



Food and Agriculture
Organization of the
United Nations



Gender and food loss in sustainable food value chains

A guiding note





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RECOMMENDED CITATION

FAO. 2018. *Gender and food loss in sustainable food value chains – A guiding note*. Rome

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ISBN 978-92-5-130346-7

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Acknowledgements

This Guiding Note was prepared within the Global Initiative on Food Loss and Waste Reduction, under the overall responsibility of Regina Laub (FAO Social Policies and Rural Institutions Division [ESP]), Robert van Otterdijk and Rosa Rolle (FAO Nutrition and Food Systems Division [ESN]).

This Note is the result of the fruitful collaboration between Alejandra Safa, Andrea Luciani (ESP, FAO) and Julia Nana Heyl (ESN, FAO), with valuable inputs from Anna Lentink (Fair and Sustainable Consulting) and Cathelijne van Melle (Enclude).

The publication benefitted from the contribution of the following experts on food loss: Lisa Kitinoja (The Postharvest Education Foundation), Kerstin Hell (CGIAR), Hala Chahine (Lebanese University), Myriam Annette (FAO), Yvette Diei Ouadi (FAO) and Mireille Totobesola (FAO).

Thanks are extended to Barbara Hall for editing and to Andrea Wöhr for the layout and design of the publication.

Acronyms and abbreviations

CGIAR	Consultative Group for Agricultural Research
CLP	Critical loss point
FAO	Food and Agriculture Organization of the United Nations
FVC	Food value chain
GBC	Gender-based constraint
HLPE	High Level Panel of Experts on Food Security and Nutrition
SDG	Sustainable Development Goal
WFP	World Food Programme
WHO	World Health Organization
WRI	World Resources Institute

Glossary

Critical loss point (CLP): CLPs are points in the food value chain where food losses have the highest magnitude, the highest impact on food security, and the highest effect on the economic result of the food value chain. (FAO, 2016b)

Food loss (FL): Food loss refers to a decrease in mass (dry matter) or nutritional value (quality) of food that was originally intended for human consumption. Food loss is mainly caused by inefficiencies in the food value chains, such as poor infrastructure and logistics, lack of technology, insufficient skills, knowledge and management capacity of value chain actors, and lack of access to markets. In addition, natural disasters play a role. (FAO, 2013)

Food value chain: A food value chain consists of the full range of farms and firms, and their successive coordinated value-adding activities that produce raw agricultural materials and transform them into food products that are sold to final consumers and disposed of after use, in a manner that is profitable throughout, has broad-based benefits for society, and does not permanently deplete natural resources. (FAO, 2014b)

Food waste: This refers to the removal of food from the food supply chain, which is fit for consumption, by choice, or which has been left to spoil or expire as a result of negligence by the actor – predominantly, but not exclusively the final consumer at the household level. (FAO, 2014a)

Gender analysis: Gender analysis is a critical examination of how differences in gender roles, activities, needs, opportunities and rights/entitlements affect men, women, girls and boys in certain situation or contexts. Gender analysis examines the relationships between females and males, and their access to and control of resources and the constraints they face relative to each other. It also examines access to development benefits and decision-making at the micro level of the individual, the family and the workplace, the meso or institutional level, and the macro level or the larger natural, social, economic and political environment, with a view to identifying possible gender gaps and the means of eliminating them. (FAO Gender web-page; FAO Term Portal; UNICEF n.d.)

Gender-blind/gender-neutral: An approach, strategy, framework or programme may be defined as gender-blind when the gender dimension is not considered, although there is clear scope for such consideration. This is often as a result of lack of training in, knowledge of and sensitization on gender issues, leading to an incomplete picture of the situation to address and, consequently, to failure. (FAO Term Portal)

Gender discrimination: Any exclusion or restriction made on the basis of gender roles and relations that prevents a person from enjoying full human rights. (FAO, 2009)

Executive summary

Approximately one out of every four calories of food grown to feed people is not ultimately consumed by humans (WRI, 2013). All types of food are lost and wasted to a varying extent across the globe and across all stages of the food value chain. Food losses negatively affect food security and nutrition while significantly contributing to increased environmental and economic costs of food production.


The adoption of the 2030 Agenda for Sustainable Development provides a historic opportunity to elevate the issue of food loss on the global agenda. Sustainable Development Goal 12, *Ensure sustainable consumption and production patterns*, calls for renewed efforts to reduce food losses along production and supply chains. Achieving this ambitious goal also requires greater efforts globally in implementing food loss reduction policies and interventions, and a paradigm shift from addressing the symptoms to tackling the underlying reasons for food loss.

Although progress has been made in identifying the direct causes of food losses and quantifying their magnitude, loss reduction strategies have, in the past, tended to focus on technological solutions, hence overlooking the relevance of socio-economic factors influencing the functioning of the food value chain. Gender relations are a primary factor in the social and economic context that shapes the functioning of food value chains at all levels and influence the division of labour, roles and responsibilities, and create disparities in access to and control over resources, services, knowledge and technologies. Hence, gender relations have an impact on the overall efficiency of the food value chain and consequently on food losses.

This Guiding Note aims to conceptualize and raise awareness on the nexus between gender equality and food loss while offering practical guidance on and tools for integrating gender concerns into the carrying out of food loss case studies and the planning and implementation of reduction strategies and interventions.

A gender-sensitive mapping of food losses provides information on the specific gender-based constraints that hinder women's and men's ability to efficiently participate in the food value chain, from production to consumption. The analysis of gender-based constraints provides critical information and entry points for the identification of efficient and culturally acceptable solutions to food loss.

By overlooking the importance of gender dynamics and operating *gender-blind*, food loss reduction may be less effective and even exacerbate gender inequalities along the food value chain. Therefore, in order to be effective and have a long-lasting impact, food loss reduction strategies and interventions must from the onset take into consideration the underlying socio-cultural factors and systematically integrate gender equality concerns.



