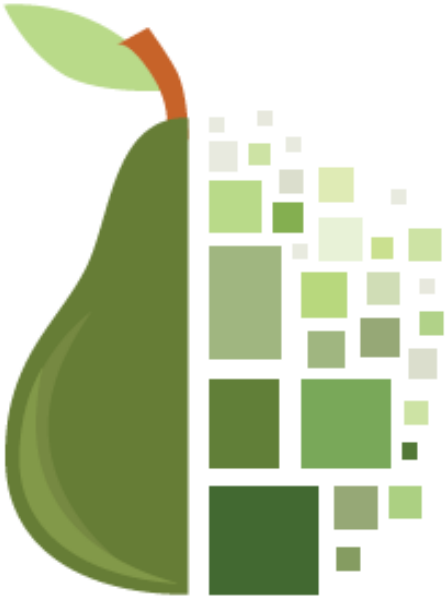


Food Loss + Waste PROTOCOL

2017 APEC Expert Consultation on Food Losses and Waste Reduction

June 12, 2017

By Brian Lipinski
World Resources Institute

Questions to Ask When Measuring

1. Why quantify?
2. What to quantify?
3. How to quantify?

About the FLW Protocol

A multi-stakeholder effort to develop a global
Food Loss and Waste Accounting and Reporting Standard
(FLW Standard)

