

Food Loss + Waste

PROTOCOL

The Food Loss and Waste Accounting and Reporting Standard:
What Gets Measured, Gets Managed

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Kai Robertson, Lead Advisor, Food Loss & Waste Protocol
World Resources Institute

FLW PROTOCOL

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



“WHAT GETS MEASURED GETS MANAGED”



OVER 200 STAKEHOLDERS CONSULTED (SAMPLE BELOW)

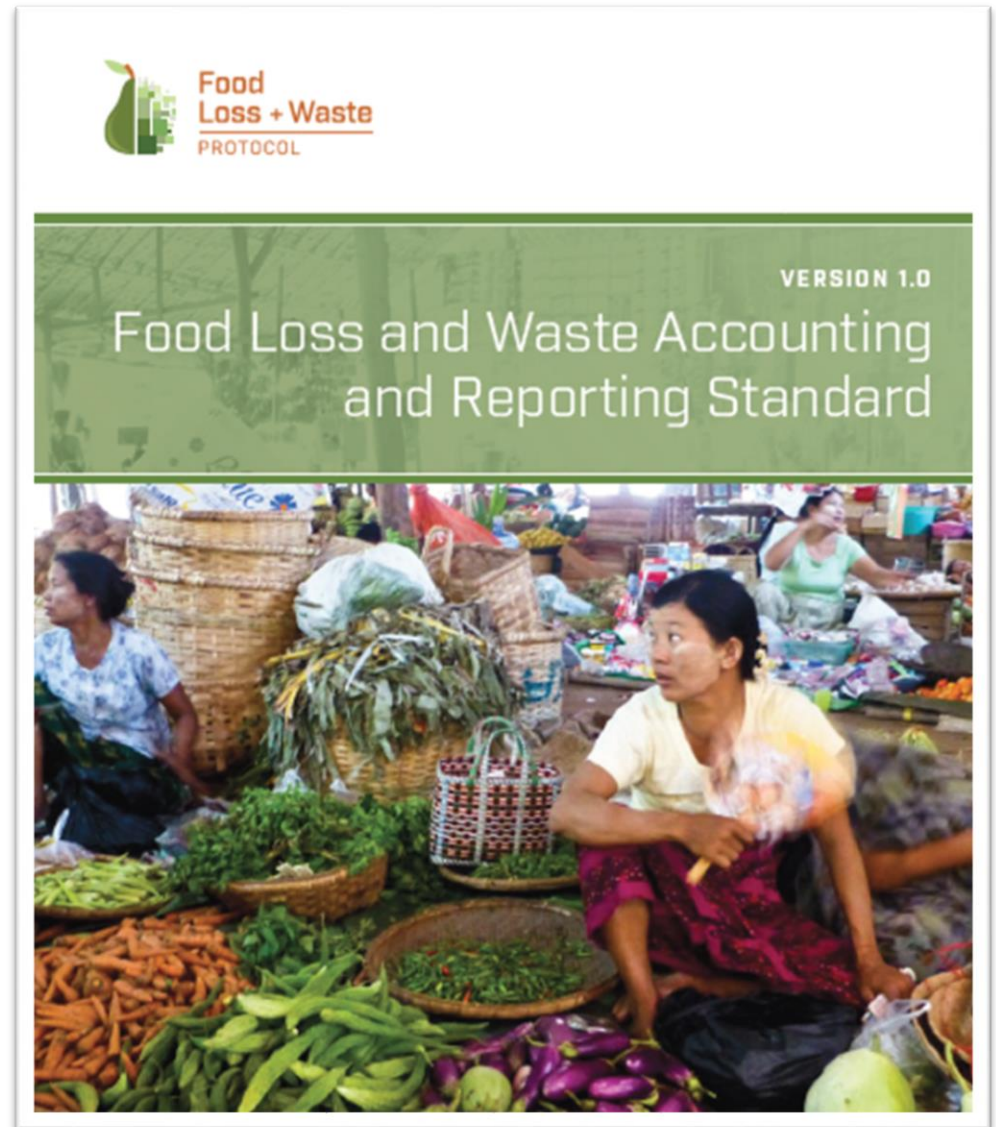
Across every continent

Academia, private sector, government, NGOs



LAUNCHED JUNE 6, 2016

A global standard that provides requirements and guidance for quantifying and reporting on the weight of food and/or associated inedible parts removed from the food supply chain—commonly referred to as “food loss and waste”—in a credible, practical, transparent, and consistent manner



