FOOD LOSS AND WASTE
VALUE CHAIN SELECTION GUIDE
SECOND EDITION

September 2022

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Rashmi Ekka and Julia Shuck

We are also grateful to Laura Brenes Peralta and Eva Vargas Solís of Instituto Tecnológico de Costa Rica who assisted Agribusiness Associates Inc. in piloting the guide in Costa Rica and developing several data collection tools in Spanish

Note from the authors
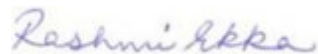
The first edition of the Food Loss and Waste Value Chain Selection Guide was published in September 2020 after a series of stakeholder listening sessions. In 2021, USDA FAS supported Agribusiness Associates Inc. to pilot the guide in two different country contexts. The guide and toolkit are designed to be adaptive to different contexts (i.e. geographic, organization type, value chain types, etc.). The flexibility of the guide was put to test in Kenya and Costa Rica.

The first pilot was conducted with Fresh Produce Consortium of Kenya, one of the country's leading membership-based export associations   , in January 2022. The second pilot was done in the Huerto Caribe region of Costa Rica in partnership with the Ministry of Agriculture and Livestock in April and May 2022.

For the two pilots, an 18-piece toolkit was designed to assist organizations in operationalizing the guide. The toolkit includes several resources including presentations and spreadsheets. Several improvements were made along the way - from initial tool development to testing in Kenya, updating for Costa Rica and finalizing accordingly. Laura Brenes Peralta of Instituto Tecnológico de Costa Rica, the pilot facilitator in Costa Rica, also made numerous contributions to the toolkit thereby enriching the guide.

We hope that you find value in following the methodology and that it guides you in leveraging your strengths and priorities to make strategic investments in reducing Food Loss and Waste.

Sincerely,

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Introduction and Objectives

More than one-third of the food produced globally is lost or wasted. Food production is resource intensive and when food is lost or wasted, it also entails the loss of resources that have been invested, including land, water, labor, and energy. With rising populations, increasing demand for food, and greater pressures on our natural resources, reducing food loss and waste (FLW) is one of the most impactful ways to increase the food supply and the resilience of food systems. Reducing FLW can help meet the UN Sustainable Development Goals by 2030 and is key to reducing greenhouse gas emissions (GHG) and keeping climate change in check.

Agricultural value chain development work typically starts with an assessment of different value chains to determine which ones the project should focus on to have the greatest impact. Value Chain selection criteria commonly used by USAID funded projects include competitiveness potential, impact potential, cross-cutting issues, industry leadership, resilience, and implementation feasibility. Given the scale of the Food Loss and Waste problem and the potential to bring about change including greater economic, nutritional, and environmental outcomes, it is important to integrate Food Loss and Waste related considerations into the value chain selection process.

Figure 1: Reasons to Prioritize Value Chains for Investments

| Aligning with organization's current goals leverages strengths | Identify greatest impact for money investing | Ensure project is addressing relevant issues/ bottlenecks | Helps define scope and scale to keep the project manageable | Assists in communicating why a specific value chain was selected | Consider feasibility of implementation | Can generate benchmark numbers for key indicators |

OBJECTIVES OF THE GUIDE

This guide is a practical resource developed to educate stakeholders on how to integrate a food loss and waste reduction lens during agricultural value chain selection. The guide walks users through a 5 step-process which helps in the selection of the value chain(s) while aligning FLW objectives, building ownership within the organization and buy-in from stakeholders. It provides guidance on several FLW criteria including food loss, food waste, economic outcomes, food security and nutrition, climate vulnerability, carbon footprint, water footprint, land footprint, wildlife and biodiversity, gender, youth and socially excluded and marginalized communities, and FLW investment opportunity. The guide provides guiding questions and suggested indicators that program designers and implementers can use to select crops according to their FLW goals.

The guide comes with an18-piece toolkit which includes presentations and data collection tools, to help users walk through the whole process with ease. The 5-step process leverages organizations existing goals and mandates to plan and organize resources (financial, human) mobilization, frame a FLW reduction objective, initially prioritize value chains, collect data and validate findings to inform food loss and waste reduction intervention decisions.

Ultimately the goal of the guide is to assist organizations in deciding where to invest limited funds for the greatest impacts on FLW outcomes as they relate to economic, social, and environmental sustainability.

Developed and piloted by Agribusiness Associates Inc. with support from USAID and USDA FAS, the toolkit draws on practical experiences working in post-harvest and food loss and waste management.

This guide was developed based on best practices for assessing value chains for intervention, typically conducted by international development practitioners.

USER GUIDANCE

AUDIENCE

- This guide has been developed for decision makers, such as Program Designers and Implementers, interested in integrating a food loss and waste lens into value chain development starting with value chain selection.
- This process can be facilitated by someone in the organization, or an external facilitator. Skills required to implement this process include:
  - A master's degree or higher, or a relevant amount of experience in agriculture value chain analysis, development and FLW programing
  - Experience conducting value chain assessments
  - Experience conducting FLW assessments
- The concepts presented in this guide can be easily incorporated into your organization's value chain selection methodology.