The Consumer Goods FORUM
The Global Network Serving Shopper & Consumer Needs

WORLD RESOURCES INSTITUTE

World Business Council for Sustainable Development

Secretariat

FAO FIAT PANIS

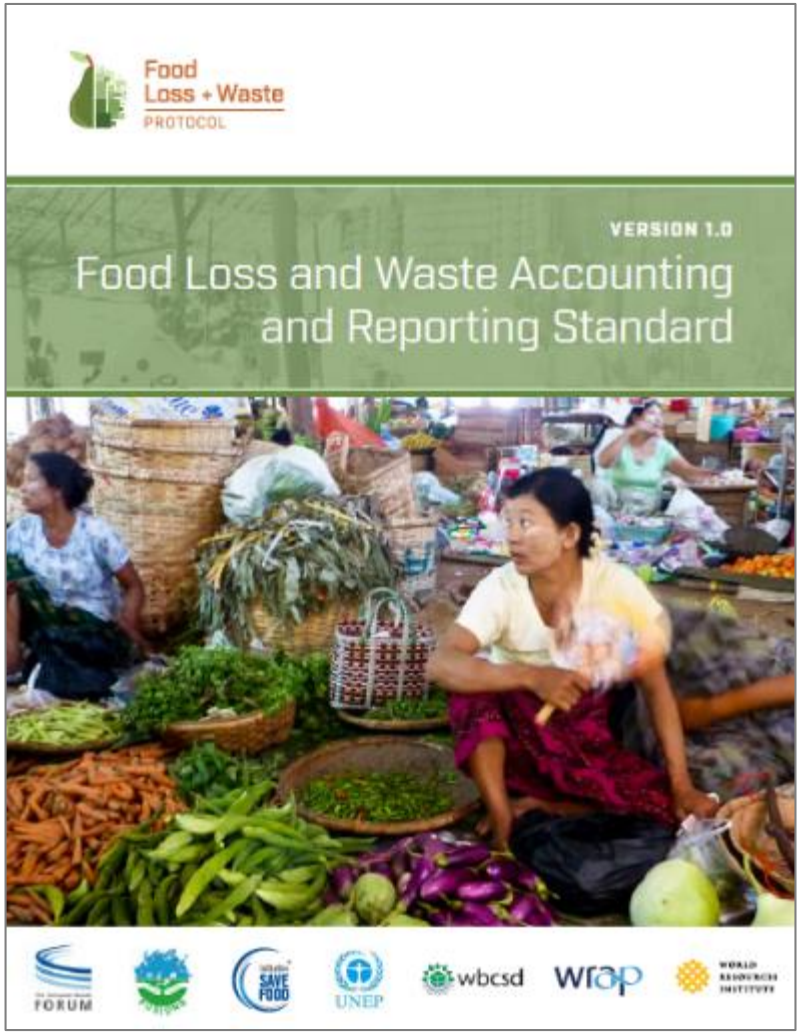
Food Loss + Waste PROTOCOL

UNEP

FUSIONS

wrap
Working together for a world without waste

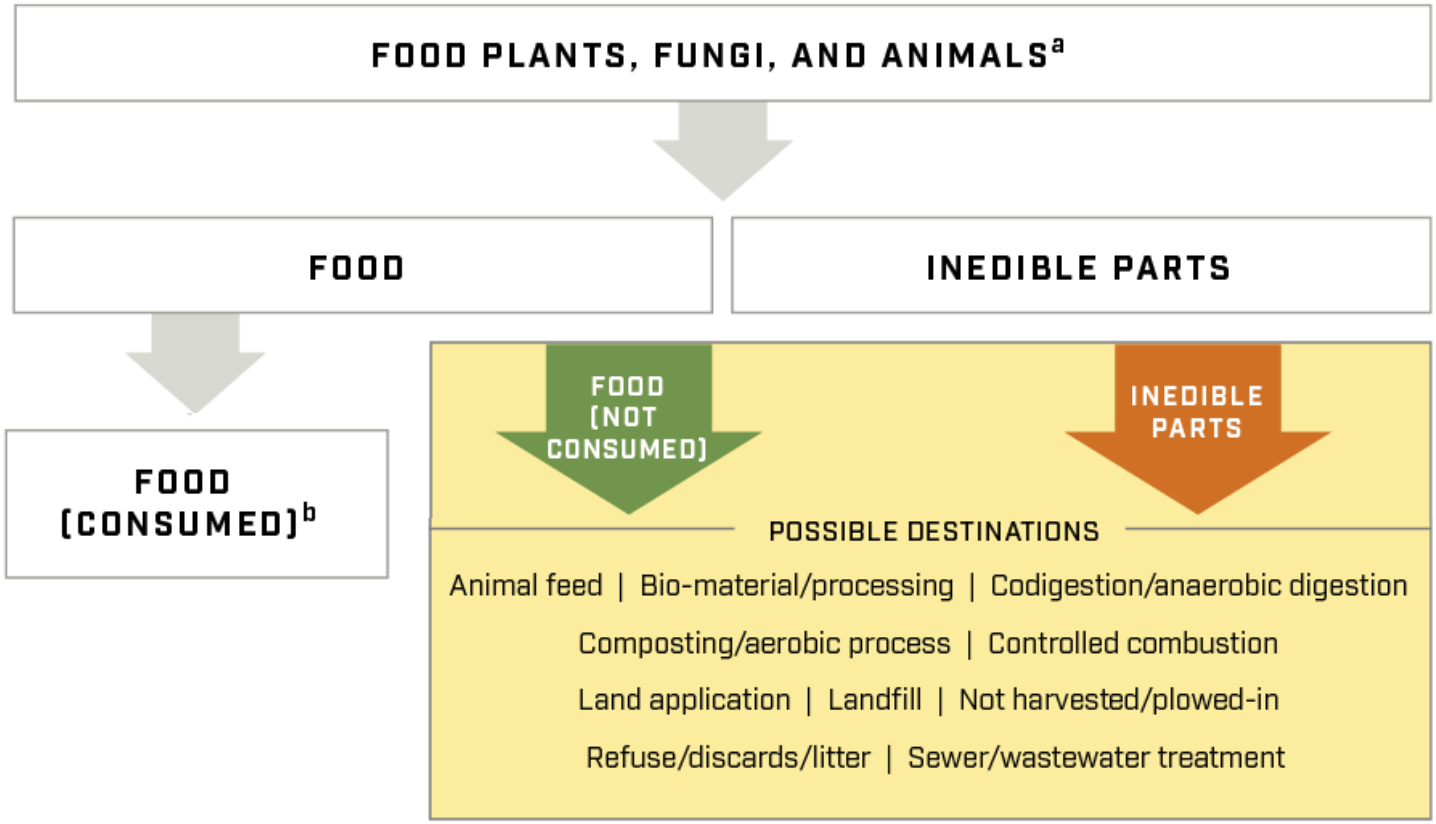
How the *FLW Standard* Can Help You



"… it gives us a clear unambiguous way for talking about food waste."

