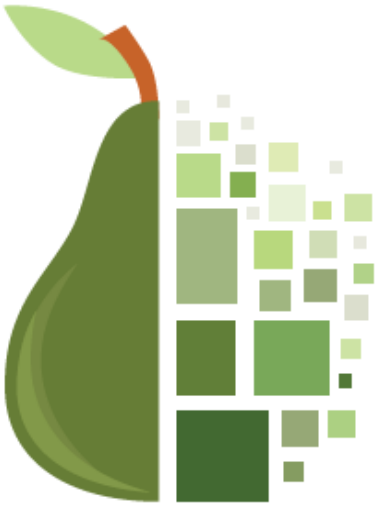


Food Loss + Waste PROTOCOL

TWO PART WEBINAR

Part 1. Resources to use the FLW Standard

Part 2. Open question & answer period

December 13, 2017

By Kai Robertson
Lead Advisor, FLW Protocol, World Resources Institute

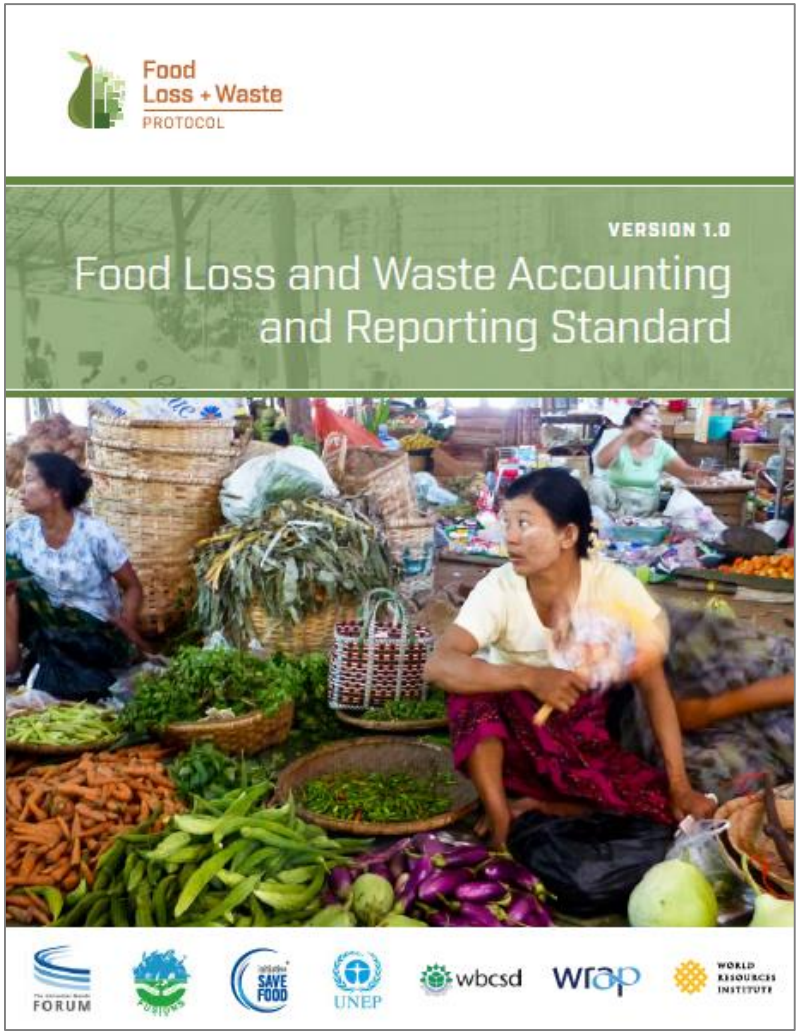
Part 1.
Resources to Use the FLW Standard

Value Gained By Using the *FLW Standard*

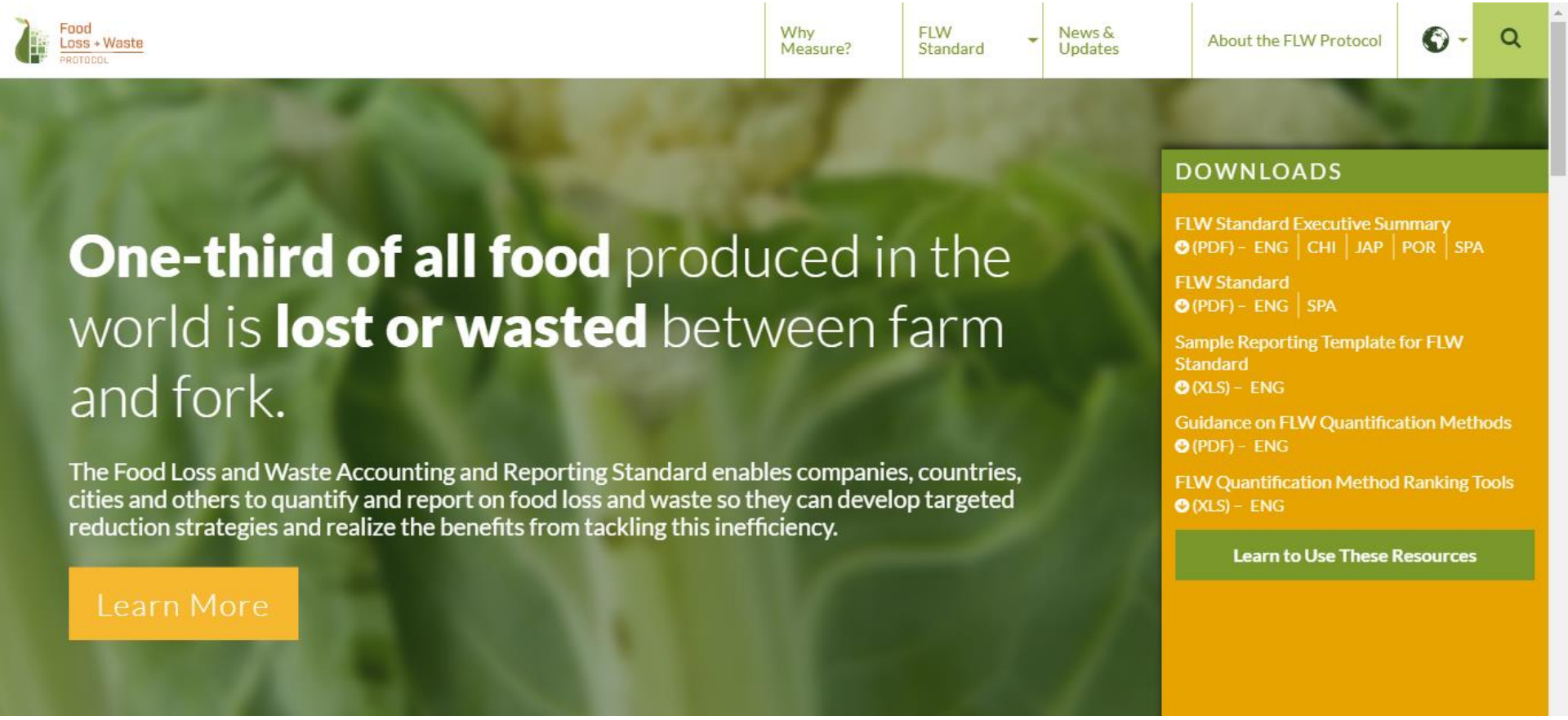
- ✓ **Common language**
- ✓ **Practical guidance**
- ✓ **Reporting framework**

