantification of food loss and waste (FLW)⁴. This methodology is further described in the methodological guidelines for Indicator 41 (*Total annual volume of food losses & waste*).

The costs of measuring recovery and redistribution safe and nutritious food directly and regularly, for example by sampling and weighing, are often prohibitive. Calculation of the indicator should rather rely on data records kept by various actors in the food chain (producers; processors, markets) or by organisations involved (agriculture department, waste management, food banks, NGOs, other social, community and church organisations recovering and redistributing the safe and nutritious food).

Glossary/concepts/definitions used

FAO (2014) defines **food loss** as 'the decrease in quantity or quality of food'. It refers to agricultural or fisheries products intended for human consumption that are ultimately not eaten by people or that have incurred a reduction in quality reflected in their nutritional value, economic value or food safety.

³ Dubbeling M., C. Bucutariu, G. Santini, C. Vogt and K. Eisenbeiß, 2016. City region food systems and food waste management- Linking urban and rural areas for sustainable and resilient development. GIZ, RUAF Foundation and UN FAO. Bonn and Eschborn. <http://www.ruaf.org/publications/city-region-food-systems-and-food-waste-management-2016>

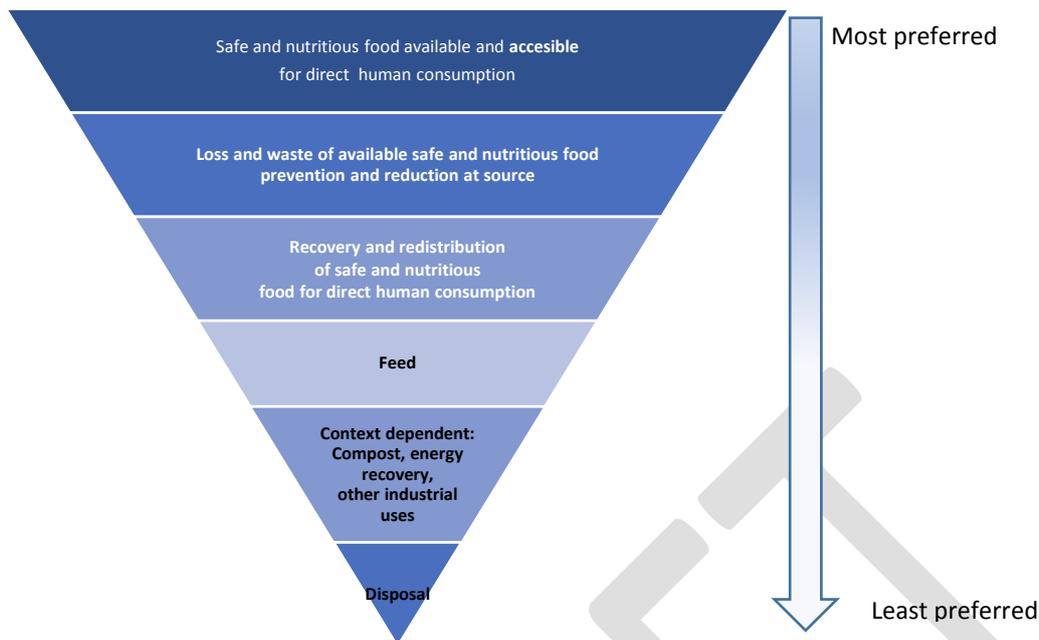
⁴ World Resources Institute (2017). Food Loss and Waste Accounting and Reporting Standard.

An important part of food loss is **'food waste'**, which refers to the discarding or alternative (non-food) use of food that was fit for human consumption – by choice or after the food has been left to spoil or expire as a result of negligence (FAO, 2014).

Recovery of safe and nutritious food for human consumption is to receive, with or without payment, food (processed, semi-processed or raw) which would otherwise be discarded or wasted from the agricultural, livestock, forestry and fisheries supply chains of the food system. **Redistribution** of safe and nutritious food for human consumption is to store or process and then distribute the received food pursuant to appropriate safety, quality and regulatory frameworks directly or through intermediaries, and with or without payment, to those having access to it for food intake (FAO, 2015).