- ✓ Common language
- ✓ Consistently and transparently account and report the amount of FLW
- ✓ Globally applicable credible framework
- ✓ Practical guidance

What to Quantify?



(1) Material Types (i.e., food and/or inedible parts)

AND

(2) Destinations (where material goes when it leaves the food supply chain; 10 possibilities)

The *FLW Standard's* accounting and reporting requirements and guidance apply to that which is in this shaded box (i.e., removed from the food supply chain)

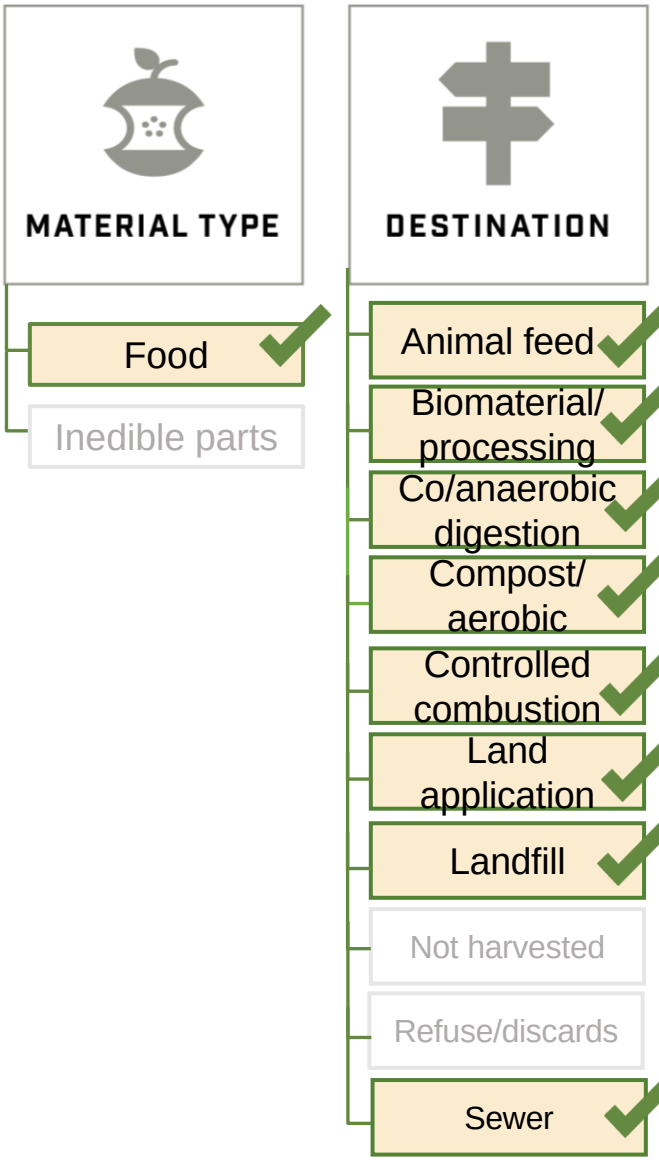
[a] Intended for human consumption (i.e.., excludes crops intentionally grown for bioenergy, animal feed, seed, or industrial use)

[b] At some point in the food supply chain (including surplus food redistributed to people and consumed)

Source: Adapted from FAO. 2014. Definitional Framework of Food Loss. Working paper of the Global Initiative on Food Loss and Waste Reduction. Rome, Italy: FAO.