"… provides consistent language to use … and standard ways to measure and report."

Kellogg Company

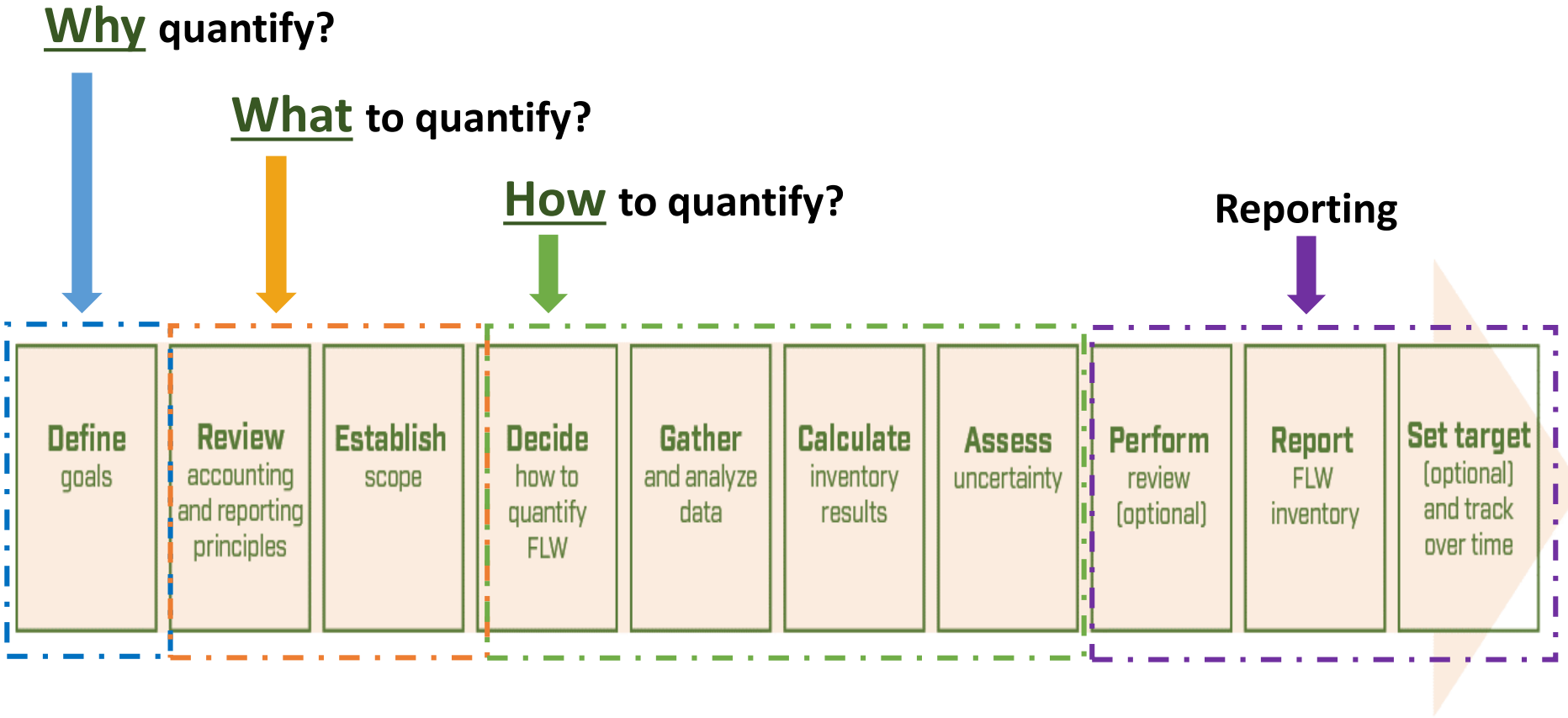


Home Page| www.FLWProtocol.org

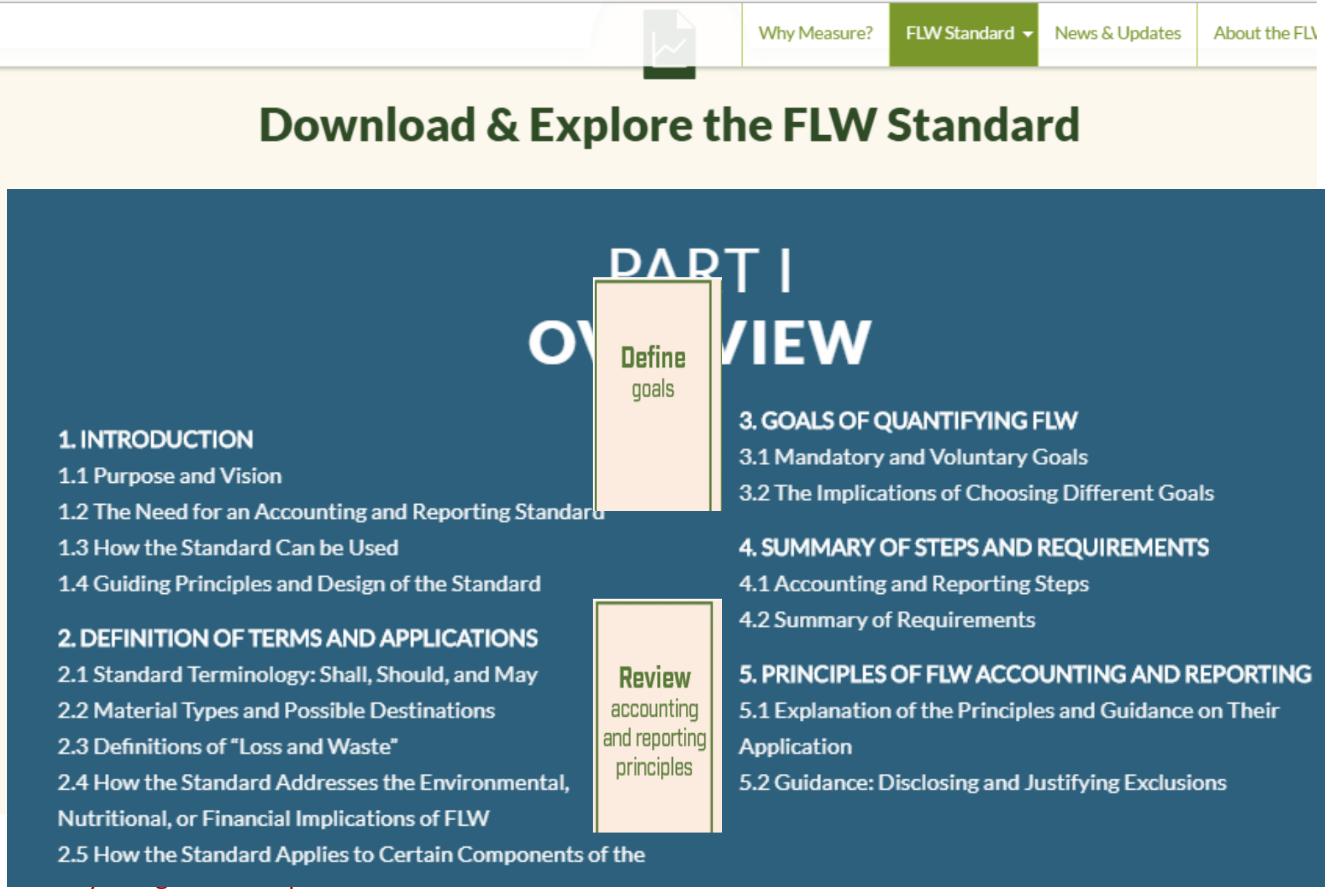


Where to Start? The Executive Summary