The Guiding Note suggests a four-step approach for gender-responsive food loss reduction including practical tools for its implementation:

- » **Step 1.** Gender-sensitive value chain mapping and the locating of critical loss points
- » **Step 2.** Identification of gender-based constraints linked to food losses
- » **Step 3.** Identification of entry points and solutions for gender-responsive food loss reduction
- » **Step 4.** Verification and social risk assessment of the proposed solutions to food loss.

Introduction

The Food and Agriculture Organization of the United Nations (FAO) estimates that approximately one-third of all food globally produced for human consumption is either lost or wasted (as measured by weight, FAO, 2011b), leading to considerable economic, social and environmental costs. Indeed, the very high number of undernourished people in the world, estimated in 2016 at 815 million, is a stark indication of the inefficiency of current food systems (FAO *et al.*, 2017).

Food loss and waste translate into economic losses for farmers and other stakeholders in the food value chain and into higher prices for consumers, both of which affect food insecurity by making food less accessible for the poorest and more vulnerable groups.

Food loss and waste also hinder the transition to environmentally sustainable food systems. In addition, since they are associated with a considerable use of land, water, energy and agricultural inputs, they also contribute to the emission of millions of tonnes of greenhouse gases. Future efforts to address climate change must include the reduction of food losses and waste, and hence their environmental impact.

In addition, estimated global demographic growth – at 9.3 billion people by 2050 – and the consequent 50 percent increase in agro-food demand will pose greater challenges to global food value chains. This will require a transformative shift to innovative systems that protect and enhance the natural resource base while increasing productivity and inclusiveness (FAO, 2016c).

In this context, the issue of food loss has received great attention as one of the critical features of inefficient food systems globally. Reducing the enormous amounts of food lost along the different levels of the food value chain is a key priority to improve food security, nutrition and the sustainability of food systems. This has been clearly recognized by the 2030 Agenda for Sustainable Development, which sets a global target for food loss reduction, Target 12.3, *By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses*, under Sustainable Development Goal (SDG) 12, *Ensure sustainable consumption and production patterns*. The 2030 Agenda provides a critical opportunity to respond to global challenges and reduce food losses by aligning technical solutions with broader objectives of sustainable development.

Reducing global levels of food loss remains a multidimensional and complex challenge. The exact causes of food losses vary across the world and are highly dependent on the specific conditions and local situation in a given country or region. However, the underlying causes and drivers of food losses are generally tied to inefficient food value chains, which together constitute a fundamental barrier to the reduction of losses itself. Food losses result from infrastructural inadequacies and capacity

limitations of actors along the food value chain, which are the result of specific socio-cultural, institutional and economic contexts where the value chain actors operate.

Hence, what is the relationship between the socio-cultural and institutional contexts, and food loss? What are the underlying factors causing the inefficiency of food value chains that ultimately lead to food loss? How do gender relations as a primary component of the social and economic context that shapes the functioning of value chains cause food losses?

How can food loss analysis and reduction policies, strategies and interventions systematically consider gender dynamics in order to be effective and long-lasting? What is the risk of applying a *gender-blind* approach?

This Guiding Note, *Gender and food loss in sustainable food value chains*, responds to these questions by focusing on the nexus between gender equality and food loss. Its purpose is to offer guidance to researchers, policy-makers and development practitioners designing and implementing food loss studies and food loss reduction interventions to systematically and more effectively integrate gender equality concerns into their work. In particular, the aim of this Guiding Note is to:

- » conceptualize and raise awareness on the nexus between gender equality and food losses;
- » provide guiding principles to integrate gender equality concerns in the analysis of food loss and in the design of food loss reduction interventions;
- » provide practical tools to address gender equality in food loss analysis and food loss reduction strategies and interventions.

This Guiding Note was developed as part of the SAVE FOOD: Global Initiative on Food Loss and Waste Reduction, and is based on the concepts and tools presented in the following publications: *Food loss analysis: Causes and solutions. Case studies in the small-scale agriculture and fisheries subsectors* (FAO, 2016b) (referred to as the “FAO food loss analysis case study methodology”) and *Developing gender-sensitive value chains – A guiding framework* (FAO, 2016a).

The first section of Part I of the Guiding Note introduces the concept of the “food loss and gender nexus”: the inter-linkages and the influence of socio-cultural and gender dimensions on the efficiency of food value chains and on food losses.

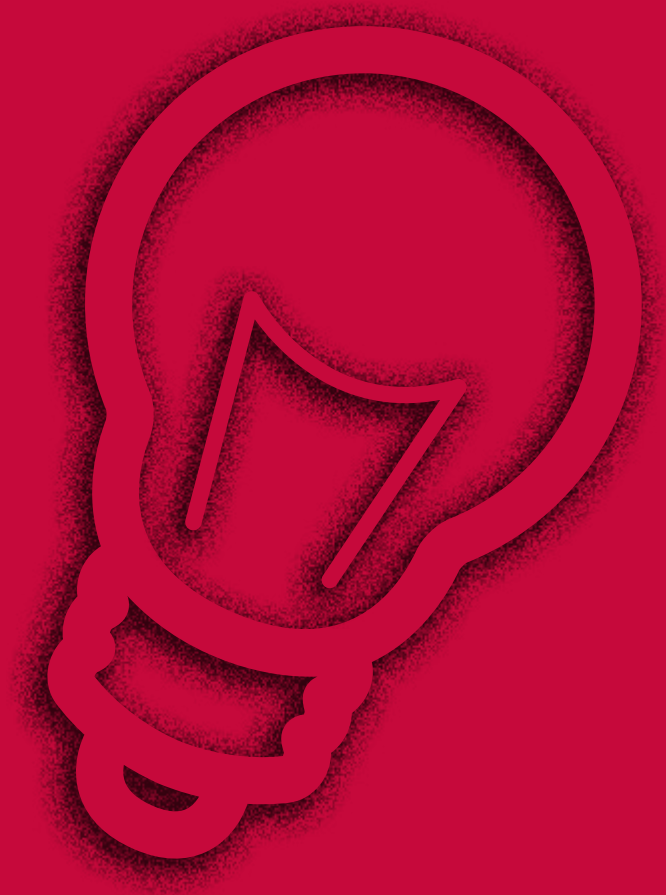
Section 2 demonstrates how to identify the different roles and constraints of women and men along nodes of the food value chain and locate critical loss points using a gender-sensitive mapping of food losses.