GUIDING PRINCIPLES

- Build on existing initiatives
- Meet user needs
- Avoid letting the “perfect become the enemy of the good”
- Set firm framework yet allow for flexibility in application
- Seek continuous improvement



Food Loss + Waste PROTOCOL

THE FLW STANDARD TOOLS & RESOURCES ABOUT

SEARCH | SELECT LANGUAGE

The FLW Protocol is a partnership which has developed the global *FLW Standard* for quantifying and reporting on food and/or associated inedible parts removed from the food supply chain.

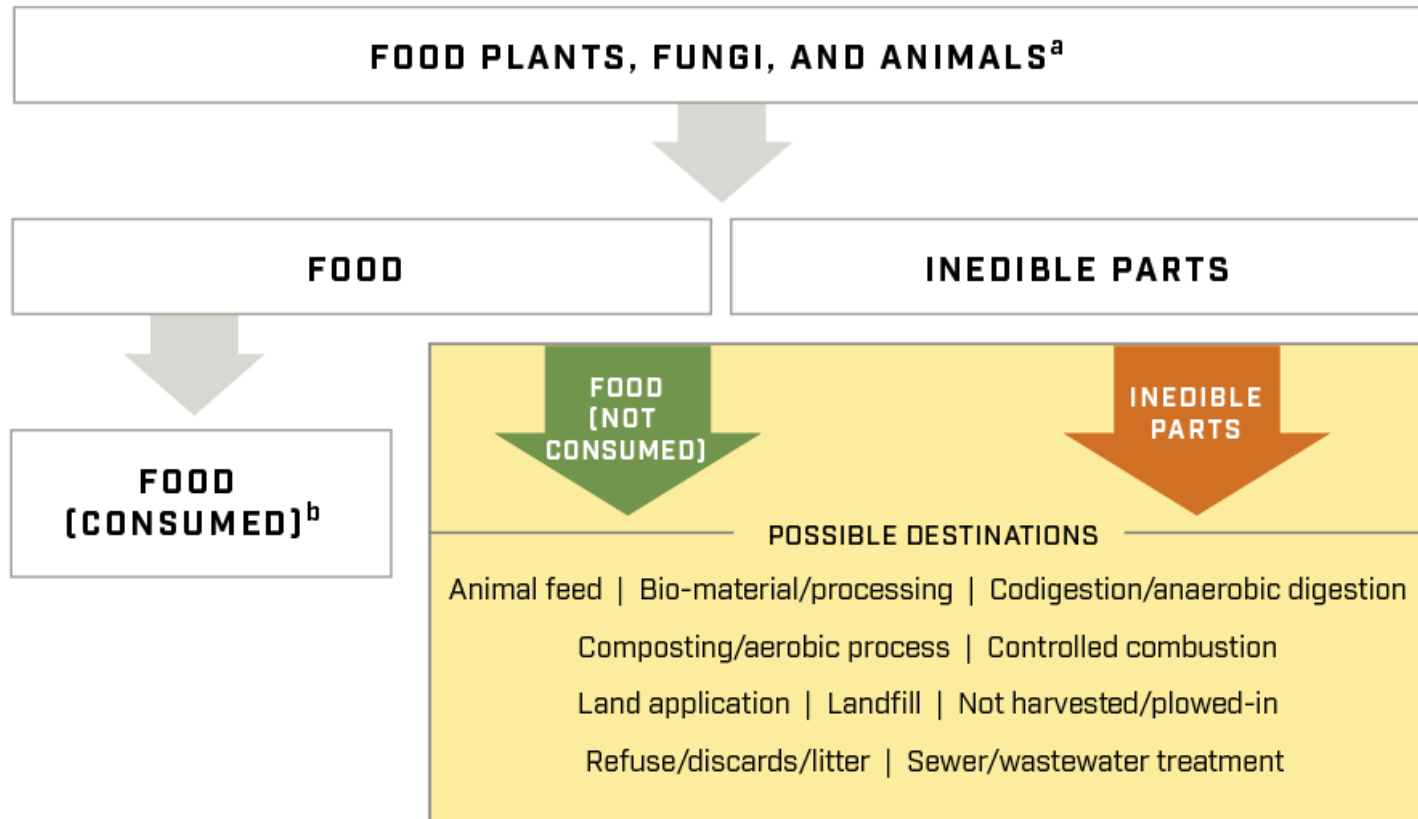
Commonly referred to as “food loss and waste” (FLW)