Steps to Quantify and Report on FLW

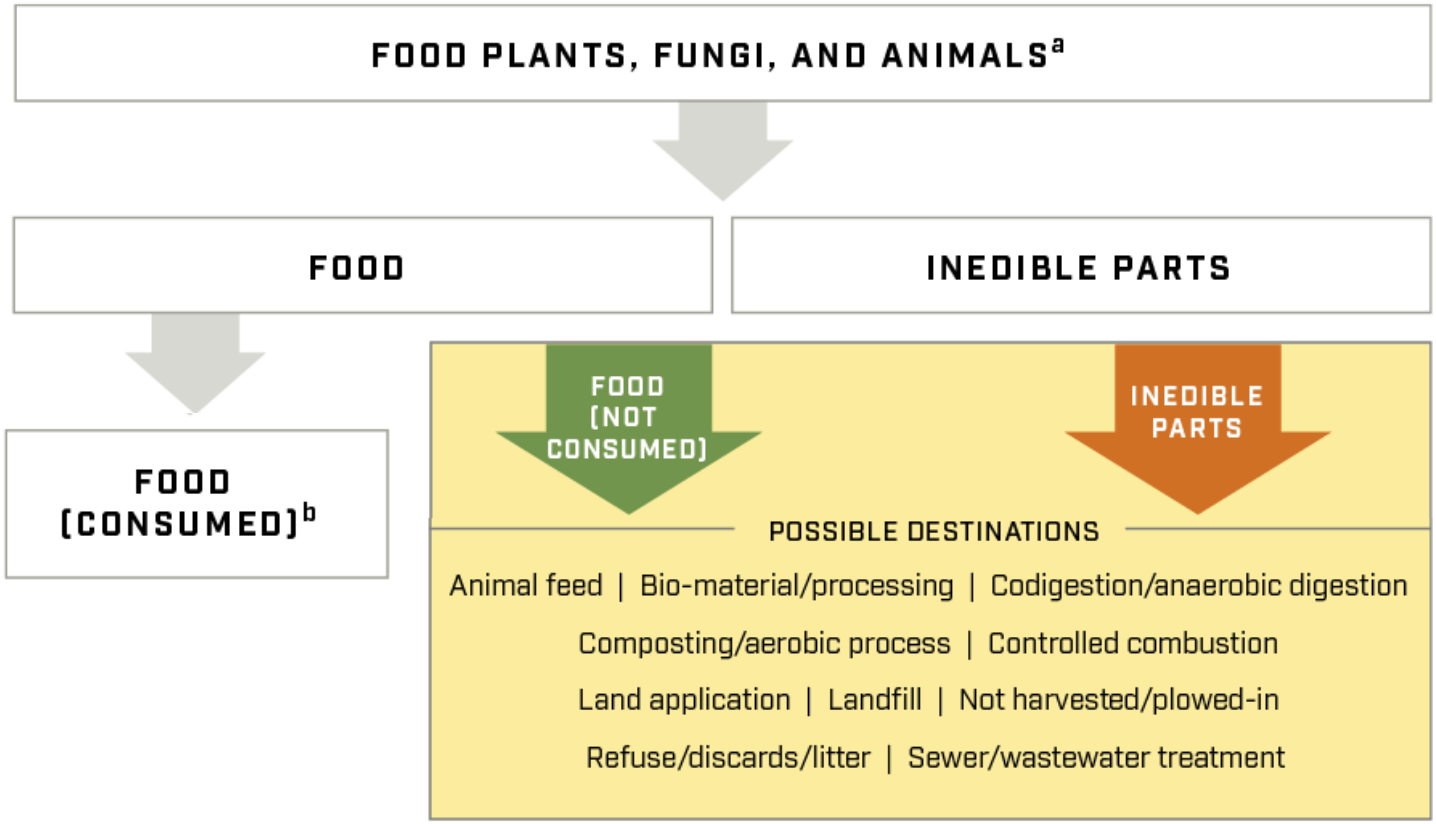


An Easy Way to Find Guidance in the FLW Standard



Clearly Describe What Is Quantified

Establish scope



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)