Section 3 provides guidance on how to design gender-sensitive food loss reduction interventions that are long-lasting and effective by taking into consideration the different needs, constraints and preferences of women and men in carrying out their activities along the value chain.

Part II provides four practical steps and tools to systematically address gender equality in food loss analysis and food loss reduction interventions.

P A R T 1

Guiding concept





1 » The food loss and gender nexus

DISTRIBUTION OF FOOD LOSSES ALONG THE FOOD VALUE CHAIN

Globally, approximately one-third of the food produced for human consumption, about 1.3 billion tonnes per year, is estimated to be lost or wasted (HLPE, 2014). This amount varies greatly in accordance with the commodity throughout the different regions of the world and throughout the different steps of the food value chain. Food is lost from the initial agricultural production to final household consumption.

As a result, loss and waste negatively affect food security and require the global agriculture system to produce additional food to compensate. The economic cost of food loss and waste is roughly US\$940 billion globally each year (Lipinski and O'Connor, 2016). In sub-Saharan Africa, post-harvest losses amount to up to US\$4 billion per year (*ibid.*). The environmental costs are also very high: food loss and waste are a major contributor to climate change, accounting for 8 percent of global greenhouse gas emissions annually (FAO, 2015). In addition, current estimates indicate that approximately 28 percent of the world's agricultural land area is used to produce food that is never consumed by humans (FAO, 2013). The potential benefits of reducing food loss and waste are large. In addition to increasing food availability, this reduction can alleviate poverty and reduce pressure on ecosystems, climate and water. This is a critical element for closing the food gap between food available today and food needed in 2050 to adequately feed the planet's projected 9.3 billion people.

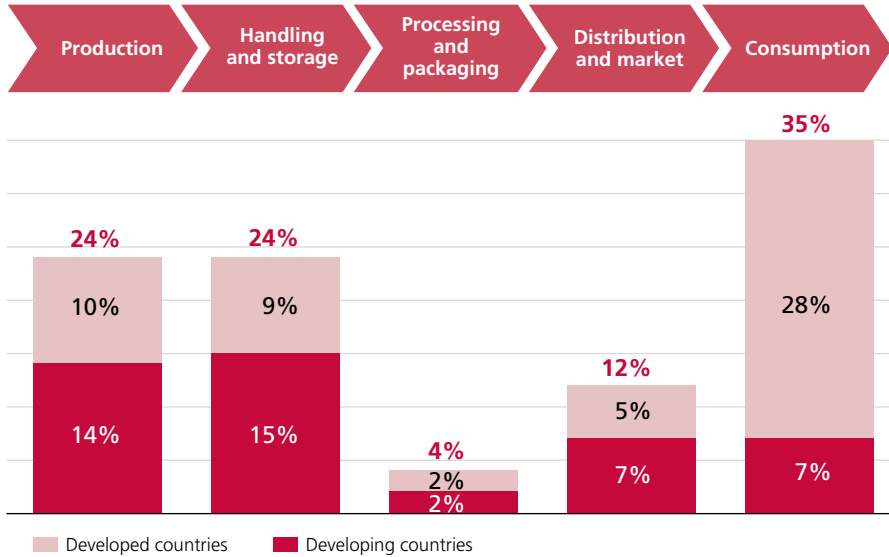
In developed countries, significant quantities of food are wasted at the consumption level (Figure 1) and are also lost early in the food value chain. In developing countries, significant quantities of food are lost during the production-to-processing stages of the food value chain; much less food is wasted at the consumer level.



The food loss and gender nexus

Figure 1

Distribution of food losses and waste along the food value chain



Source: Adapted from the High Level Panel of Experts on Food Security and Nutrition (HLPE), 2014, based on FAO, 2011b.

CAUSES OF FOOD LOSS

Food loss occurs in various forms at each node of the food value chain: during production in the form of grain left behind by poor harvesting equipment, discarded fish or fruit bruised during harvesting; during handling and storage phases from fungal infestations, contamination by food-borne pathogens, and attacks by insects, rats or other animals; at the processing stage in the form of spilled milk, damaged fish, and fruit unsuitable for processing; and during distribution and marketing in the form of produce spilled, damaged, rotten or discarded due to non-compliance with quality and safety standards. For example, across Africa, the average weight loss in cereals is estimated at 10-20 percent of the production; about 25 percent of the losses occur during harvesting, 35 percent during processing (transport, drying, threshing/shelling and winnowing), 25 percent during storage, and 15 percent at the distribution/retail stage (African Postharvest Losses Information System, n.d.).

The causes of food loss vary widely according to the category of produce and steps of the food value chain (Figure 2). Among the key causes are poor harvesting equipment or techniques, lack of infrastructure and storage, poor cooling and processing facilities, inadequate and inefficient market systems, and the lack of stakeholder knowledge.