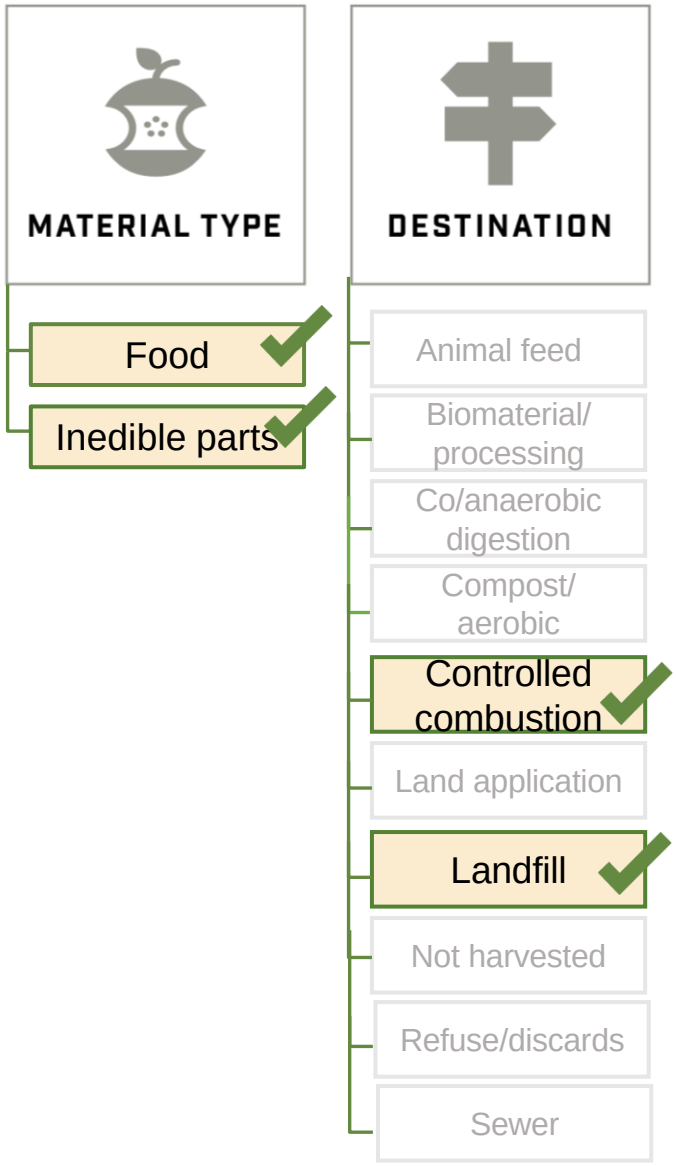
Why Scope Matters

USDA: 66.5 million tons



VERSUS

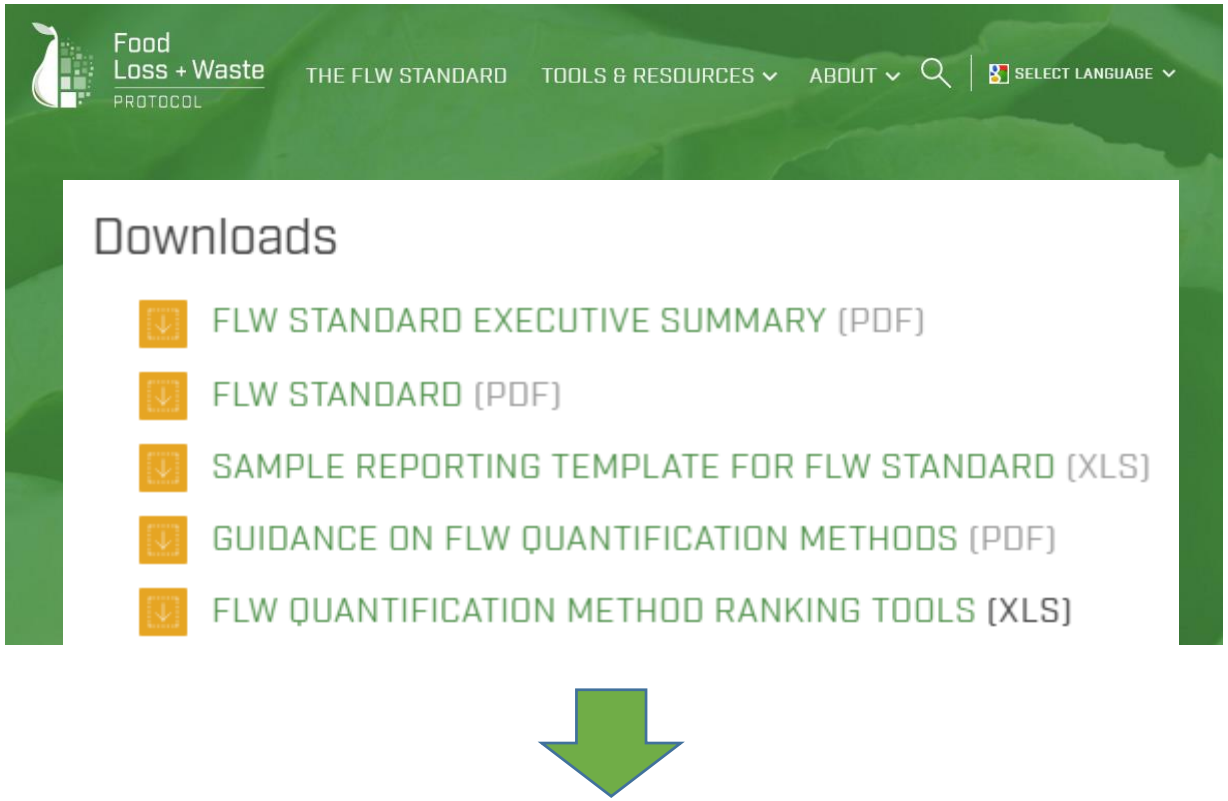
US EPA: 36.46 million tons *disposed*



Ways in Which to Use the *FLW Standard* and Tools (FLWProtocol.org)

Use the Standard to…

- Define "food loss and waste" (i.e., scope) using Standard's language
- Account and report consistently and transparently (8 requirements)
- Find guidance on quantifying FLW under different scenarios



TIP: Start with the Executive Summary (12-pages)

Key features included:

- Definitions related to scope
- Requirements for FLW inventory to be in conformance

STRUCTURE OF THE *FLW STANDARD* (PARTS I, II, III)

PART I. Overview

1. Introduction
2. Definition of terms and applications
3. Goals of quantifying FLW
4. Summary of steps and requirements
5. Principles of FLW accounting and reporting

PART II. Main requirements

6. Establishing the scope of an FLW inventory
7. Deciding how to quantify FLW

PART III. Other requirements and recommendations

8. Collecting, calculating, and analyzing data
9. Assessing uncertainty
10. Coordinating the analysis of multiple FLW inventories
11. Recording causes of FLW
12. Review and assurance
13. Reporting
14. Setting targets and tracking changes over time

STRUCTURE OF THE *FLW STANDARD* (APPENDIX) & *GUIDANCE ON FLW QUANTIFICATION METHODS*