(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)

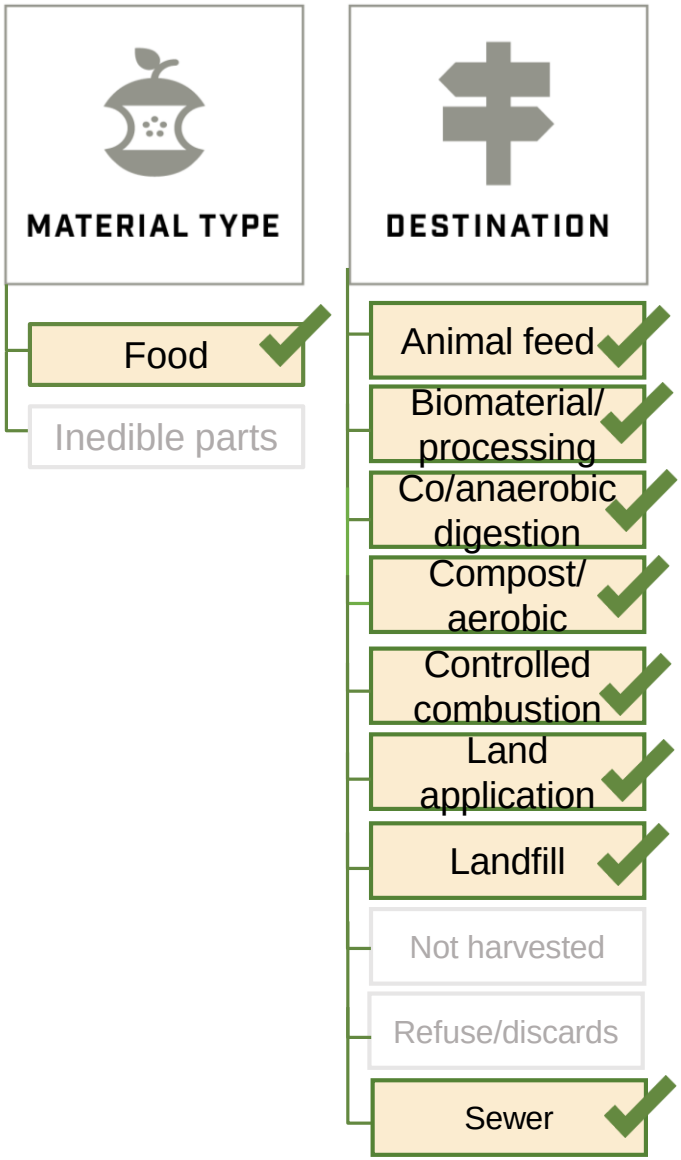
[a] Intended for human consumption (i.e., excludes crops intentionally grown for bioenergy, animal feed, seed, or industrial use)

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

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

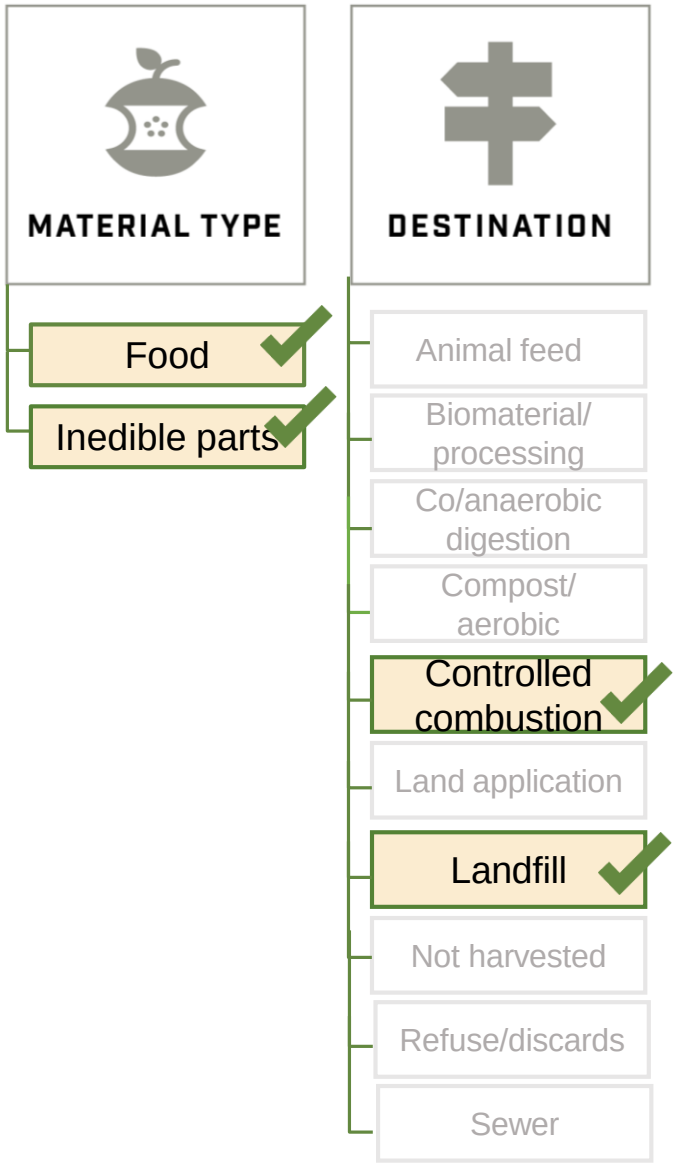
Example of Different Scopes

USDA: 66.5 million tons



VERSUS

US EPA: 36.46 million tons *disposed*



See FurtherWithFood.org for additional details

Template to Visually Represent Scope Using *FLW Standard*

TIMEFRAME

(insert timeframe)

MATERIAL TYPE

- Food
- Inedible parts

DESTINATION

- Animal Feed
- Biomaterial/ processing
- Co/anaerobic digestion
- Compost/aerobic
- Controlled combustion
- Land application
- Landfill
- Not harvested
- Refuse/discards
- Sewer

BOUNDARY

- **Food category** = (insert text)
- **Lifecycle stage** = (insert text)
- **Geography** = (insert text)
- **Organization** = (insert text)

RELATED ISSUES

Pre-harvest losses and the weight of product packaging is excluded from the weight of FLW.

