



ABOUT THE *FOOD LOSS AND WASTE ACCOUNTING AND REPORTING STANDARD*

THE OPPORTUNITY

Food that is lost or wasted is a challenge of epic proportions. According to the best available global estimates compiled by the Food and Agriculture Organization of the United Nations (FAO), approximately one-third of all food produced in the world is lost or wasted.¹ This huge level of inefficiency has substantial impacts. It results in roughly \$940 billion in economic losses globally per year.² It contributes to food insecurity and hinders nutrition—in a world where one in nine people are undernourished.³ In addition, food that is ultimately lost or wasted consumes about one-quarter of all water used by agriculture each year,⁴ requires land area greater than the size of China,⁵ and generates about 8 percent of global greenhouse gas emissions annually.⁶

Reducing food loss and waste (FLW), therefore, can generate a “triple win.” It can help feed more people. It can alleviate pressure on water, land, and climate. And it can save money for farmers, companies, and households. For example, findings from the United Kingdom (2007–2012) indicate that every £1 invested in curbing household food waste yielded £250 in savings for families and local governments. And a recent analysis of 1,200 business sites across 17 countries found that 99 percent saved money by reducing FLW, with half achieving a 14-fold or greater financial return on investment.⁷

An old adage is that “what gets measured gets managed.” This holds true for food loss and waste, too. Quantifying food loss and waste within borders, operations, or supply chains can help decision-makers better understand how much, where, and why food is being lost or wasted.

Box 1. About the FLW Protocol

The Food Loss & Waste Protocol is a global multi-stakeholder partnership led by a Steering Committee of seven expert institutions. The Steering Committee consists of The Consumer Goods Forum (CGF), the Food and Agriculture Organization of the United Nations (FAO), EU-FUSIONS, the United Nations Environment Programme, the World Business Council for Sustainable Development (WBCSD), the Waste & Resources Action Programme (WRAP), and the World Resources Institute (WRI). WRI serves as the Secretariat.

In developing the *FLW Standard*, the Secretariat gathered and incorporated feedback from more than 200 external stakeholders, representing companies, national governments, intergovernmental organizations, non-governmental organizations, and academic institutions from around the world.

In 2016, the Food Loss and Waste Protocol launched the *Food Loss and Waste Accounting and Reporting Standard* (the *FLW Standard*) to help companies, countries, and others understand how much, where, and why food loss and waste is occurring—so they can measure and manage it.

THREE QUESTIONS THE *FLW STANDARD* HELPS YOU ANSWER

1. Why measure?

The rationale or goal for quantifying FLW influences the scope of what an entity measures and the degree of accuracy needed. An entity should therefore clearly articulate why it wants to quantify FLW. Leading reasons include improving food security, saving money, and reducing environmental impacts.

An entity's reasons for quantifying FLW, for example, will determine the choice of material type (both food⁸ and associated inedible parts,⁹ only food, or only associated inedible parts). For instance, an entity with a goal of reducing FLW for the sake of enhancing food security may want its inventory¹⁰ to focus on food alone. On the other hand, an entity with a goal of reducing organic material going to landfills to reduce disposal costs or greenhouse gas emissions may want its inventory to cover both food and associated inedible parts.