HUMAN RESOURCES NEEDED

- Team Lead - someone within the organization
- External facilitator (may be hired for value chain selection and FLW expertise and to complete the process in a short timeframe)
- Key project staff or their counterparts including agricultural value chain development specialist, FLW specialist, Monitoring & Evaluation specialist, Nutrition specialist, Extension Agents etc.
- External stakeholders may be engaged at different stages of the selection process: project counterparts, target beneficiaries, government officials, private sector and value chain actors

TIME

The time taken for the selection process may range from 1 month to several months depending on various factors including:

- Size of the project (funding, number of beneficiaries, and geographies to be reached)
- Availability of secondary data
- Time spent collecting primary data
- Size of the team
- Number of stakeholders consulted
- Number of years of the project
- Number of crops that are evaluated and number to be selected

TOOLKIT

The key components of this toolkit include:

- Food loss and waste value chain selection guide
- The FLW Value Chain Selection Toolkit - a set of 12 tools, including editable presentations, video recordings, prioritization matrix spreadsheet, templates for data collection instruments, and data sharing report template. See Annex 1 for a full list of tools.

SKILLS NEEDED TO IMPLEMENT GUIDE

- Developing Indicators - selecting, adapting, quantifying and measuring indicators
  - Resource: https://thecompassforsbc.org/how-to-guides/how-develop-indicators
- Research Methods - FLW assessments, value chain assessments[1]
  - Resource: Commodity Systems Assessment Methodology
- Data Analysis

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[1] http://postharvest.org/CSAM%20Gathering%20data%20on%20Postharvest%20loss%20challenges.pdf

Food Loss and Waste Value Chain Selection Process

This practical decision support process helps projects/organizations/stakeholders integrate a FLW lens when selecting which agricultural value chain(s) to work with for the greatest impact and return on investment. Built to be flexible, this process can be easily adapted to a project or organization's needs and existing systems. Emphasizing both qualitative and quantitative information throughout all stages contributes to the reliability of this process in selecting an appropriate value chain.

This guide helps organizations strategically integrate a FLW lens to select value chain(s) with which to engage , based on customizable prioritization criteria.

ADDING FLW TO YOUR ORGANIZATION'S EXISTING VALUE CHAIN SELECTION METHODOLOGY

The criteria presented in this guide are specific to FLW. If your organization already has a value chain selection methodology with commonly used criteria (e.g. competitiveness potential, impact on target group, cross-cutting issues, industry leadership, resilience, and implementation feasibility), it is recommended that selected FLW criteria be included in the existing methodology to reduce research burden and facilitate faster decision making. When selecting FLW criteria, avoid overlap or duplication with existing criteria. If the organization's value chain selection methodology is not flexible, then the FLW value chain selection exercise can be added as an activity under the overall value chain selection exercise.

OVERALL CONSIDERATIONS

- This guide can be used in addition to the prevailing method in which your organization currently does value chain selection. Choose criteria and indicators in a way to avoid duplication
- The guide provides a process that can be adjusted to the needs and context of the project
- Comparing value chains based on hard data may not be possible as practitioners may often find that quantitative data for Food Loss and Waste is lacking for the crops and geographies under consideration. Qualitative discussion questions have been provided to help project designers ask the right questions to gather field knowledge and fill the gaps in FLW understanding.

The main stages involved in FLW value chain selection are:

Figure 2: Stages of FLW Value Chain Selection
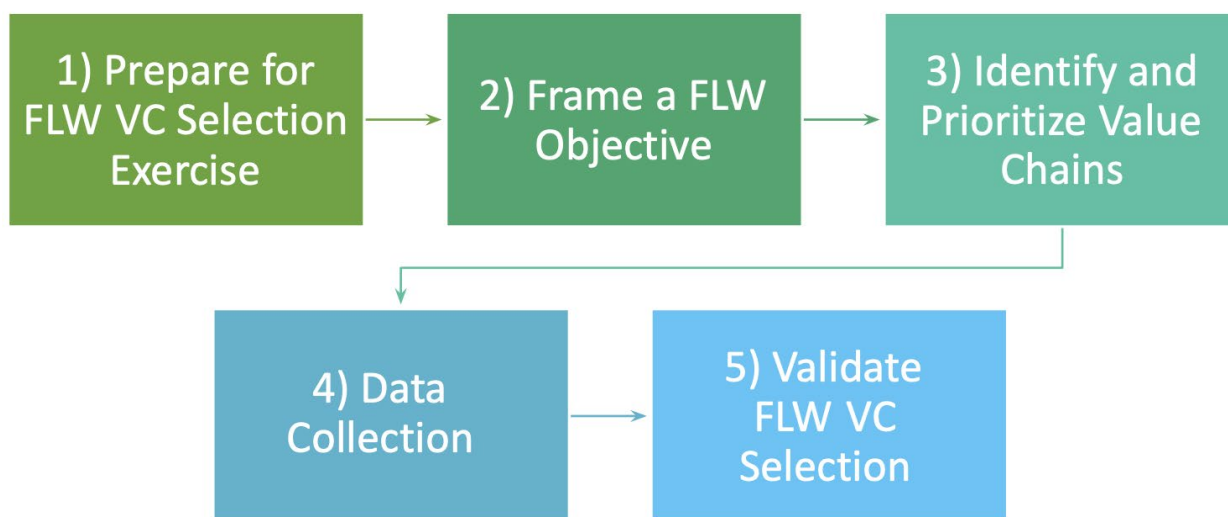
Overview of FLW Value Chain Selection Process

Stage	Description	Time Required	Considerations
1. Plan FLW VC Selection Process	Identify available resources (i.e. human, time, financial, etc.) to plan and schedule activities	~2 days	The planning tool is a living document to be updated throughout the process
2. Frame a FLW Objective	Existing project priorities are used to develop food loss and waste objectives that guide the value chain selection process. Prioritization criteria are selected in alignment with objectives.	4 hours for session; 4 hours for prioritization criteria selection	The FLW VCS Lead is often a project specialist, and a senior management representative supports the process by making necessary decisions
3. Identify & Prioritize Value Chains	Potential value chains are identified, reviewed for importance with local agriculture experts and for market demand through expert crowdsourcing of information. Value chains are ranked according to the FLW objectives and priorities	Identify VCs: ~2 days Prioritize VCs: 3 - 5 days	- VC Identification: Primarily conducted by the FLW VCS Lead with inputs from other staff and local value chain actors - VC Prioritization: time required will depend on the level of existing team knowledge regarding the shortlisted value chains