(modify and/or insert additional relevant text)

This template should be customized to show your scope

Indicate what <u>material types</u> and <u>destinations</u> are included as the scope – color in the box and add a check mark ✓

Where to Find the Customizable Visual

We've created a number of tools and resources to help you use the FLW Standard. You can download below the following:

- Guidance on quantification methods
- A summary of the requirements in the FLW Standard
- A sample reporting form
- A customizable visual to summarize the scope of an FLW inventory
- Key terms and definitions used in the FLW Standard

Where to Find Key Definitions

We've created a number of tools and resources to help you use the FLW Standard. You can download below the following:

- Guidance on quantification methods
- A summary of the requirements in the FLW Standard
- A sample reporting form
- A customizable visual to summarize the scope of an FLW inventory
- Key terms and definitions used in the FLW Standard

DEC 13, 2017
10:00 TO 11:00 AM EST

VIDEO TUTORIALS

These short 3- to 5-minute tutorials include:

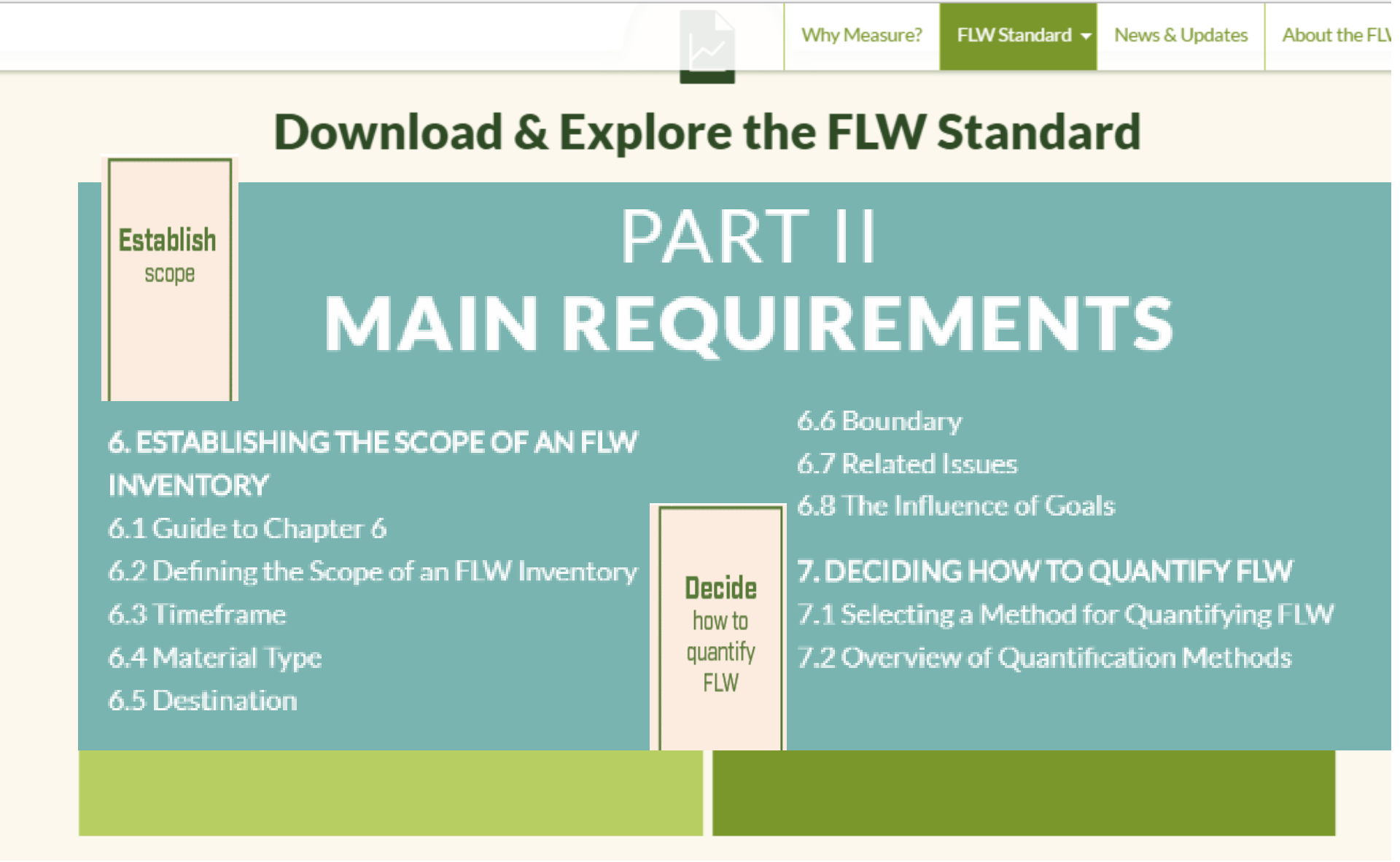
> An introduction to why and how the FLW Standard was created