Figure 2

Definition, examples and direct causes of food loss along the food value chain

Production	Handling and storage	Processing and packaging	Distribution and market	Consumption
Definition				
During or immediately after harvesting on the farm.	After produce leaves the farm for handling, storage and transport.	During industrial or domestic processing and/or packaging.	During distribution to markets, including losses at wholesale and retail markets.	Losses in the home or business of the consumer, including restaurants and caterers.*
Examples of food losses				
<ul style="list-style-type: none"> ▪ Fruit bruised during picking or threshing ▪ Crops left behind in fields ▪ Crops sorted out post-harvest for not meeting quality standards. 	<ul style="list-style-type: none"> ▪ Edible food eaten by pests, rats or other animals ▪ Edible produce degraded by fungus or disease ▪ Food spoilage due to poor storage. 	<ul style="list-style-type: none"> ▪ Milk spilled during processing ▪ Edible produce sorted out as not suitable for processing ▪ Fish spilled or damaged during canning/smoking. 	<ul style="list-style-type: none"> ▪ Edible produce removed due to quality ▪ Edible products expired before being purchased ▪ Edible products spilled or damaged. 	<ul style="list-style-type: none"> ▪ Edible produce removed due to quality and safety standard ▪ Food loss during food preparation and/or consumption.
Direct causes				
<ul style="list-style-type: none"> ▪ Premature harvesting ▪ Poor equipment and techniques (e.g. grain left in the field). 	<ul style="list-style-type: none"> ▪ Poor or lack of infrastructures for transportation and handling ▪ Poor or lack of storage and cooling facilities. 	<ul style="list-style-type: none"> ▪ Poor or lack of processing facilities ▪ Poor processing equipment and techniques. 	<ul style="list-style-type: none"> ▪ Inadequate and inefficient market systems ▪ Poor or unsanitary conditions of markets. 	<ul style="list-style-type: none"> ▪ Non-compliance with aesthetic and safety-quality standards ▪ Abundance of food and low prices.

Note: * An important part of food loss is called “food waste”, which refers to the removal of food from the food supply chain that is fit for consumption, or that has spoiled or expired, mainly caused by economic behavior, poor stock management, or neglect. See: FAO, 2014a.

Source: Based on World Resources Institute (2013).

The exact causes of food losses vary widely in accordance with the commodity and/or crop, and are connected to the specific conditions of a given country or region where institutional and legal frameworks influence the functioning of food systems. A fundamental barrier to the reduction of food losses are inefficient food value chains. Food losses are often caused by infrastructural and capacity limitations of the food value chain and of its actors. These limitations are linked to value chain inefficiencies, which can be grouped into macro-categories including technology, organization, infrastructure, practices and



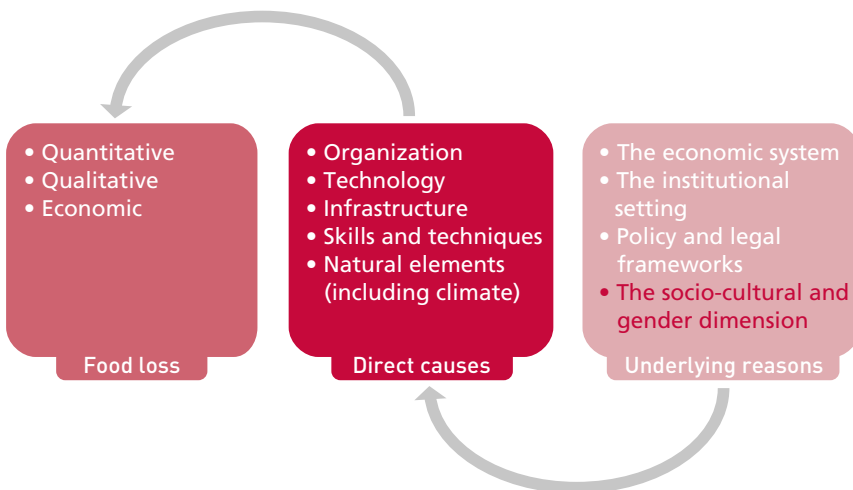
The food loss and gender nexus

techniques used, as well as skills and knowledge of the value chain actors. In addition, food loss can be influenced by natural events, such as higher temperatures and changes in precipitation patterns, which can cause loss of crops, livestock and fish, increase mycotoxin contamination and insect attacks, and accelerate product spoilage.

Hence, reducing food losses remains a multidimensional and complex challenge. In general, considerable progress has been made to identify direct causes of food losses and quantify their impact. Nevertheless, the level of food loss continues to be unacceptably high. Traditional food loss studies and reduction strategies have tended to focus on one or more causes of food loss (e.g. inadequate equipment, lack of infrastructures, poor processing facilities), overlooking its multidimensionality and the underlying socio-cultural, institutional and economic structures in which value chain actors operate. These multifaceted structures are particularly relevant in shaping the overall organization of the food value chain. They influence the levels of technology, resources, knowledge and infrastructures that the value chain actors have access to and control over. They also significantly influence the overall organization and efficiency of the production-to-consumption processes (Figure 3). For example, recent study results and project experiences are increasingly revealing situations where the underlying reasons for value chain inefficiencies and subsequently for food losses are found to be connected to socio-cultural and economic factors. Among these factors, gender relations are a primary component of the social and economic context, which shapes the functioning of the value chains at all levels. Indeed, they influence the division of labour, roles and responsibilities along the value chain by influencing how women and men participate in value chain activities and decision-making processes.

Figure 3

The food loss and gender nexus



GENDER EQUALITY: AN UNDERLYING REASON TO VALUE CHAIN EFFICIENCY

As explained in the previous section, social and gender relations influence the different activities in the food value chain (i.e. who carries them out, how, where, when and under what conditions) and how resources and benefits are successively allocated among actors. Imbalanced gender relations, due to discriminatory attitudes and practices, result in diverse constraints faced by women and men in accessing and controlling the resources needed to carry out their activities, which influences the efficiency of the food value chain in many ways. For example, rural women are often less involved than men in cooperatives and farmer organizations. As a result, these women have limited access to processing facilities, technologies and markets, which consequently leads to higher food losses.