4. Collect Data	Food loss and waste data collection validates prioritized value chains, highlighting which ones have the greatest opportunities for intervention	~1-2 weeks/value chain	Depth of data collection depends on the project's priorities, time and available resources. Field data collection can be done in teams of 2 and take each team 1-2 weeks per value chain evaluated
5. Validation Workshop	Based on organizational priorities, this multi-stakeholder event can help create a shared understanding of local food loss and waste for selected value chains, elicit inputs from relevant value chain actors, identify local FLW champions and increase buy-in required for project success	1/2 - 1 day	Plan and send the invites out at least 2-3 weeks prior to the event to ensure strong participation. Invite all stakeholders who are required to make FLW interventions a success in the prioritized value chains.

Selection Stages

STAGE 1: PREPARE FOR FLW VC SELECTION EXERCISE

OBJECTIVE:
The initial planning meeting introduces the FLW Core Team and helps determine the resources (i.e. human, financial, etc.) needed to complete this process. This is especially helpful in identifying different people to schedule for each stage of the process.

DESCRIPTION:
The planning tool spreadsheet helps the FLW Team brainstorm what stakeholders to involve at different stages in the FLW value chain selection process, including stakeholders who will need to be informed of different stages of the process to secure their support in the final value chain(s) selected. This is a "living document" that evolves throughout the value chain selection process. Each stage can be expanded or reduced based on the time, financial and human resources available.

ESTIMATED TIME:
~2 days (intermittent); can be done remotely

HUMAN RESOURCES:
FLW Core Team

TOOLKIT DOCUMENTS:

1. Prepare for FLW VC Selection Exercise	
1A. FLW Value Chain Selection Guide Process Overview Workshop	Presentation
1B1. FLW Background (Presentation)	Presentation with audio
1B2. FLW Background (Video)	https://youtu.be/IG76R5cYejM
1C. Planning Tool	Spreadsheet

STAGE 1: ACTIVITY, TASKS, TOOLS AND OUTPUTS

Activity	Tasks	Tools/Resources	Outputs
Facilitator Preparation	Review key FLW documents	2019 FAO State of Food and Agriculture: Moving Forward on Food Loss and Waste Reduction	Clear and shared understanding of FLW

Activity	Tasks	Tools/Resources	Outputs
		[World Resources Institute's Reducing Food Loss and Waste Setting Global Action Agenda](#) Presentation/Video: FLW Background	
	Literature Review of existing FLW data for country/selected geography		Literature review helps identify secondary data and where data gaps exist. Feeds into the Background section of the Final Report
	Review the toolkit and mock practice with 1 value chain	Toolkit: FLW VC Selection Guide	Adapt toolkit to local context (changing language, facilitation approach, add relevant prioritization criterion)
	Draft Schedule	Presentation: FLW VC Selection Guide Overview slide 31	Draft of schedule and process to edit during Initial FLW VCSG Planning Meeting
FLW Core Team Preparation	Review process guide to ensure understanding and prepare comments to address during the planning meeting	PDF: FLW VC Selection Guide	Identify any questions about processes and/or areas that may need to be adapted
Facilitation Session	Initial FLW VCSG overview and planning meeting	Presentation: FLW VC Selection Guide Overview (60-90 minutes)	Agreed due dates for homework assignments
Homework	Review key FLW concepts	Presentation/Video: FLW Background	Accurately answer FLW concept questions
	Identify available resources for FLW VC selection process (human, financial, time, etc.)	Spreadsheet: Planning Tool NOTE: the planning tool is a living document and can be edited and added	Tab: Participants - complete an initial draft of who to include in each stage of the process Tab: Data Collection - based on available resources

Activity	Tasks	Tools/Resources	Outputs
		to throughout the life of the project	and experience, use table to determine number of value chains that can be explored Tab: Schedule - begin outlining when implementation will occur
	Begin identifying promising value chains	Spreadsheet: Prioritization Matrix, Tab 2. Promising Value Chains	Initial list of VCs with relevant statistics to assist with initial decision making

STAGE 2: FRAME A FLW OBJECTIVE

OBJECTIVE:

A FLW objective is framed through the organization's current priorities and strengths to ensure the value chain selection process flows from existing approaches. The FLW objective helps participants involved in different stages of the process to understand the logical connection with their work. After developing the FLW objective, the prioritization criteria should be selected.

DESCRIPTION:

The following session questions help to frame a FLW objective that guides the value chain prioritization process:

- What are your priorities?
- What are your strengths?
- What FLW problems are you trying to address?
- Where does FLW fit into the problems being addressed?
- Draft a FLW objective
- What is your ultimate FLW impact?

FOOD LOSS AND WASTE CRITERIA

Once the FLW objective has been developed, choose prioritization criteria which is aligned with the objective. The guide offers the following 12 criteria (See Figure 3). Food Loss and Food Waste (highlighted in green) are compulsory criteria. Other criteria may be added as required. A complete explanation of the criteria shown below is provided at the end of this section. It provides guidance on 12 different criteria along with guiding questions, suggested indicators and sources of data.