> How to describe the scope of a food loss and waste inventory

> An overview of the possible destinations for food loss and waste

> Ten of the most common food loss and waste quantification methods

An Easy Way to Find Guidance in the FLW Standard



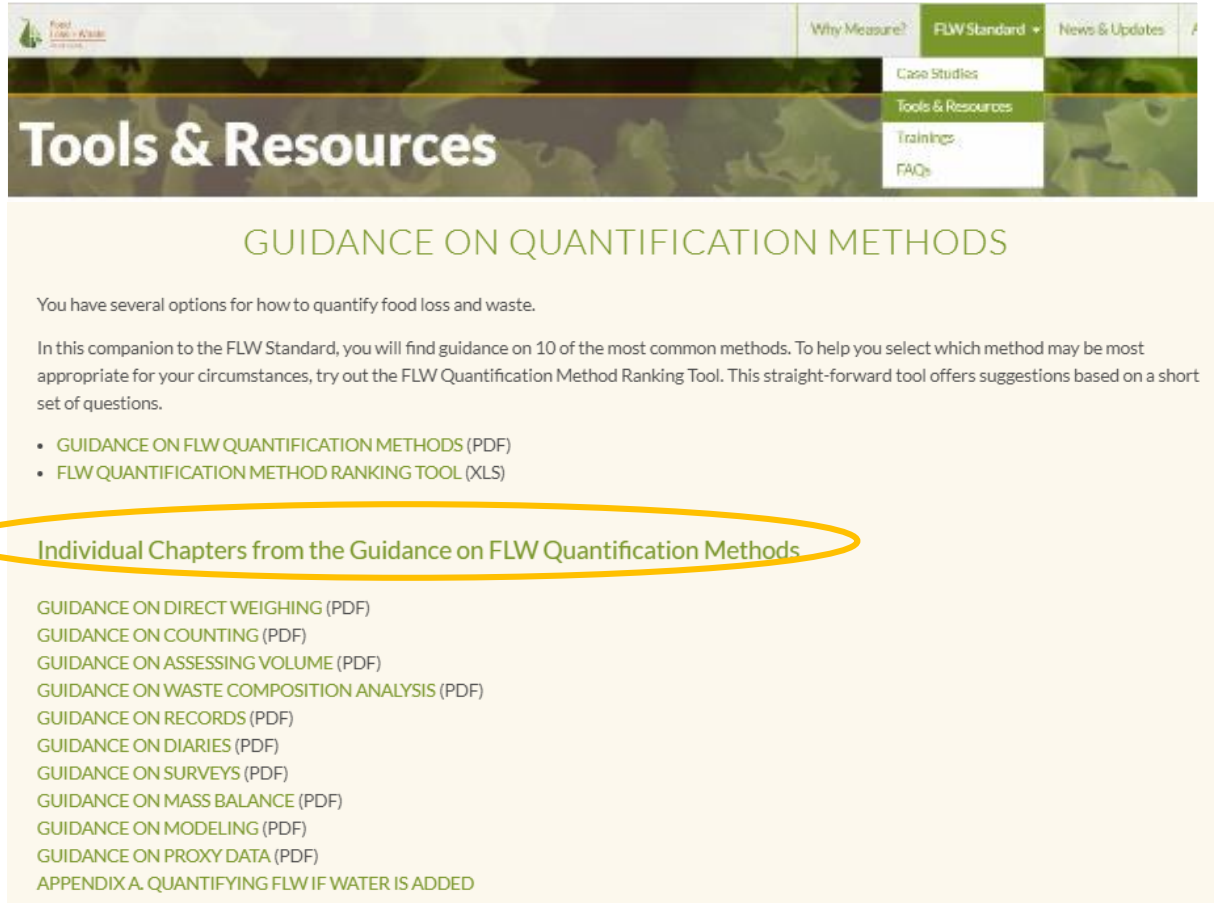
TIP: Hover over each box to see the table of contents; clicking on the Section of interest will take you right to that part of the FLW Standard

Guidance on Quantification Methods

The *FLW Standard* does not require use of a particular quantification method – but provides an overview of 10 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

\+ Quantifying FLW if water is added (Appendix A)



Download individual chapters with tips on using each method @ www.FLWProtocol.org

FLW Quantification Method Ranking Tool

Food Loss + Waste PROTOCOL

FLW Quantification Method Ranking Tool

(June 2016)

Introduction

Purpose: This tool is designed to accompany the *Food Loss and Waste Accounting and Reporting Standard (FLW Standard)*. It provides suggested methods for quantifying food loss and waste (FLW).

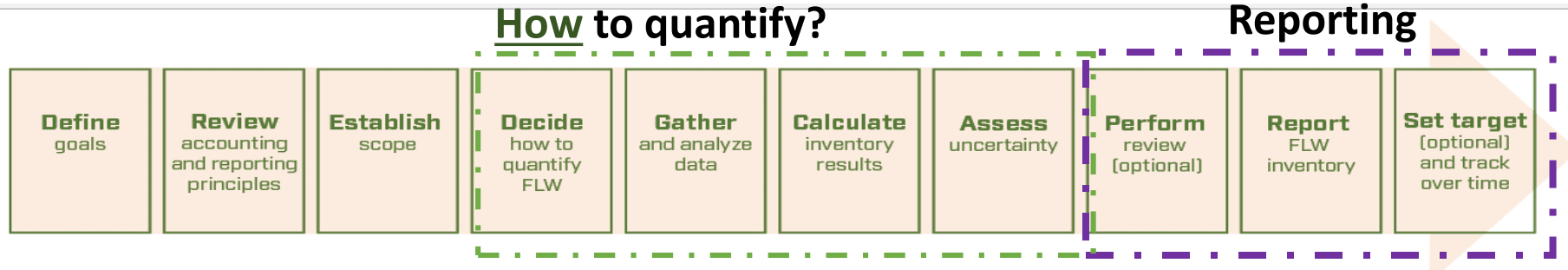
Instructions: Answer all the questions below to the best of your ability by using the drop-down menus, then press the "Get results" button. This will take you to the Results Tab which ranks all the methods included in the *FLW Standard* (see Chapter 7). You may need to click "Enable macros" when prompted by Excel in order to use this sheet.

Note:
- The "Methodology Tab" explains how this ranking of methods was developed.
- The recommendations provided do not take into account the availability of resources (e.g., budget, staff time). The tool does not consider which methods would work well in combination (see "Methodology Tab" for additional details).
- We welcome your questions and suggestions. Please contact Brian Lipinski at BLipinski@wri.org.