DOWNLOAD THE STANDARD

DOWNLOAD THE SUMMARY

Executive Summary. 12-page document
Highlights the most important features included in the *FLW Standard* (key definitions, requirements to be met for inventory to be in conformance with the standard)

MATERIAL TYPES & POSSIBLE DESTINATIONS UNDER *FLW STANDARD*



The standard allows an entity to select which combination of material types and destinations it considers to be “food loss and waste”

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

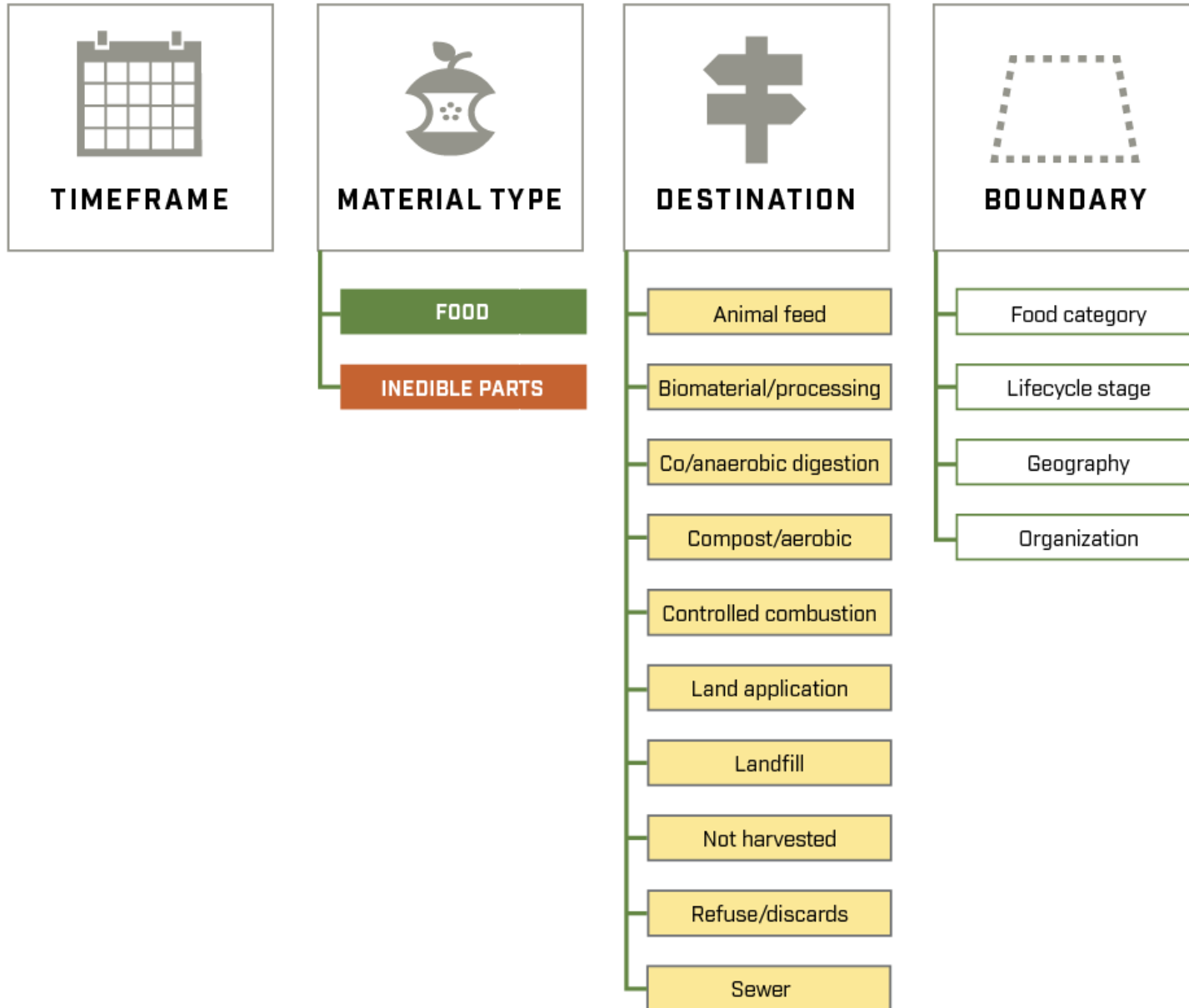
^a Intended for human consumption (i.e., excludes crops intentionally grown for bioenergy, animal feed, seed, or industrial use)