Figure 3: Food Loss and Waste Criteria

ESTIMATED TIME:

~1 days

TOOLKIT DOCUMENTS:

2. Framing a FLW Objective	
2A. Framing a FLW Objective Workshop	Presentation

STAGE 2: ACTIVITY, TASKS, TOOLS AND OUTPUTS

Activity	Tasks	Tool	Output
Facilitator Preparation	Prepare for the Framing a FLW Objective session	Presentation: Framing a FLW Objective	Highlights from strategy documents added to presentation
Facilitation	Framing a FLW Objective session	Presentation: Framing a FLW Objective Mentimeter can be used for selecting the prioritization criteria Miro can be used for whiteboarding	FLW Objective drafted, select prioritization criteria, identify potential solutions or interventions
Homework	Facilitator sends a summary of the Framing a FLW Objective session with the FLW Core Team to share with their colleagues and collect feedback	[Email or document] Reference Presentation: Framing a FLW Objective	Colleagues provide feedback on objective, prioritization criteria and potential solutions or interventions to be representative of organization as a whole, allowing more people an opportunity to participate/stay updated and support organizational ownership of those not in the initial meeting
	Identify additional promising value chains, including	Spreadsheet: Prioritization Matrix,	Initial list of VCs with relevant statistics to assist

Activity	Tasks	Tool	Output
	suggestions from colleagues	Tab 2. Promising Value Chains	with initial decision making
	Identify available resources for FLW VC selection process (human, financial, time, etc.)	Spreadsheet: Planning Tool NOTE: the planning tool is a living document and can be edited and added to throughout the life of the project	Tab: Participants - complete an initial draft of who to include in each stage of the process Tab: Data Collection - based on available resources and experience, use table to determine number of value chains that can be explored Tab: Schedule - begin outlining when implementation will occur

FOOD LOSS AND WASTE CRITERIA

The following table provides FLW criteria, guiding questions, suggested indicators, and sources of data. Users may choose questions and indicators based on project goals as well as data availability and the time and resources available to collect primary data. This table provides the key information for use during the development of the prioritization matrix as well as during the qualitative and quantitative data collection on each value chain. Suggested indicators help rank data in the Prioritization Matrix, while the guiding questions inform the development of the final report.

CRITERIA	GUIDING QUESTIONS	SUGGESTED INDICATORS	SOURCES OF DATA
Food Loss	- How perishable is the food? - Rate as Low, Medium, High - Estimate number of days it is shelf-stable before it starts going bad - Is the crop grown for fresh or processed market? - Where in the chain does most of the loss occur? Critical loss points may include On-farm loss, Storage, Transport, Processing and packaging (or lack of), Wholesale, and Retail. Look for food loss data by stage in the value chain - What are the main causes of loss? May include unsuitable harvest timing, harsh climatic conditions, harvest and handling practices, infrastructure and marketing challenges - Are there any types of actors and/or conditions that particularly drive loss? - Where does the food loss go? Is it re-purposed?	% Food Loss (also referred to as Post-harvest Loss - loss that occurs along the food supply chain from harvest/slaughter/catch up to, but not including, the retail level) Formula for % Food Loss: Percentage of physical quantity loss divided by the amount produced	- FAO's Food Loss and Waste Database - APHLIS provides postharvest loss and value chain stage breakdown of loss for grains in sub-Saharan African countries - Food Loss assessment reports for the crop by focus country and region - The Stewardship Index for Specialty Crop's (SISC) Food Loss Metric Tool - Used to measure postharvest losses on farm

CRITERIA	GUIDING QUESTIONS	SUGGESTED INDICATORS	SOURCES OF DATA
Food Waste	- What are the main causes of waste? Examples include poor purchase planning, excess and impulse buying, confusion over labels ("best before" and "use by"), consumer expectation of perfect-looking food, poor in-home storing or stock management, preparing too much food, lack of knowledge on how to use leftovers in recipes, time management, accounting for family tastes, food safety concerns, portion and pack size, etc. - Is the food shelf-stable or perishable? - Are there any types of actors and/or conditions that particularly drive waste? (Examples may include Tourist hotels, retailers, etc.) - Where does the food waste go? Is it re-purposed? Answers may include trash/landfill, compost, burned, re-purposed for other food or non-food uses, etc.	Food Waste % (waste that occurs at the retail and consumption level) Formula of Food Waste %: Percentage of food waste divided by amount available for human consumption.	- Food Waste assessment reports for the crop by focus country and region - If data is not available for the particular geography, use regional figures from Food Wastage Footprint: Impacts on Natural Resources - For US data, see USDA and EPA data
Economic Outcomes	- What is the price of the crop? Is it Low, Medium, or High Value? - How important is this crop to the national economy? (eg. production, import/export, etc.) - Does damage/loss in quality adversely affect the price of the crop to a large extent? What is the percentage of price reduction? How much of the crop is damaged at retail sale?	- Value of Food Loss (annual production * average price * % of food loss) - Value of Food Wasted (annual production * average price * % of food wasted)	- Annual production from national statistics - Average price from national statistics and value chain analysis reports - Food loss % from FAO's Food Loss and Waste

CRITERIA	GUIDING QUESTIONS	SUGGESTED INDICATORS	SOURCES OF DATA
	• Is there unmet seasonal demand which could be met through processing or storage? Is there a market for value-added products? Is there infrastructure for value-added processing?		Database and reports • Food Waste % from Food Wastage Footprint: Impacts on Natural Resources and reports • APHLIS provides data on the financial impact of food loss for grains in sub-Saharan African countries
Food Security and Nutrition	• Is this an important crop for food security? • Is this an important crop for nutrition? • Will reduction in FLW upstream lead to improved food security and nutrition for food-insecure groups esp. farming communities? • Will reduction in FLW downstream lead to improved consumer access to food? • Can food be processed/stored for consumption in the low season? Is this currently being done? • For high-income countries: Are there opportunities for food recovery and redistribution to increase access to food and improve diets of food-insecure individuals?	• Nutritional value including calories/energy, protein, carbohydrates, and key nutrients such as vitamin A, calcium, zinc, etc. • Food Security Indicator: Rate the extent to which intervention in this value chain will increase food availability and access by rural and urban poor?	• Use FLW Protocol FReSH Food Loss and Waste Value Calculator to calculate nutritional values • Food Systems Dashboard provides country-level information on nutrition, food systems, and consumer behavior • APHLIS provides data on the nutritional impact