Questions		Please select answers from drop-down menus
1	How important is it to have a low level of uncertainty (high degree of accuracy in the FLW results)? *Note: A higher degree of accuracy is recommended when monitoring targets.*	
2	Is it necessary to determine the reasons why FLW is generated?	
3	Can you get direct access to the FLW being quantified?	
4	Is the FLW (whether packaged or not) mixed with other items or materials (e.g. soil, garden / yard waste, non-organic solid waste, etc.)?	
5	Is the FLW mainly liquid or solid?	
6	Does all, some, or no FLW go down the drain/sewer?	
7	Are inputs and outputs recorded that could be used for inferring the amount of FLW? (e.g. in a factory, the amount of ingredients entering the site and the amount of product leaving the site)	
8	Is there existing information that describes how FLW varies in response to other factors (e.g. with climate, soil conditions, crop / food type)?	

Questionnaire | Results | Methodology

An Easy Way to Find Guidance in the FLW Standard



TIP: Hover over each box to see the table of contents; clicking on the Section of interest will take you right to that part of the FLW Standard

Reporting Tools

We've created a number of tools and resources to help you use the FLW Standard. You can download below the following:

- Guidance on quantification methods
- A summary of the requirements in the FLW Standard
- A sample reporting form
- A customizable visual to summarize the scope of an FLW inventory
- Key terms and definitions used in the FLW Standard

FLW Standard Accounting and Reporting Requirements

Report FLW inventory

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**

3. **Define and report on the scope of the FLW inventory**
   a.Timeframe
   b. Material type
   c. Destination
   d. Boundary

4. **Describe the quantification method(s) used**.

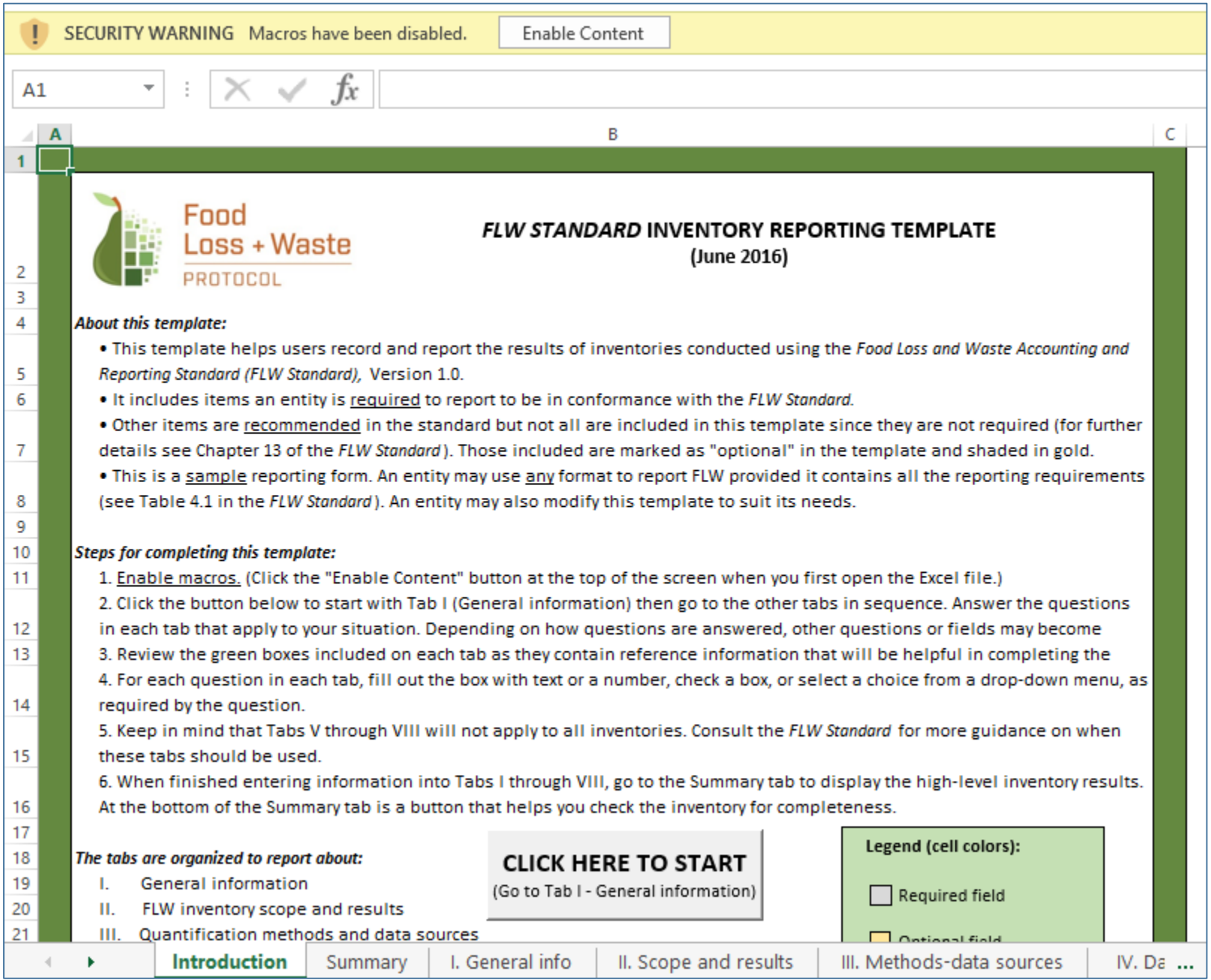
5. If sampling and scaling of data are undertaken, describe the approach and calculation used, as well as the period of time over which sample data are collected

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

Sample Inventory Reporting Template for *FLW Standard*



SECURITY WARNING Macros have been disabled. Enable Content

A1

Food Loss + Waste PROTOCOL

***FLW STANDARD* INVENTORY REPORTING TEMPLATE**
(June 2016)

About this template:

- 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.

Steps for completing this template:

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.