Appendix to the *FLW Standard*

A. Approaches to sampling and scaling up data

B. Separating material types: data sources for conversion factors applied to individual items

C. Normalizing data

D. Expressing weight of FLW in other terms or units of measurement

E. Quantifying and reporting the weight of food rescued

Guidance on FLW Quantification Methods (stand-alone document)

Introduction

Quantification Methods

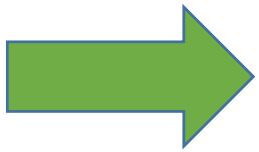
1. Direct weighing
2. Counting
3. Assessing volume
4. Waste composition analysis
5. Records
6. Diaries
7. Surveys
8. Mass balance
9. Modeling
10. Proxy data

Appendix: Quantifying FLW if water is added

How to Quantify?

1. Direct weighing
2. Counting
3. Assessing volume
4. Waste composition analysis
5. Records
6. Diaries
7. Surveys
8. Mass balance
9. Modeling
10. Proxy data

@ www.FLWProtocol.org



GUIDANCE ON QUANTIFICATION METHODS

You have several options for how to quantify food loss and waste.

In this companion to the FLW Standard, you will find guidance on 10 of the most common methods. To help you select which method may be most appropriate for your circumstances, try out the FLW Quantification Method Ranking Tool. This straight-forward tool offers suggestions based on a short set of questions.