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Figure 1. Food-use-not-loss-or-waste hierarchy



Source: Adapted from CFS 41, 2014 (Bucatariu, 2016)

Preparations

A meeting should be organised with all staff who will be involved in this activity to:

- Familiarise them with the methodological guidelines
- Agree on the objectives and scope of the analysis and data collection requirements
- Define sources of secondary data
- How to coordinate the activities.

Sampling

For a comprehensive assessment, it is suggested to collect data from:

- Records kept by 100% of all gleaning networks, food banks (warehouse, direct service, virtual, mixed form), social supermarkets and community shops, food pantries, soup kitchens and community/charitable programmes, shelters, mixed form of social protection programmes that provides food, directly or indirectly, among other services, working in the local government area.
- A sample (e.g. 10%) of stakeholders directly engaged in different parts of the food chain (from producers to consumers) to record direct individual/organisational food recovery and redistribution initiatives and volumes.

Note that records may be often routinely collected for reasons other than quantifying FLW (e.g., warehouse record books, social responsibility).

Data Collection and Disaggregation

Secondary data, e.g. records kept by different organisations on food waste recovery and redistribution for human consumption can be collected from:

- Municipal agriculture department;
- Municipal or national social programmes for safe and nutritious food recovery and redistribution for direct human consumption

- Records held by producers, processors, markets, retailers, caterers, and consumers directly engaged in food recovery and redistribution
- Food banks, other non-governmental social, community and church organisations engaged in food recovery and redistribution
- Social protection, food security surveys.

If no records are held by various stakeholders in the food chain, a survey can be implemented (10% sampling) to collect information on food loss and waste volumes, recovery and redistribution (either directly or through other organisations). Such a survey could then also include additional questions on opportunities and obstacles for increased recovery and redistribution of food for human consumption.

Data Analysis

Based on all data records (or surveys), total annual volumes of safe and nutritious food recovered and redistributed for direct human consumption can be calculated.

If data are available on the types of food/commodities, volumes can be transformed into dietary energy (kcal)/nutrient content. On the basis of such data and consumption requirements, the number of people that could be fed, can be calculated.

References and links to reports/tools

Bucatariu in FAO. 2016 Knowledge and Information for Sustainable Food Systems. Available from <http://www.fao.org/3/a-i5373e.pdf>.

CFS. 2014. Policy recommendations. Food Losses and Waste in the Context of Sustainable Food Systems. Available from <http://www.fao.org/3/a-av037e.pdf>.

Dubbeling M., C. Bucatariu, G. Santini, C. Vogt and K. Eisenbeiß. 2016. City Region Food Systems and Food Waste Management Linking Urban and Rural Areas for Sustainable and Resilient Development. Deutsche Gesellschaft für Internationale Zusammenarbeit / GIZ, RUAF Foundation, Food and Agriculture Organization of the United Nations / FAO. Available from <http://www.ruaf.org/publications/city-region-food-systems-and-food-waste-management-2016> and <http://www.fao.org/3/a-i6233e.pdf>.

Various resources at: FAO. Global Initiative on Food Loss and Waste Reduction. Available from www.fao.org/save-food.

World Resources Institute (2017). Food Loss and Waste Accounting and Reporting Standard. Available from https://www.wri.org/sites/default/files/REP_FLW_Standard.pdf. Specifically Chapter 6 (Establishing the scope of a FLW inventory) and Chapter 7 (Deciding how to quantify FLW) are of relevance.

World Resources Institute (2017). Guidance on FLW Quantification Methods: Supplement to the Food Loss and Waste (FLW) Accounting and Reporting Standard, Version 1.0. Available from http://flwprotocol.org/wp-content/uploads/2017/06/FLW-Protocol_Guidance-on-FLW-Quantification-Methods.pdf.