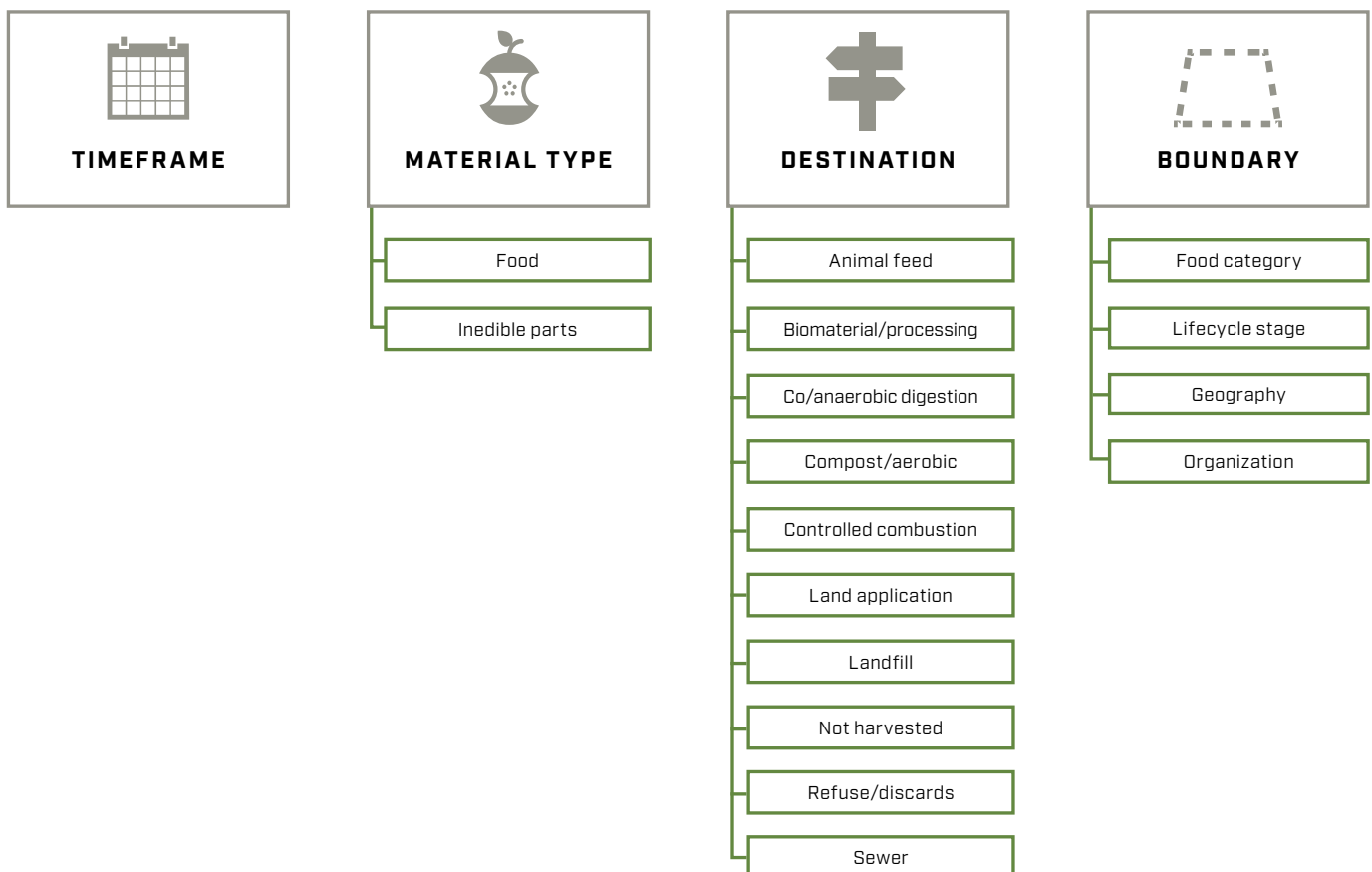
Goals also affect the degree of accuracy required when quantifying FLW. For example, an entity seeking to quantify and report its base year FLW and then monitor progress over time will need a higher degree of accuracy than one seeking only to gain a general understanding of how much FLW is generated. The *FLW Standard* discusses the implications of FLW measurement goals for FLW inventory design.

2. What to measure?

The *FLW Standard* provides a structured way to select and describe the scope of what is quantified based on four components (see Figure 1):

- ▶ **Timeframe:** The period of time for which the inventory results are being reported
- ▶ **Material type:** The materials that are included in the inventory (i.e., just food, just inedible parts, or both)

Figure 1: Scope of an FLW Inventory



- ▶ **Destination:** Where FLW goes when removed from the food supply chain
- ▶ **Boundary:** The food category, lifecycle stage, geography, and organization

The *FLW Standard* allows users to select what combination of material types and destinations make up its definition of “food loss or waste.” An entity’s reasons for quantifying FLW (“why measure”) will determine what material type and which destinations it includes in its inventory. For several FLW reduction targets and programs (e.g., the United Nations’ Sustainable Development Goal 12.3, Consumer Goods Forum’s Food Waste Resolution, Global Agri-business Alliance’s Food and Agricultural Product Loss Resolution, Courtauld 2025), a specific definition of FLW already has been prescribed or recommended. Entities that seek to satisfy those targets should use the prescribed scope.