CRITERIA	GUIDING QUESTIONS	SUGGESTED INDICATORS	SOURCES OF DATA
			of food loss for grains in sub-Saharan African countries
Climate Vulnerability	• What is the impact of extreme weather events or changing weather patterns (e.g. extended period of hot days, change in seasons like delayed rain and delayed harvests, etc.) on FLW for this VC? Examples may include extended heat waves contribute to increased decay during transportation, changing seasons cause the harvest to be ready later than usual and there is a rush to harvest before winter sets in, inability to harvest because of weather events leading to on-field loss, inability to send produce from the farm on time because of weather event, etc. • What is the impact of the VC's food loss and waste on the climate?	• Rate level of vulnerability of the crop to climate change as relating to FLW • Sensitivity level to climate change on FLW (e.g. resilient tree crops receive a "low" and more susceptible crops like maize may receive a "high") • Potential of FLW intervention to reduce the impact of climate shocks? • Availability of improved technologies resistant to climate-related constraints	• Research reports • Project's assessment of context and value chain
Carbon Footprint	• How much GHG emissions result from FLW in this VC? (low, medium, high) • Where in the VC do most of the GHG emissions take place? Is it upstream and related to primary production? Is it downstream and related to the accumulation of GHG emissions throughout the value chain?	• GHG emissions (total amount of GHG resulting from FLW that is emitted throughout the food's life cycle, expressed in carbon dioxide (CO_2) equivalent) • GHG emitted per unit of food consumed	• FLW Protocol's FReSH Food Loss and Waste Value Calculator • FAOSTAT data on Shares of Emissions from Agriculture by country (not disaggregated by crop)

CRITERIA	GUIDING QUESTIONS	SUGGESTED INDICATORS	SOURCES OF DATA
			• ReFED Impact Calculator for USA data, meat waste
Water Footprint	• What is the FLW impact on water resources (consumption, pollution, quality)? • Is water used efficiently in the value chain? How is water use linked to FLW? (e.g. incorrect watering can lead to more pest burden leading to greater FLW)	• Water Scarcity footprint: a measure of all the freshwater relating to FLW, used to produce and supply that product to its final consumer, at all stages of the supply chain (includes blue, green, and grey water)	• FLW Protocol's FReSH Food Loss and Waste Value Calculator • ReFED Impact Calculator for USA data, meat waste • Mekonnen and Hoekstra, 2014 for water footprints of different staple crops • Water consumption and Water pollution
Land Footprint	• What is the impact of FLW on land? • Is this VC driving more land-use change? Is it driving deforestation? • For this value chain, is the GHG emissions particularly related to the land footprint?	• Land footprint: the surface of land needed to produce the food (including for meat and dairy production) that is lost or wasted • Emissions from Land Use • Soil quality index	• FAO Land Use • Agriculture and Land Use National Greenhouse Gas Inventory • USDA Land Use • Soil Index: FLW Protocol's FReSH Food Loss and Waste Value Calculator

CRITERIA	GUIDING QUESTIONS	SUGGESTED INDICATORS	SOURCES OF DATA
Biodiversity and Wildlife	- What is the VC's impact on biodiversity and wildlife? - Is this VC expanding in areas close to protected ecosystems? - Is the FLW being discarded in a way that is attracting terrestrial and aquatic wildlife? (e.g. primates and elephants coming to human settlements to eat through the trash)	Select indicators according to the main impact of FLW on biodiversity and wildlife. Examples: - Endangerment of different species - Incidents of wildlife coming to human settlements for food - Wildlife corridors being interrupted by new farms	Conservation reports
Gender, Youth and Minority Groups (including Socially Marginalized People, Indigenous People and People with Disabilities)	- Where are the women, youth, and minority groups (including socially marginalized people, indigenous people, and people with disabilities) in this value chain and what do they do? Consider any other groups that do not have equitable participation in this value chain. - Can FLW interventions increase their participation, employment, and entrepreneurship in the value chain? Where? - What are the barriers to entry? How can they be overcome?	- Number of women, youth, minority group people employed in the VC - Number of women, youth, and minority business owners in the VC - Potential of VC to contribute to increased women, youth, and minority empowerment and equality through FLW related employment or entrepreneurship opportunities - Rate opportunities for technology interventions to attract youth participation	- Government statistics - Reports - Project's assessment
FLW Investment Opportunity	- Do impactful FLW solutions exist for this VC? Are these solutions tested and validated? Are these solutions accessible for smallholder farmers and other upstream actors or will they need huge investments? - Can entrepreneurship be encouraged for scaling out FLW technologies? - Is the Investment climate conducive for FLW investments?	- Rate the suite of solutions' ability to be scalable and profitable - Rate the suite of solutions' ability to decrease food loss or waste and investment needed - Rate the solutions' ability to increase the food available for consumption vs. being sent to a non-food destination (e.g. animal feed, bio-	- Reports - Project's assessment

CRITERIA	GUIDING QUESTIONS	SUGGESTED INDICATORS	SOURCES OF DATA
	- What FLW capacity and infrastructure is already in place? What are the current and planned public and private sector investments? - What is the VC's potential for products/services/innovations that compensate for GHG emissions?	based material processing, anaerobic digestion, composting, land application, landfill, etc.). More information on valorizing waste by destination is provided in the Food Loss and Waste protocol. Rate availability or interest in financing investments the VC	

STAGE 3: IDENTIFY & PRIORITIZE VALUE CHAINS

Use existing project and/or organizational priorities to determine which prioritization criteria are used to evaluate and rank the list of promising value chains and identify key questions to answer during data collection.