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

Notes: The green (left) and red (right) arrows represent the two possible material types in an FLW inventory. These material types go to one or more possible destinations (listed within the yellow shaded box) once they are removed from the food supply chain. The *FLW Standard* provides accounting and reporting requirements and guidance for everything within the yellow shaded box (i.e., everything removed from the food supply chain).

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.

REQUIREMENT: WHAT IS QUANTIFIED (SCOPE)



REQUIREMENT: HOW QUANTIFIED

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

*At www.FLWProtocol.org,
under the Tools &
Resources tab*




ABOUT ▾

TOOLS & RESOURCES

[QUANTIFICATION METHODS](#) [TRAINING](#) [RESOURCES](#) [FAQS](#)



QUANTIFICATION METHODS

A suite of FLW quantification methods are available to you. The following contains guidance on ten of the most common methods, as well as guidance on how to select which are most appropriate given your circumstances.



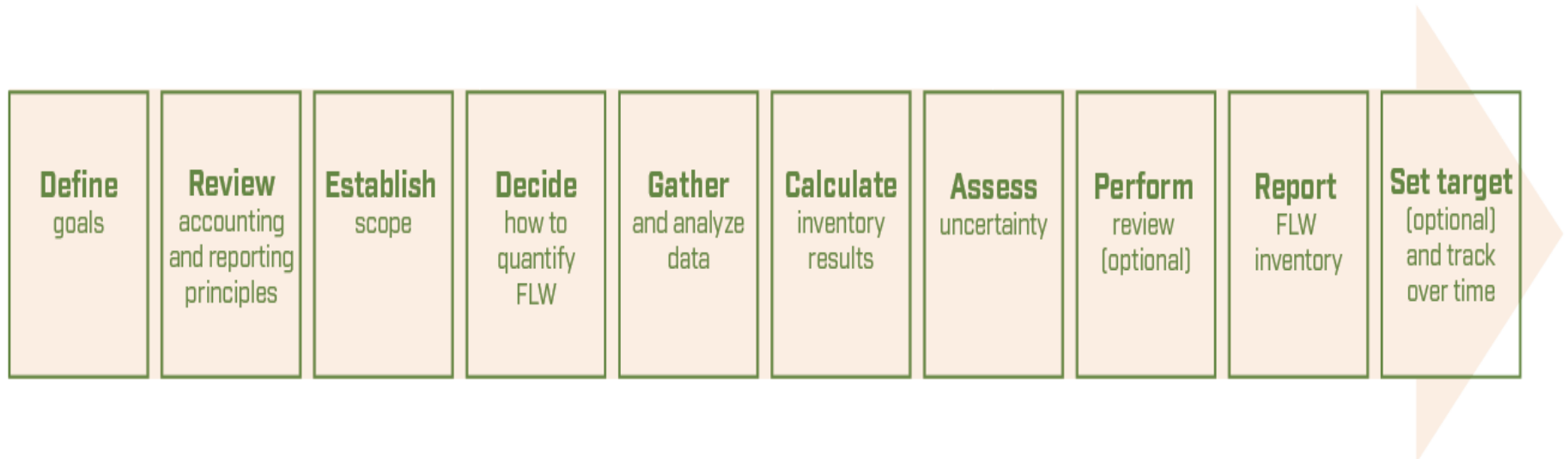
FLW accounts for roughly 8% of global greenhouse gas emissions annually.