3. How to measure?

In order to quantify the amount of FLW, an entity may use existing data and/or undertake new calculations. The *FLW Standard* does not require that an entity use a particular quantification method because the method(s) it chooses will be influenced by its particular goals, the scope selected for its FLW inventory, the human and financial resources available, and whether it has direct access to the physical FLW.

However, in order to help an entity select the most appropriate method(s) under different scenarios, the FLW Protocol provides the “FLW Quantification Method Ranking Tool,” available at www.FLWProtocol.org. Moreover, for the 10 most commonly used quantification methods (Box 2), the *Guidance on FLW Quantification Methods* summarizes advantages and disadvantages, level of expertise required, cost, and guidance on implementing the method.

Box 2. Most Common Methods of Quantifying FLW

1. **Direct weighing:** Using a measuring device to determine the weight of FLW
2. **Counting:** Assessing the number of items that make up FLW and using the result to determine the weight; includes using scanner data and “visual scales”¹¹
3. **Assessing volume:** Assessing the physical space occupied by FLW and using the result to determine the weight
4. **Waste composition analysis:** Physically separating FLW from other material in order to determine its weight and composition
5. **Records:** Using individual pieces of data that have been written down or saved, and that are often routinely collected for reasons other than quantifying FLW (e.g., waste transfer receipts or warehouse record books)
6. **Diaries:** Maintaining a daily record or log of FLW and other relevant information
7. **Surveys:** Gathering data on FLW quantities or other information (e.g., attitudes, beliefs, self-reported behaviors) from a large number of individuals or entities through a set of structured questions
8. **Mass balance:** Measuring inputs and outputs alongside changes in levels of stock and changes to the weight of food during processing
9. **Modeling:** Using a mathematical approach based on the interaction of multiple factors that influence the generation of FLW
10. **Proxy data:** Using FLW data that are outside the scope of an entity’s FLW inventory (e.g., older data, FLW data from another country or company) to infer quantities of FLW within the scope of the entity’s inventory

FOR MORE INFORMATION

The simplest way to start using the standard is by reading the Executive Summary. This short document summarizes the important features of the *FLW Standard*, including key definitions, steps for implementing it, and a framework for consistent and transparent reporting.

Visit the www.FLWProtocol.org website in order to:

- ▶ Download the [Executive Summary](#) and full [FLW Standard](#)
- ▶ Learn from [case studies](#) about companies and others who are using the *FLW Standard*
- ▶ Watch [training videos](#)
- ▶ Read answers to frequently asked questions ([FAQs](#))
- ▶ Find downloadable [templates](#) to describe the scope of a FLW inventory and report results
- ▶ Sign up to receive [updates](#) about the latest case studies, tools, webinars, and other news.

NOTES

1. One-third as measured by weight. FAO (Food and Agriculture Organization of the United Nations). 2011. *Global food losses and food waste—extent, causes and prevention*. Rome: UN FAO.
2. FAO. 2015. *Food wastage footprint & climate change*. Rome: UN FAO.
3. World Food Programme. 2016. “Hunger Statistics.” Accessible at: <<https://www.wfp.org/hunger/stats>>.
4. Kummu, M., H. de Moel, M. Porkka, S. Siebert, O. Varis, and P.J. Ward. 2012. “Lost food, wasted resources: Global food supply chain losses and their impacts on freshwater, cropland, and fertiliser use.” *Science of the Total Environment* 438: 477–489.
5. FAO. 2013. *Food wastage footprint: impacts on natural resources*. Rome: UN FAO.
6. FAO. 2015. *Food wastage footprint & climate change*. Rome: UN FAO.
7. Hanson and Mitchell. 2017. *The Business Case for Reducing Food Loss and Waste*. Champions 12.3.
8. Any substance—whether processed, semi-processed, or raw—that is intended for human consumption. “Food” includes drink, and any substance that has been used in the manufacture, preparation, or treatment of food. “Food” also includes material that has spoiled and is therefore no longer fit for human consumption.
9. Components associated with a food that, in a particular food supply chain, are *not* intended to be consumed by humans. Examples of inedible parts associated with food could include bones, rinds, and pits/stones. “Inedible parts” do not include packaging.
10. Output from the process undertaken to develop a quantified list of FLW as defined by the scope of the *FLW Standard*.
11. Visual scales are practical pictorial aids used in agricultural contexts, typically to help assess the different levels of damage by pests to stored crops.