In addition, despite their important role in food value chains, rural women often face specific constraints in accessing essential productive resources, services and information, and in participating in decision-making. These constraints affect their ability to fully contribute to and benefit from food loss reduction. Nevertheless, there is compelling evidence of the fundamental role of women in food value chains. In the agricultural sector, women comprise around 43 percent of the workforce worldwide (World Farmers' Organisation, n.d.). In many regions of the world, they play a primary role in production and post-harvest activities. For example, with respect to staple crops, women are the main actors in drying, threshing, dehusking, shelling, grading and cleaning as well as in the initial processing and storing of the produce. Women also play a pivotal role in post-harvest activities involving perishable produce, such as fruits and vegetables, dairy and fish (DFID, 2002). This work, which is typically assigned to women is generally arduous, time-consuming and repetitive, and is often carried out around the home. It generally includes a social component: for example, groundnuts are de-hulled by sitting around the house while interacting with other community members and caring for children. These traditional practices do not always allow for efficient production and high output quality (FAO, 2011a). In addition, women often combine food production activities with household and care tasks. This double or triple role creates time and energy constraints, and can significantly influence food loss.

Gender relations are also highly relevant in determining the effectiveness of food loss reduction strategies and interventions. By addressing one or more value chain inefficiencies, most food loss reduction interventions focus on introducing improved labour- and time-saving technologies and practices to reduce losses. These kinds of interventions, which aim for long-term adoption of technologies and shifts in production behaviours, require that gender relations and the different priorities, preferences and bargaining power of women and men as actors of the food value chain are taken into account. For example, the underlying socio-cultural and economic contexts at large (such as caste/class systems, socio-cultural habits and gender norms) influence who may or



The food loss and gender nexus

may not engage in a specific activity or what is culturally acceptable within a local context. The differences in men's and women's individual priorities, preferences, needs, knowledge and decision-making power are relevant for the uptake of technological solutions to reduce losses. There is solid evidence of improved technology design (SDC, 2015) that shows how men's and women's preferences and priorities converge in some aspects (security, cost, calibration, accessibility, etc.), but diverge in others, because of the influence of different factors (work burden, mobility, etc.). If women's preferences and needs are not taken into account, the cultural acceptance of proposed solutions, newly introduced technologies and practices aimed at facilitating activities carried out by women are unlikely to be adopted.

In order to be long-lasting and effective, food loss reduction policies and interventions should take into consideration from the onset the underlying socio-cultural, institutional and economic dimensions of food value chains and systematically integrate gender equality concerns. By overlooking the importance of gender dynamics and applying a gender-blind approach, food loss reduction interventions may be less effective and even exacerbate gender inequalities along the food value chain, which has a counter-effect on the reduction of losses. Reducing gender inequalities in the food value chain will contribute to improving efficiency and to cutting food losses.

IN BRIEF

- Socio-cultural and gender relations are significant underlying reasons for food value chain inefficiencies, which in turn directly cause food loss. The Guiding Note calls the link between the level of food loss and gender equality "the food loss and gender nexus".
- The different productive and social roles of men and women affect their access to and control over assets, knowledge and services, and their participation in productive activities and decision-making. This impacts the efficiency of the food value chain and hence is an underlying reason for food loss.
- Women and men have different needs, constraints and preferences when carrying out their activities along the value chain. These gender concerns are particularly relevant in determining the *response* of a specific food value chain to food loss reduction policies and interventions, and consequently determining their effectiveness and impact.

2 » Analysing food losses through a gender lens

In order to analyse food losses from a gender perspective, it is necessary to understand socio-cultural, economic and gender relations that influence the position and roles of the actors in the food value chain. In practice, this requires a gender-sensitive food loss value chain analysis that captures important factors affecting the nature of women's and men's participation. Such an analysis:

- » provides an overall gender-sensitive map of the food value chain, the actors involved, their linkages and the rough percentages of men and women (including youth) involved in each node of the chain;
- » identifies the value chain nodes where food losses are highest and the main actors experiencing them;
- » provides insight into the constraints and opportunities that affect women's and men's participation.

A GENDER-SENSITIVE MAPPING OF FOOD LOSS

Based on FAO's food loss analysis case study methodology (FAO, 2016b), the first step to analyse food losses should focus on producing a value chain map. This is a visual representation of the food value chain, including information on actors, farms, firms, value-adding activities, and their vertical and horizontal linkages along its nodes.

Based on FAO's Framework, *Developing gender-sensitive value chains* (FAO, 2016a), a gender-sensitive mapping goes beyond the traditional value chain mapping in order to make visible women's and men's different participation, position and contribution in the value chain activities. As shown in the previous section, in order to understand food losses from a gender perspective, the different productive and social roles of men and women in the food value chain and how this influences its efficiency must be recognized.

Second, the analysis should focus on selected nodes of the chain to detect where food losses are critical and to identify direct causes and underlying reasons for their occurrence. These nodes correspond to critical loss points, which are defined in the FAO food loss analysis case study methodology (FAO, 2016b) as the points of the chain where losses have the highest magnitude, the highest impact on food security, and the highest effect on the economic results. By focusing on the critical loss points, when resources are limited and distances are vast, practitioners and researchers are able to prioritize the carrying out of an in-depth analysis of the most critical nodes of the food value chain, thus lowering the costs and increasing output efficiency.