Downloads

-  [GUIDANCE ON FLW QUANTIFICATION METHODS \(PDF\)](#)
-  [FLW QUANTIFICATION METHOD RANKING TOOL \(XLS\)](#)

Individual Chapters from the Guidance on FLW Quantification Methods

STEPS IN FLW ACCOUNTING & REPORTING



Define
goals

Review
accounting
and reporting
principles

Establish
scope

Decide
how to
quantify
FLW

Gather
and analyze
data

Calculate
inventory
results

Assess
uncertainty

Perform
review
(optional)

Report
FLW
inventory

Set target
(optional)
and track
over time

SAMPLE FLW INVENTORY REPORTING TEMPLATE




USING THE FLW STANDARD

The purpose of the *FLW Standard* is to facilitate the quantification of FLW (what to measure and how to measure it) and encourage consistency and transparency of the reported data.

For a summary of the most important features of the *FLW Standard* (key definitions and requirements), download the stand-alone Executive Summary. Reading this 12-page document first will help you get started. The *FLW Standard* is a comprehensive document, which provides detail and guidance on implementing the requirements. It may be read in its entirety or used as a reference document.

Downloads

-  [FLW STANDARD EXECUTIVE SUMMARY \[PDF\]](#)
-  [FLW STANDARD \[PDF\]](#)
-  [SAMPLE REPORTING TEMPLATE FOR FLW STANDARD \[XLS\]](#)

At www.FLWProtocol.org,
under “The FLW
Standard” tab



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*

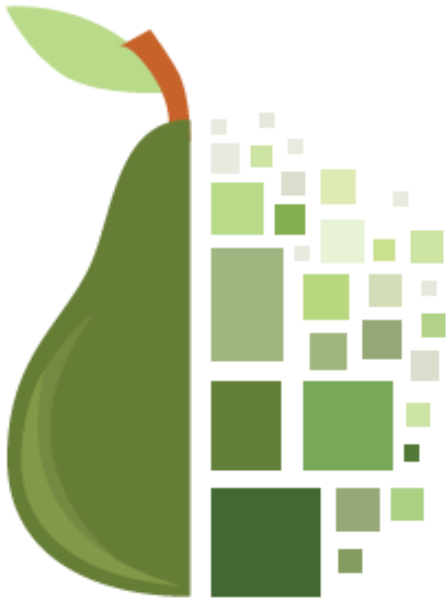
- A. Approaches to sampling and scaling up data
- B. Separating material types: data sources for conversion factors applied to individual items
- C. Normalizing data
- D. Expressing weight of FLW in other terms or units of measurement
- E. Quantifying and reporting the weight of food rescued

Guidance on FLW Quantification Methods

Introduction

Quantification Methods

- | | |
|-------------------------------|-----------------|
| 1. Direct weighing | 6. Diaries |
| 2. Counting | 7. Surveys |
| 3. Assessing volume | 8. Mass balance |
| 4. Waste composition analysis | 9. Modeling |
| 5. Records | 10. Proxy data |
- Appendix: Quantifying FLW if water is added



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www.flwprotocol.org

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

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.