- GUIDANCE ON FLW QUANTIFICATION METHODS (PDF)
- FLW QUANTIFICATION METHOD RANKING TOOL (XLS)

How to Learn More

- ✓ Sign up for news updates @ www.FLWProtocol.org
- ✓ Webinars (slides and past recordings online)
- ✓ Case studies highlight users of the *FLW Standard*

In the pipeline:
Sobeys, Tesco
Campbell's, Danone,
Kellogg's

Redesigned FLWProtocol.org Website

Coming Soon

- ✓ Additional case studies: Campbell's, Danone, Kellogg, Tesco, U.S. City, more
- ✓ Guidance for specific sectors
- ✓ Training webinars and online video clips
- ✓ Additional translations: Spanish and Portuguese
- ✓ New websites: FLW Database and Inventory Reporting Platform

Acknowledgements | Funders of WRI's FLW initiative

Ministry of Economic Affairs

The Netherlands Ministry of Economic Affairs

Walmart Foundation

Ministry of Foreign Affairs of the Netherlands

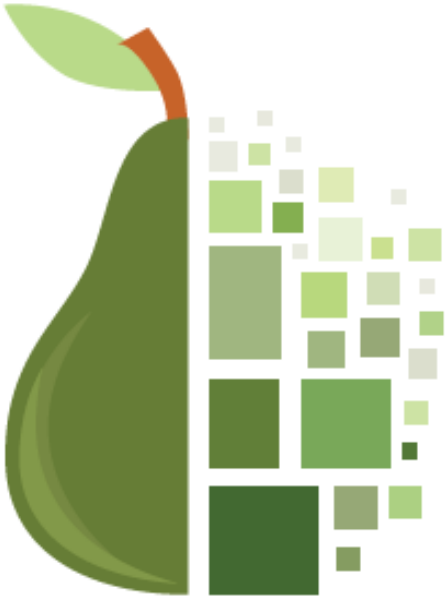
Ministry of Foreign Affairs of Denmark
DANIDA | International Development Cooperation

Sida
SWEDISH INTERNATIONAL DEVELOPMENT COOPERATION AGENCY

Irish Aid
Government of Ireland
Rialtas na hÉireann

Note: The Ministry of Foreign Affairs of the Netherlands, the Royal Danish Ministry of Foreign Affairs, the Swedish International Development Cooperation Agency (SIDA) and the Department of Foreign Affairs and Trade of Ireland (Irish Aid) provided core funding of the World Resources Institute, which made possible the development of the Food Loss and Waste Protocol.

DISCUSSION



Food Loss + Waste PROTOCOL

www.flwprotocol.org

For questions and suggestions, contact:
Kai Robertson (robertson.kai@gmail.com)
Brian Lipinski (blipinski@wri.org)
Craig Hanson (chanson@wri.org)

APPENDIX

FLW STANDARD ACCOUNTING AND REPORTING REQUIREMENTS

1. Base FLW accounting and reporting on the principles of relevance, completeness, consistency, transparency, and accuracy

2. Account for and report the physical amount of FLW expressed as weight (e.g., pounds, kilograms, tons, metric tons)

3. Define and report on the scope of the FLW inventory

a. *Timeframe*. Report the timeframe for which the inventory results are being reported (including starting and ending date)

b. *Material type*. Account for and report the material type(s) included in the FLW inventory (i.e., food only, inedible parts only, or food and associated inedible parts).

If food or associated inedible parts removed from the food supply chain are accounted for separately in the inventory:

- Describe the sources or frameworks used to categorize a material as food or as inedible parts. This includes stating any assumptions that were used to define whether or not material was "intended" for human consumption
- Describe the approach used to calculate the separate amounts. If applicable, describe all conversion factors used and their sources

c. *Destination*. Account for and report the destinations included in the FLW inventory (i.e., where material removed from the food supply chain is directed). If the destination is unknown, then report the initial path(s) at a minimum.

d. *Boundary*. Report the boundary of the FLW inventory in terms of the food category, lifecycle stage, geography, and organization (including the sources used to classify them).

e. *Related issues*.