Analysing food losses through a gender lens

This exercise is extremely important to highlight in which nodes food losses occur, who the actors are, how they participate in the nodes, and who is experiencing a considerable amount of losses, upstream or downstream in the chain. During the mapping, it is important to collect age- and sex-disaggregated data in order to identify how and in what nodes of the food value chain women and/or men are participating or not participating in a significant way. Whether activities are male- or female-dominated should be flagged in the analysis as a first indication of the different roles of women and men (Figure 4). Here, the icons of women and men provide information on which of the two is mainly involved in the value chain activity. Both formal and informal activities should always be taken into account during this exercise.

Figure 4

Simplified gender-sensitive value chain mapping, including the locating of critical loss points (CLPs)



Note: The symbols indicate the quantitative presence of women and men in the different nodes of the value chain. When both are involved, the bigger symbol indicates the sex of the group that is the main actor at that particular step. Details on how to conduct a gender-sensitive value chain mapping are found in Part II “Practical Tools” of this Guiding Note.



IN FOCUS

The dried fish value chain in Sierra Leone and other West African countries

In the traditional dried fish value chain, in Sierra Leone and other West African countries, women’s and men’s functions are clearly separated. Coastal or lake fishing is exclusively carried out by men, who also take care of the boats and the fishing gear. Fish processing and trade are entirely carried out by women. Fishermen sell the fresh catch to the village women, who then smoke or dry the fish and engage in selling and trading. In some cases, the fishermen also sell to their wives, establishing an intra-household business relationship. While women take care of the children, they also involve the youth in the processing tasks. This example of a gendered division of labour is based on a long-standing traditional pattern, which shows how a gender-sensitive value chain mapping is important to understand who is experiencing losses in a specific node of the value chain (e.g. production or processing). Clear patterns of division of labour between women and men can be also observed in Asia, for example in the rice-shrimp value chain in Viet Nam and Bangladesh.

IDENTIFYING GENDER-BASED CONSTRAINTS AS UNDERLYING REASONS TO FOOD LOSSES

Once identified where the highest amount of losses are located and who is experiencing them, the next step is to understand why they occur. The research question should focus on identifying the constraints faced by the value chain actors, linked to the socio-cultural and gender dimension, as underlying reasons of food value chain inefficiencies. This entails going beyond the identification of infrastructural and capacity limitations of the chain, which are often merely the symptoms of the problem.

Standard value chain approaches consider three levels of analysis: the core value chain, the extended value chain, and the national and global enabling environments. Based on FAO's Framework, *Developing gender-sensitive value chains* (2016a), this Guiding Note also includes two additional levels which allow to understand gender dynamics in greater depth: the household level and the individual level.

The **core value chain** includes the farms, firms and the coordinated value-adding activities. Its main nodes are: production, aggregation/handling/storage, processing/packaging, distribution/market and consumption. The **extended value chain** includes business development support providers who facilitate the value creation process by providing physical inputs (e.g. seeds or packaging materials), non-financial services (e.g. field spraying, transport or market research) and financial services (e.g. loans). The **national and global enabling environments** include the legal frameworks, policies, standards (e.g. regulations on import/export) and socio-cultural norms and traditions that determine the conditions under which value chain actors and support providers operate.

The **household** and the **individual levels** of analysis allow to understand the different functions and positions of men and women in the nodes of the chain, which are determined by specific dynamics and power relations in place within the household. If discriminatory practices and attitudes are established at the household level, they are in turn reflected in the division of economic and social activities. Gender inequalities can originate in the household and determine how and to what extent its members are involved in the chain, as well as who makes the decisions and controls the benefits.

Placing the individual and household levels at the core of the analysis allows to acknowledge the diversity of women and men as value chain actors with unique characteristics, abilities and needs. These levels of analysis are important to understand household and intra-household dynamics, which determine women's and men's capacity to take decisions on how to allocate time, energy, income and resources.



Analysing food losses through a gender lens

Specifically, the analysis at the household and individual levels should consider the following aspects:

- » women's and men's functions in productive and domestic activities;
- » women's and men's access to and control over productive resources, assets and services;
- » women's and men's power and agency, and their ability to have a voice and influence decision-making;
- » legal frameworks on, and cultural and social norms concerning men and women as economic actors.

Gender-based constraints can be defined as “restrictions on men’s or women’s access to resources or opportunities that are based on their gender roles or responsibilities” (USAID, 2009).

Identifying and analysing gender-based constraints “enables value chain practitioners to understand and address the root causes underlying value chain inefficiencies related to gender inequalities and discrimination, thus enhancing the sustainability of the interventions” (FAO, 2016a).

The gender-sensitive analysis complements the food value chain mapping by highlighting the presence of **gender-based constraints**. These constraints affect the functioning and the efficiency of the food value chain, which leads to increased food loss and limits women's and men's ability and incentive to reduce it. Indeed, gender-based constraints can both hinder an individual's ability to efficiently participate in the value chain activities and limit the benefits from food loss reduction. Gender-based constraints may vary widely according to contexts and value chains, and may simultaneously affect the capacity of the value chain actors in more than one node in a cross-cutting way. They can emerge both on the supply and the demand side. For example, gender-based constraints may limit women's ability to access support services (demand side) and also undermine the ability of service providers to reach women (supply side). Consequently, addressing constraints in one node might have positive impacts on other nodes and on the overall functioning of the chain, both on food loss reduction and on gender equality.