^aAdapted 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• World (all countries)• Eastern Asia• Ghana• Nova Scotia, Canada• Lima, Peru
Organization	Organizational unit(s) within which reported FLW occurs	<ul style="list-style-type: none">• All sectors in country• Entire company• Two business units• All 1,000 stores• 100 households

BOUNDARY (Classification sources to use)

Boundary dimension	Classification source to use (select the most current version)	Selected examples with relevant codes
Food category	<ul style="list-style-type: none"> • Select one or more categories from either the Codex General Standard for Food Additives (GSFA) system or United Nations Central Production Classification (CPC) system • If more detailed information is used, include appropriate codes from more granular sources including: <ul style="list-style-type: none"> • Global Product Category (GPC) codes (online, or download an Excel, Word or XML copy) • United Nations Standard Products and Services Code (UNSPSC) 	<ul style="list-style-type: none"> • All food (GSFA 01.0 –16.0) or (CPC2.1 Divisions 21–24) • Dairy products (GSFA 01.0) or (CPC2.1 Group 221 & 222) • Fresh fruits and vegetables (GSFA 04.1 & 04.2.1) or (CPC2.1 Group 012 & 013) • Chicken (GSFA 08.1.1 [Fresh meat, poultry, and game, whole pieces or cuts]; GPC Brick 10005769) or (CPC2.1 Subclass 21121)
Lifecycle stage	<ul style="list-style-type: none"> • Select one or more United Nations International Standard Industrial Classifications of All Economic Activities (ISIC) codes (At the time of publication, the latest version is “Rev.4”) • Regional and national classification systems may be used as well, most of which are derived from the ISIC (e.g., NACE for Europe). The UN Statistics Division lists national classification systems • If no code exists, write in the lifecycle stage 	<ul style="list-style-type: none"> • Entire food supply chain (select relevant group of ISIC codes) • Two stages: manufacture of dairy products (ISIC Group: 105) and retail of food and beverage (ISIC Class: 4721) • At home (ISIC Class: 9820)
Geography	<ul style="list-style-type: none"> • Select one or more UN regions or country codes • Write in description for narrower geographic scope. Where available, use a national classification system (e.g., U.S. Census) 	<ul style="list-style-type: none"> • World/all countries (UN Code 001) • Eastern Asia (UN Code 030) • Ghana (UN Code 288) • Nova Scotia, Canada • Lima, Peru
Organization	<ul style="list-style-type: none"> • Write in number and type of unit(s) and any additional descriptive detail 	<ul style="list-style-type: none"> • All sectors in country • Entire company • Two business units • All 1,000 stores • 100 households


SAMPLE FLW INVENTORY REPORTING TEMPLATE

! SECURITY WARNING Macros have been disabled. [Enable Content](#)

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2  **Food Loss + Waste**
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4 **FLW STANDARD INVENTORY REPORTING TEMPLATE**
(June 2016)

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6 **About this template:**

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- This template helps users record and report the results of inventories conducted using the *Food Loss and Waste Accounting and Reporting Standard (FLW Standard)*, Version 1.0.
- It includes items an entity is required to report to be in conformance with the *FLW Standard*.
- Other items are recommended in the standard but not all are included in this template since they are not required (for further details see Chapter 13 of the *FLW Standard*). Those included are marked as "optional" in the template and shaded in gold.
- This is a sample reporting form. An entity may use any format to report FLW provided it contains all the reporting requirements (see Table 4.1 in the *FLW Standard*). An entity may also modify this template to suit its needs.

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10 **Steps for completing this template:**

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1. Enable macros. (Click the "Enable Content" button at the top of the screen when you first open the Excel file.)
2. Click the button below to start with Tab I (General information) then go to the other tabs in sequence. Answer the questions in each tab that apply to your situation. Depending on how questions are answered, other questions or fields may become
3. Review the green boxes included on each tab as they contain reference information that will be helpful in completing the
4. For each question in each tab, fill out the box with text or a number, check a box, or select a choice from a drop-down menu, as required by the question.
5. Keep in mind that Tabs V through VIII will not apply to all inventories. Consult the *FLW Standard* for more guidance on when these tabs should be used.
6. When finished entering information into Tabs I through VIII, go to the Summary tab to display the high-level inventory results. At the bottom of the Summary tab is a button that helps you check the inventory for completeness.

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18 **The tabs are organized to report about:**

19 I. General information

20 II. FLW inventory scope and results

21 III. Quantification methods and data sources

CLICK HERE TO START
(Go to Tab I - General information)

Legend (cell colors):

Required field

Optional field

Introduction Summary I. General info II. Scope and results III. Methods-data sources IV. Da ...