DESCRIPTION:
IDENTIFY PROMISING VALUE CHAINS
Build your shortlist of value chains using the following steps:

- Make a list of crops commonly grown in the area. Check with different stakeholders on the crops they are working on in the selected area
- Think out of the box and consider new or lesser known value chains
- Briefly engage with farmers, market actors, and consumers to understand crops that are in high demand
- Consider any inclusion or exclusion criteria as per the project's goals.
- Group crops by categories such as staple, fruits, vegetables, tubers, oilseeds, herbs and spices, dairy and livestock, etc.

PRIORITIZING VALUE CHAINS
Compare the value chains using the following steps:

- Do any other value chains need to be included?
- Review selected key criteria and select relevant indicators
- To develop the matrix, select key criteria and indicators - a list of criteria is provided in the Food Loss and Waste Criteria annex. Ensure final criteria and indicator selection are aligned with the FLW objective and available data. See Figure 4, for a blank example of a value chain selection matrix.
- Initially score value chains for each indicator. Highlight cells green, yellow, red based on confidence/relevance in the existing data.
- Discuss criteria-specific data questions. Highlight cells green, yellow, red based on confidence/relevance in the existing data.
- Discuss indicator formulas and calculate score numbers. Develop a scoring system for indicators where little data exists for transparent and shareable scores
- Group Discussion: compare score and indicator numbers - does anything seem off? Why might the score and the indicator numbers be different? Are there any areas to highlight for data collection?
- Select top # value chains, based on organization's resources for research and intervention
- Optional: Use the 10 feasibility questions to determine the ease of intervening in a given value chain. See Annex 3.

Criteria	Food Loss	Food Waste	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	Results	
Indicator	Food Loss %	Food Waste %	I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	Total (%)	Rank
Weightage			10	10	10	10	10	10	10	10	10	10	100	
VC1													0	
VC2													0	
VC3													0	
VC4													0	
VC5													0	
VC6													0	
VC7													0	
VC8													0	
VC9													0	
VC10													0	

INITIAL VALUE CHAIN MAPPING EXERCISE

- Draw a map of the top value chain, including major activities for each actor (harvesting, sorting/grading, storage, transportation/distribution, processing, retail, consumption)
- Estimate loss/waste at each point - highlight gaps in existing data
- During field visit observe and document the reasons for the loss/waste

ESTIMATED TIME:

1 - 3 days (depends on the level of technical expertise and availability of existing data)

HUMAN RESOURCES:

FLW Core Team, staff and other specialists within the organization, extension agents, researchers, project partners, NGOs working in the area, external experts, etc.

During the prioritization workshop sessions, engaging additional stakeholders with different areas of expertise in the identified value chains will contribute to a better understanding of how much is known regarding FLW, leading to more accurate estimates. For example, If nutrition is identified as a FLW priority criterion, is there an in-house or local expert available to participate? This helps to integrate different sectors of knowledge and can contribute to building a working group.

CASE STUDY EXAMPLE

The Fresh Produce Consortium of Kenya involved staff, key members, and called local market contacts.

In Costa Rica, the Ministry of Agriculture included leadership from extension and national statistics services, local extension agents, and experts from a local university.

TOOLKIT DOCUMENTS:

3. Identify & Prioritize Value Chains	
3A. Value Chain FLW Prioritization Matrix	Spreadsheet

STAGE 3: ACTIVITY, TASKS, TOOLS AND OUTPUTS

Activity	Tasks	Tools/Resources	Output
FLW Core Team Preparation	FLW Core Team identifies a list of promising value chains	Spreadsheet: Value Chain FLW Prioritization Matrix, Tab "2. Promising Value Chains"	Promising value chains identified
FLW Team Preparation	Review key FLW concepts (for any new participants)	Presentation/ Video: FLW Background	Understand FLW concepts
Facilitator Preparation	From the 'Framing a FLW Objective Session' copy the selected priority criteria, why selected, definitions, and weightage (if done)	Spreadsheet: Value Chain FLW Prioritization Matrix, Tab '3. Prioritization Criteria Indicators"	Partially completed Tab 3, ready for Prioritization Session
Facilitation	"Prioritize Value Chains for FLW" Presentation Review and confirm list of promising value chains; prioritization criteria, indicator(s), and weightages; Score value chains; Answer 'Criteria-Specific Data' questions for the top ranked value chains; Highlight Prioritization Matrix and Criteria Specific Data cells green, yellow or red based on confidence in data	Spreadsheet: Value Chain FLW Prioritization Matrix	List of top ranked value chains, identification of gaps in existing data (red and yellow shaded cells)
Facilitation (Optional)	Discuss list of 10 feasibility questions for top ranked value chains	Spreadsheet: Value Chain FLW Prioritization Matrix, Tab "6. Feasibility Criteria"	Assess the feasibility of working in different value chains, especially if they are newer or lesser known - in general or to organization staff
Homework	Depending on the availability of participants or facilitator,	Spreadsheet: Value Chain	

Activity	Tasks	Tools/Resources	Output
	prioritization matrix and criteria-specific questions can be assigned for completing	FLW Prioritization Matrix	
Facilitator Homework	Extract data needs from Prioritization Matrix Spreadsheet (e.g. red and yellow highlighted cells) in order of importance to answer key FLW prioritization questions	Spreadsheet: Value Chain FLW Prioritization Matrix	Data needs and collection methods identified. Draw from: - FLW prioritization criteria indicators - FLW guiding questions - Value Chain Map with FLW loss at each stage, why FLW occurs there

STAGE 4: DATA COLLECTION

OBJECTIVE:
Data collection validates and/or provides new information to update priority matrix scores, driving informed decision making when selecting which value chain(s) to work in.