The tabs are organized to report about:

I. General information
II. FLW inventory scope and results
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 ...

Additional Tools & Resources Available

An Easy Way to Find Guidance in the FLW Standard

TIP: Hover over each box to see the table of contents; clicking on the Section of interest will take you right to that part of the FLW Standard

FAQs

About the FLW Standard

- What does the FLW Standard help me do? +
- What's the benefit of using the FLW Standard? +
- Who can use the FLW Standard? +
- Why should I measure food loss and waste? +
- Who is using the FLW Standard? +

Defining Food Loss and Waste

- Does the FLW Standard prescribe a particular definition for "food loss and waste" (FLW)? +
- How does the FLW Standard define "food"? How does it define "inedible parts"? +
- What are the different destinations I can use to describe "loss and waste"? +
- Does the FLW Standard apply to food rescued and secondary markets for food? +

FAQs (continued)

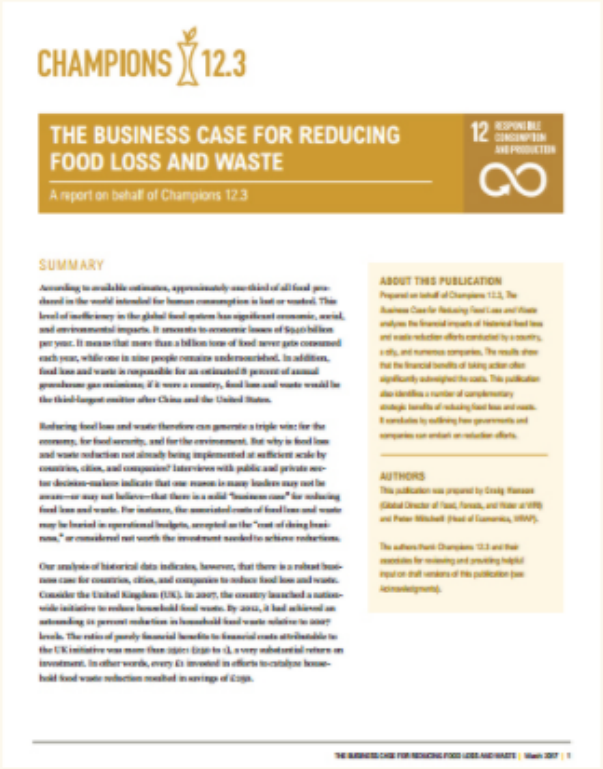
How to Implement the FLW Standard

- How do I get started? +
- What requirements do I need to meet to be in conformance with the FLW Standard? +
- Where can I get help using the FLW Standard? +

How to Measure and Report a Food Loss and Waste Inventory

- How do I measure food loss and waste? +
- What if I want to express the weight of food loss and waste in other terms (e.g., environmental impact, nutritional content, or financial implications)? +
- How do I report my food loss and waste inventory? +
- How do I verify my food loss and waste inventory? +
- How does the Standard take into account related issues like the weight of packaging or water added (e.g., during cleaning)? +

The Business Case for Reducing Food Loss and Waste


CHAMPIONS 12.3

THE BUSINESS CASE FOR REDUCING FOOD LOSS AND WASTE

A report on behalf of Champions 12.3

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

SUMMARY

ABOUT THIS PUBLICATION

AUTHORS

Research from 1,200 business sites across 700 companies in 17 countries found that the median company saved $14 for every $1 they invested in curbing food loss and waste.

Data from the United Kingdom and the city of London show similarly large returns.

Download the Champions 12.3 Report

Lessons Learned | Practical Examples

- ✓ Benefits from using the FLW Standard
- ✓ Challenges faced and overcome in measuring
- ✓ How to summarize an FLW inventory using the FLW Standard
- ✓ Actions being taken to reduce FLW

TESCO'S OPERATIONS IN THE UNITED KINGDOM: FOOD WASTE IN STORES AND DEPOTS
A Case Study TESCO

KELLOGG COMPANY: FOOD WASTE IN GLOBAL MANUFACTURING OPERATIONS
A Case Study Kellogg's

DELHAIZE AMERICA'S OPERATIONS IN THE UNITED STATES: FOOD WASTE IN STORES AND DISTRIBUTION CENTERS
A Case Study DELHAIZE AMERICA

NESTLÉ DAIRY FACTORIES IN PAKISTAN: LOSSES ACROSS THE VALUE CHAIN
A Case Study Nestlé

More in the Pipeline:
Cranswick plc, Danone, Campbell's, Sobey's, Walmart

FOOD WASTE IN CITIES: NRDC REPORT USING FLW STANDARD (SEE APPENDIX A AND B)

NRDC

Next Steps

- ✓ Sectoral guidance and other tools under development
- ✓ Monthly webinar series to continue January 17th (third Wednesdays)
  - Send us your thoughts on questions and topics to address
- ✓ If you aren't already signed up for the news update, do so at the bottom of any page @ FLWProtocol.org

Part 2.
Open Question & Answer


QUESTIONS
ANSWERS

Acknowledgements | Funders of WRI's FLW Initiative

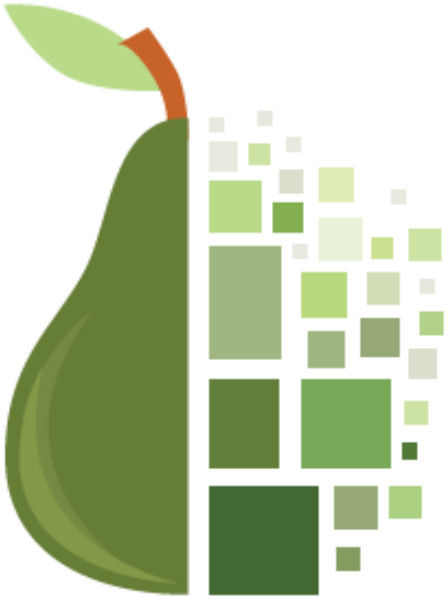
Ministry of Economic Affairs

The Netherlands Ministry of Economic Affairs

Ministry of Foreign Affairs of the Netherlands

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.

Contact Us With Questions



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

BOUNDARY (Classification sources to use)

Boundary dimension	Classification source to use (select the most current version)	Selected examples with relevant codes

Food category	• 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:
	  • Global Product Category (GPC) codes (online, or download an Excel, Word or XML copy)
	  • United Nations Standard Products and Services Code (UNSPSC)
		• 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	• 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	• 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	• 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)	• World/all countries (UN Code 001) • Eastern Asia (UN Code 030) • Ghana (UN Code 288) • Nova Scotia, Canada • Lima, Peru
Organization	• Write in number and type of unit(s) and any additional descriptive detail	• All sectors in country • Entire company • Two business units • All 1,000 stores • 100 households