The causes of gender-based constraints are often multiple and multidimensional. Addressing these causes usually entails addressing several inequalities at the same time. The inequalities that lead to gender-based constraints can be grouped into two dimensions:

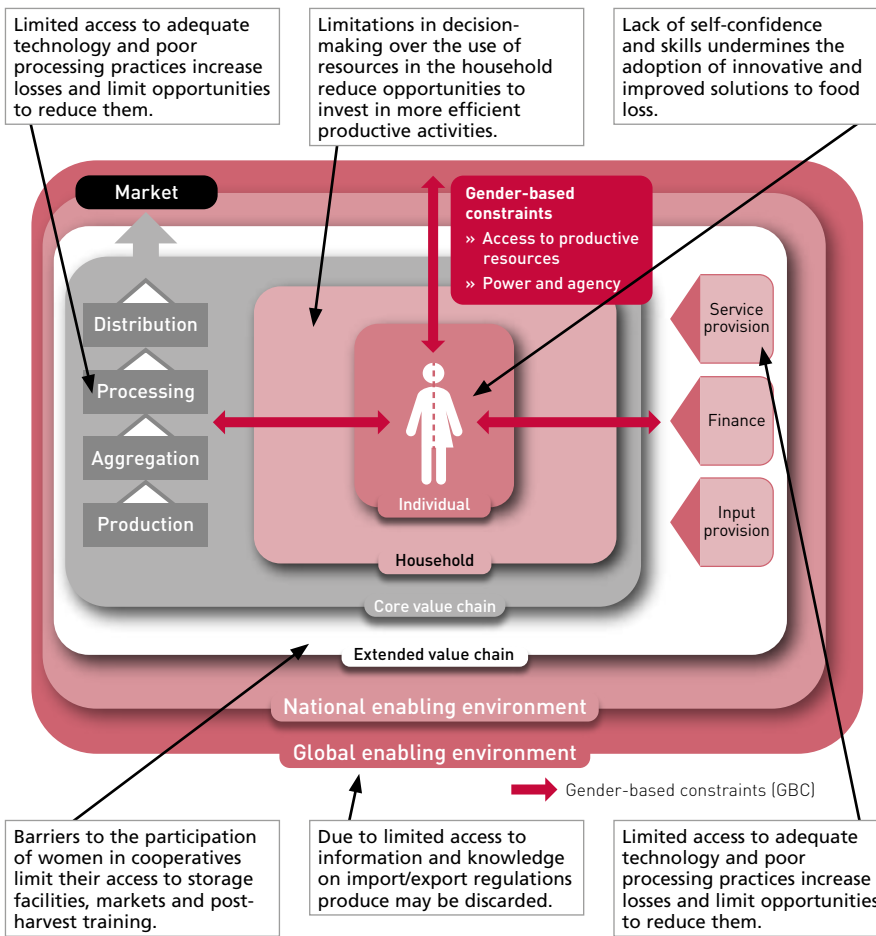
1. **Access to productive resources:** Productive resources are necessary to conduct activities in all of the food value chain nodes and can be grouped into three categories: (i) assets; (ii) agricultural services; and (iii) financial services. The concept of access to productive resources is key to understanding rural women's and men's constraints in reducing food losses.

For example, limited access to agricultural and financial services can prevent women from upgrading harvest and post-harvest techniques and practices, storage and cooling facilities that both improve processes and reduce food losses.

2. **Power and agency:** These concepts refer respectively to the control over resources and profits, and the ability to make autonomous decisions on their use. Gender-based constraints in this area affect women's and men's capabilities, self-confidence and decision-making power. For example, limitations in decision-making over the use of resources in the household reduce the opportunities and the incentives to invest in more efficient productive technologies and techniques.

Figure 5

Examples of gender-based constraints influencing food losses in multiple value chain levels



Source: Based on FAO, 2016a.



Analysing food losses through a gender lens



IN FOCUS

Analysing food losses through a gender lens: the cowpea, maize and sorghum value chains in Burkina Faso

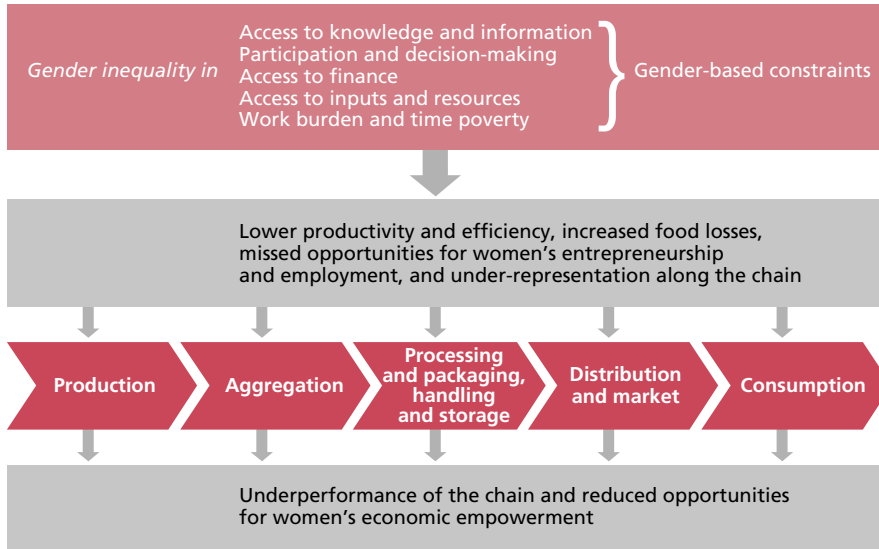
Food loss assessments on cowpea, maize and sorghum food value chains in Burkina Faso have been undertaken as part of a joint project of the Food and Agriculture Organization of the United Nations (FAO), the International Fund for Agricultural Development (IFAD) and World Food Programme (WFP), *Mainstreaming food loss reduction initiatives for smallholders in food-deficit areas*. Using the *FAO food loss analysis case study methodology* (FAO, 2016b), gender-based constraints associated with food loss were identified. For example, sorghum shelling is mainly delegated to men and is done by tractors, while women are mostly in charge of winnowing, which is performed manually. The manual nature of the activities creates a greater burden on women, contributing to increased losses. Furthermore, several factors, such as limited participation in decision-making over post-harvest activities and limited access to grains, decrease women's incentives to reduce food loss. Based on these findings, the case study recommends sensitizing the community about the importance of reducing women's heavy workload, implementing capacity development activities that take into consideration the specific needs of both sexes, and promoting the adoption of improved and gender-sensitive post-harvest equipment.