DESCRIPTION:
This is the most customizable and flexible stage of the process. The level of depth of this stage depends on what data already exist, which priority criteria were selected, and how much time and financial resources the project/organization can commit to this stage. This stage can range from retrieving secondary data for value chains, using generic data where local sources do not exist, to adapting field data collection tools to collect primary data, establishing baseline data that can be tracked over time to monitor and evaluate intervention impact.

Based on the Prioritization matrix, conduct a desk study to obtain secondary data on Food Loss and Waste for the value chains under consideration. Key steps for the data collection process are:

- Review Food Loss and Waste Assessments (may often be called Postharvest Assessments) as well as value chain studies, national statistics, government websites, etc. and identify gaps in data.
- Conduct field investigation to speak with farmers, traders, agribusinesses, and other value chain actors, innovators, government, and other key stakeholders
- According to the list of criteria, prepare a question guide and number of respondents needed as per the resources available.
- Information collected should be compiled into a short report/presentation that can be presented at the validation workshop

ESTIMATED TIME:
Varies (desk research only - a few days; primary research including field visits can be several weeks depending on the number of stakeholders surveyed)

HUMAN RESOURCES:
Project team, local experts, and field staff

TOOLKIT DOCUMENTS:

4. Data Collection	
4A. Data Collection Preparation Workshop	Presentation
4B. Food Loss Data Management	Spreadsheet
4C. Semi-Structured Producer FLW Survey	Document
4D. Semi-Structured Packhouse FLW Survey	Document
4E. Farm Field Data Collection Tool	Document

4F. Packhouse Field Data Collection Tool	Document
4G. Food Waste Data Management	Spreadsheet
4H. Market Vendor Waste Survey	Document
4I. Consumer Food Waste Survey	Document

STAGE 4: ACTIVITY, TASKS, TOOLS AND OUTPUTS

Activity	Tasks	Tool	Output
Facilitator Preparation	Review existing FLW/postharvest assessment methods for top ranked value chains	Food Loss & Waste Protocol (2016) FLW Standard - Food Loss and Waste Accounting and Reporting Standards v1.0 https://www.flwprotocol.org/flw-standard/	Identify potential field research methods, including comparability of different approaches used for each value chain
FLW Core Team Preparation	Confirm available resources for data collection (human, financial, time, etc.)	Spreadsheet: Planning Tool	Tab: Data Collection - use table to determine number of value chains that can be explored based on preferred research methods and availability of resources Tab: Schedule
FLW Team Preparation	New participants review key FLW concepts	Presentation/ Video: FLW Background	Accurately answer FLW concept questions
Facilitation	Review list of data to collect and confirm any changes in data to collect, importance, etc.	List of data to collect from Spreadsheet: Prioritization Matrix	Finalized handout (physical or digital) of gaps in data needed to be collected
	Discuss and select preferred data collection methods	Presentation: Data Collection Preparation	List/Table of what missing data each method will capture to make sure not missing anything
	For each selected research method, adapt the relevant data collection instruments to be value chain appropriate and collect key	Document: Data Collect Instrument Templates	Updated data collection instruments

Activity	Tasks	Tool	Output
	missing data, and determine if printing instruments or using a digital tool/application		
	Review and adapt Food Loss data management tool to align with updated data collection instruments	Spreadsheet: Value Chain Food Loss Data Management Tool	This tool aggregates value chain data to assist with analysis
	Review and adapt Food Waste data management tool to align with updated data collection instruments	Spreadsheet: Value Chain Food Waste Data Management Tool	This tool aggregates consumer and vendor surveys to help with analysis
Activity: Collect Data			
Facilitation/ Homework	Analyze collected data	Spreadsheet: Value Chain Food Loss Data Management Tool Spreadsheet: Value Chain Food Waste Data Management Tool	Answers to missing data points
	Update Prioritization Matrix based on new findings and record findings in final report draft	Spreadsheet: Prioritization Matrix Document: Final Report	Did the ranked order of the value chains change? How so? (This tells us how close the initial estimates were) Why? (This highlights key learnings)
	Draft Final Report with findings	Document: Final Report outline	Final report

STAGE 5: VALIDATE FLW VC SELECTION

Actively involving key stakeholders to contribute to the final value chain selection decision by drawing on their knowledge and experience at the validation workshop helps create buy-in and ensures the findings are accurate and believable.

Use the workshop to share findings from data collection for all crops and geographies that were considered. Through a value chain mapping exercise, stakeholders can help fill gaps in data by sharing their understanding through field experience and group discussions.

If the project team has finalized the value chain selection, these can be presented to the stakeholders for their buy in. If the project team has not finalized the value chain selection, the ranking exercise using the prioritization matrix can be revisited to finalize the selection. After the validation workshop, the team leader should write the final report and disseminate findings to key stakeholders.