Packaging and other non-FLW material. Exclude from an FLW inventory any material (and its weight) that is not food or associated inedible parts removed from the food supply chain (i.e., FLW). If a calculation is needed to separate the weight of FLW from non-FLW materials (e.g., subtracting the weight of packaging), describe the approach and calculation used

Water added/removed from FLW. Account for and report the weight of FLW that reflects the state in which it was generated before water was added, or before the intrinsic water weight of FLW was reduced. If a calculation is made to estimate the original weight of FLW, describe the approach and calculation used

Pre-harvest losses. Exclude pre-harvest losses from the scope of an FLW inventory. Users may quantify such losses but shall keep data separate from the FLW inventory results

4. Describe the quantification method(s) used. If existing studies or data are used, identify the source and scope

5. If sampling and scaling of data are undertaken, describe the approach and calculation used, as well as the period of time over which sample data are collected (including starting and ending dates)

6. Provide a qualitative description and/or quantitative assessment of the uncertainty around FLW inventory results

7. If assurance of the FLW inventory is undertaken (which may include peer review, verification, validation, quality assurance, quality control, and audit), create an assurance statement

8. If tracking the amount of FLW and/or setting an FLW reduction target, select a base year, identify the scope of the target, and recalculate the base year FLW inventory when necessary

DEFINITION: *MATERIAL TYPES*

Defining Food and Inedible Parts

Food:[a] 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. It does not include cosmetics, tobacco, or substances used only as drugs. It does not include processing agents used along the food supply chain, for example, water to clean or cook raw materials in factories or at home.

Inedible parts: 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. What is considered inedible varies among users (e.g., chicken feet are consumed in some food supply chains but not others), changes over time, and is influenced by a range of variables including culture, socio-economic factors, availability, price, technological advances, international trade, and geography.

[a]Adapted from Codex Alimentarius Commission (2013)

DEFINITION: *DESTINATIONS*

Destination	Definition
Animal feed	Diverting material from the food supply chain[a] (directly or after processing) to animals
Bio-based materials/biochemical processing	Converting material into industrial products. Examples include creating fibers for packaging material, creating bioplastics (e.g., polylactic acid), making "traditional" materials such as leather or feathers (e.g., for pillows), and rendering fat, oil, or grease into a raw material to make products such as soaps, biodiesel, or cosmetics. "Biochemical processing" does not refer to anaerobic digestion or production of bioethanol through fermentation
Codigestion/anaerobic digestion	Breaking down material via bacteria in the absence of oxygen. This process generates biogas and nutrient-rich matter. Codigestion refers to the simultaneous anaerobic digestion of FLW and other organic material in one digester. This destination includes fermentation (converting carbohydrates—such as glucose, fructose, and sucrose—via microbes into alcohols in the absence of oxygen to create products such as biofuels)
Composting/aerobic processes	Breaking down material via bacteria in oxygen-rich environments. Composting refers to the production of organic material (via aerobic processes) that can be used as a soil amendment
Controlled combustion	Sending material to a facility that is specifically designed for combustion in a controlled manner, which may include some form of energy recovery (this may also be referred to as incineration)
Land application	Spreading, spraying, injecting, or incorporating organic material onto or below the surface of the land to enhance soil quality
Landfill	Sending material to an area of land or an excavated site that is specifically designed and built to receive wastes
Not harvested/plowed-in	Leaving crops that were ready for harvest in the field or tilling them into the soil
Refuse/discards/litter	Abandoning material on land or disposing of it in the sea. This includes open dumps (i.e., uncovered, unlined), open burn (i.e., not in a controlled facility), the portion of harvested crops eaten by pests, and fish discards (the portion of total catch that is thrown away or slipped)
Sewer/wastewater treatment	Sending material down the sewer (with or without prior treatment), including that which may go to a facility designed to treat wastewater
Other	Sending material to a destination that is different from the 10 listed above. This destination should be described

[a] Excludes crops intentionally grown for bioenergy, animal feed, seed, or industrial use

DEFINITION: *BOUNDARY*

Boundary dimension	Definition	Examples
Food category	The type(s) of food included in reported FLW	• All food • Dairy products • Fresh fruits and vegetables • Chicken
Lifecycle stage	The stage(s) in the food supply chain or food lifecycle within which reported FLW occurs	• Entire food supply chain • Two stages: manufacture of dairy products, and retail of food and beverage • At home
Geography	Geographic borders within which reported FLW occurs	• World (all countries) • Eastern Asia • Ghana • Nova Scotia, Canada • Lima, Peru
Organization	Organizational unit(s) within which reported FLW occurs	• All sectors in country • Entire company • Two business units • All 1,000 stores • 100 households