ESTIMATED TIME:
½ - 1 day

HUMAN RESOURCES:
Include project staff and field staff, project counterparts, stakeholders including beneficiary representatives, value chain actors, private sector, government representatives, service providers, and business associations. Note that consulting different stakeholders is a time taking process, therefore only invite stakeholders who are relevant for buy-in and decision-making.

TOOLKIT DOCUMENTS:

5. Validation Workshop	
5A. Validation Workshop	Presentation
5B. Collaborating, Learning and Adapting Event	Presentation
5C. FLW Report Outline	Document

STAGE 5: ACTIVITY, TASKS, TOOLS AND OUTPUTS

Activity	Tasks	Tool	Output
Facilitation	Present findings and request feedback on the data collected and updated matrix	Presentation: Validation Workshop	Value chain FLW findings are validated and/or corrected
	Present an overview of	Presentation:	

Activity	Tasks	Tool	Output
	validated findings and value chain(s) selected, then review and plan with whom to collaborate, key learning questions and how (actions) to incorporate new findings into intervention(s)	Collaborating, Learning and Adapting Event	
Homework	Incorporate relevant feedback from the Validation Workshop and CLA Event into the Final Report	Document: Final Report	Completed report that captures identifies key areas of FLW to consider when taking action

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Searchinger, Tim, Richard Waite, Craig Hanson, Janet Ranganathan, Patrice Dumas, and Emily Mattews. 2018. *Creating a Sustainable Food Future: A Menu of Solutions to Feed Nearly 10 Billion People by 2050.* World Resources Institute.

Annex 1: Food Loss & Waste Value Chain Selection Guide Toolkit

Stage Tool	Format	Author
0 Food Loss and Waste Value Chain Selection Guide, Second Edition	PDF	Rashmi Ekka, Julia Shuck
1. Prepare for FLW VC Selection Exercise		
1A. FLW Value Chain Selection Guide Process Overview Workshop	Presentation	Julia Shuck, Rashmi Ekka
1B1. FLW Background (Presentation)	Presentation with audio	Julia Shuck
1B2. FLW Background (Video)	https://youtu.be/IG76R5cYejM	Julia Shuck
1C. Planning Tool	Spreadsheet	Julia Shuck, Rashmi Ekka, Mandeep Sharma
2. Frame a FLW Objective		
2A. Framing a FLW Objective Workshop	Presentation	Rashmi Ekka, Julia Shuck
3. Identify & Prioritize Value Chains		
3A. Value Chain FLW Prioritization Matrix	Spreadsheet	Rashmi Ekka, Julia Shuck, Mandeep Sharma
4. Data Collection		
4A. Data Collection Preparation Workshop	Presentation	Julia Shuck
4B. Food Loss Data Management	Spreadsheet	Julia Shuck
4C. Semi-Structured Producer FLW Survey	Document	Laura Brenes Peralta
4D. Semi-Structured Packhouse FLW Survey	Document	Laura Brenes Peralta
4E. Farm Field Data Collection Tool	Document	Laura Brenes Peralta
4F. Packhouse Field Data Collection Tool	Document	Laura Brenes Peralta
4G. Food Waste Data Management	Spreadsheet	Julia Shuck
4H. Market Vendor Waste Survey	Document	Julia Shuck

4I. Consumer Food Waste Survey	Document	Julia Shuck
5. Validate FLW VC Selection		
5A. Validation Workshop	Presentation	Julia Shuck
5B. Collaborating, Learning and Adapting Workshop	Presentation	Julia Shuck
5C. FLW Report Outline	Document	Julia Shuck, Mandeep Sharma

Annex 2. Sample Timeline

Activity	Level of Effort	Month 1	Month 2	Month 3	Month 4	Month 5
Preparation	3 - 5 days	■				
Framing a FLW Objective	1 day	■				
Literature review of existing data for list of value chains	½ day per value chain	■				
Identify and Prioritize Value Chains	3 - 5 days		■			
Incorporate existing data	3 - 5 days		■			
Data Collection Preparation	3 - 5 days		■			
Collect Data	~2 weeks per value chain			■	■	
Analyze data and update matrix						■
Validation Workshop						■

Annex 3. Feasibility Criteria

Target territory	1) What level or history of presence do you/local partners have in the target territory?
Value chain services in territory	1) Are there agribusiness service providers, input service dealers, financial services, processors, etc. in the territory or nearby?
Market demand	1) Is there established market demand for the product at the local, national, regional, and/or international markets? 2) Are prices and volumes attractive to farmers?
Smallholder friendly	1) Is the crop produced by large numbers of small farmers with low barriers to entry? 2) When is the first return on investment? 3) Will the crop cycle timing ensure farmers earn income in the short term?
Upgrading potential	1) Can the farmers or middle actors conduct primary postharvest processing locally to add value to the product? Who else can do postharvest processing? 2) Can secondary processing be conducted? 3) What linkages can be made to streamline and upgrade the value chain?
Staff knowledge of value chain	1) Do staff have previous experience working with this crop or value chain, or would the project be starting from scratch?
Strong implementing partner	1) Can a strong local implementing partner be contracted? 2) Is one available with skills in agro-enterprise/value chains, or would the partner need to be trained in value chain basics for proper execution?
Existing groups	1) Are there existing small-farmer groups organized around the crop or value chain, or would the project need to organize them from the beginning?
Enabling environment & Government policy	1) How is the government addressing this crop? 2) Are infrastructure (roads, water, electricity, markets) and private sector practices (active engagement in the agriculture sector) in place for a value chain to potentially function or be improved? 3) What do different stakeholders want? 4) How viable is the value chain in the selected geography?
Donor interest	1) Has the donor issued a Request for Applications or mentioned in country-based meetings an interest in the particular crop or chain?