IN BRIEF

- Including a gender perspective by identifying gender-based constraints in the conventional food loss analysis is fundamental for identifying the underlying reasons for food loss (see Figure 6).
- By taking into consideration gender-based constraints, the practitioner/researcher is able to understand the influence of the socio-cultural and gender dimensions on value chain inefficiencies.
- By conducting a gender-sensitive food loss analysis, which includes a gender-sensitive value chain mapping and the identification of gender-based constraints of the value chain actors, practitioners and researchers will be able to respond to the following questions:
 1. What are the nodes of the chain in which the highest amount of losses occur (critical loss points)?
 2. Who are the actors throughout the value chain who experience negative impacts as a result of losses (mostly men or women)?
 3. What are the gender-based constraints faced by these actors?
 4. How do these gender-based constraints affect the value chain performance and impact food loss?
 5. What are potential entry points to address gender-based constraints and reduce food loss?

Figure 6

Gender-based constraints, value chain performance and food loss





Designing gender-responsive food loss reduction strategies and interventions

3 » Designing gender-responsive food loss reduction strategies and interventions

In order to be effective and have a long-lasting impact, food loss reduction strategies and interventions should, from the onset, take into consideration the underlying socio-cultural and gender dimensions of the food value chain. Indeed, by analysing these dimensions, potential solutions to food loss can be identified and the reaction of the value chain to their implementation can be anticipated.

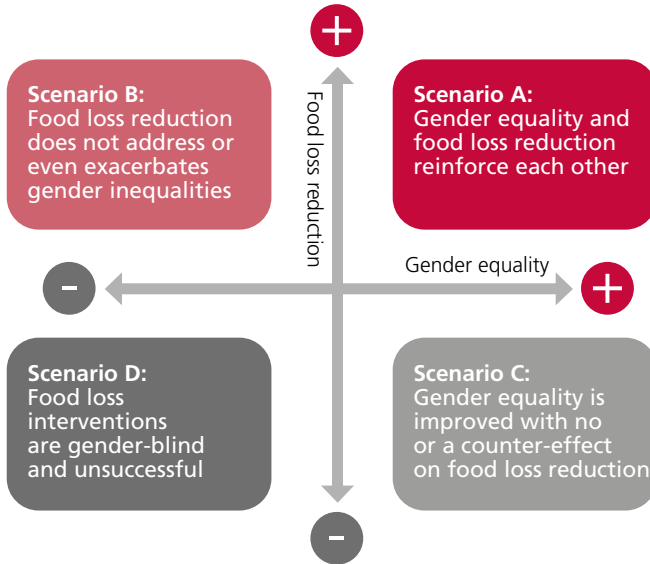
When describing the potential outcomes of strategies and interventions in terms of food loss reduction and gender equality, four scenarios are possible (Figure 7); the best case is the *win-win scenario* where the two reinforce each other due to spill-over effects. The four scenarios of the model presented below is based on the following case, which considers the dairy value chain of the imaginary country of Wasteland:

In Wasteland, a food loss assessment of the dairy value chain finds that a considerable amount of milk losses occurs at the nodes of handling/storage and collection (critical loss points). At the handling/storage level, the milk loss is mainly due to spillage and spoilage (degradation); at the collection level, the milk is rejected because of poor quality (adulteration). A gender-sensitive analysis reveals that it is mainly women producers who are experiencing losses due to the use of inappropriate equipment, lack of knowledge of quality standards, and their inability to reach a formal market in a timely manner (direct causes). In addition, cultural norms and the domestic workload limit women's access to technologies and information, and their active participation in producer organizations, which are all gender-based constraints.

A number of strategies and interventions can be designed to reduce milk losses in Wasteland. Each of them leads to different outcomes on food loss and gender equality.

Figure 7

The four scenarios of potential outcomes of food loss reduction and gender equality interventions



Scenario A describes a *win-win* situation where gender equality leads to food loss reduction and vice versa, in a virtuous cycle. In Wasteland, an intervention under scenario A aims to strengthen women’s active participation in producer organizations through which services, equipment and training are provided. The outcome of the intervention is that women producers are able to reduce milk losses through improved storage equipment and linkages with the formal market. The resulting increased income for women producers can be further invested in reducing milk losses and family well-being. Women’s participation in producer organizations also provides opportunities to voice their needs and develop skills and confidence, thus improving gender equality. It is important to note that when women and men experience the positive outcomes of food loss reduction and gender equality, they might also be inclined to critically examine the existing social norms and roles, and redefine those they deem harmful or no longer useful. In the long term, this might lead to an autonomous and gradual transformation of roles and behaviours of the value chain actors towards a more equitable and efficient organization of the food value chain.

Scenario B portrays a situation where losses are reduced, but gender inequalities are not addressed or even exacerbated. An intervention under scenario B provides the producer organizations of Wasteland with improved storage facilities to reduce milk losses. However, if specific measures are not taken to reduce women’s work burden and improve their knowledge to use these facilities, the reduction of losses might be marginal and temporary. In fact, women producers might not be able to effectively and conveniently access



Designing
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interventions

the storage facilities (e.g. because of energy and time constraints). This implies that these facilities would be used only by a limited number of producers, thus missing opportunities for additional loss reduction and for addressing gender inequalities.

In contrast, **Scenario C represents a situation in which gender equality is improved with no effect or a counter-effect on food loss reduction.** If in Wasteland, an intervention introduces a quota for women's membership in producer organizations, this would increase the number of women producers that can access improved milk storage facilities. Nevertheless, if training and services provided by the producer organizations do not take into account the specific needs, preferences and barriers of women in the dairy value chain, they might still not be able to access those facilities (e.g. time constraints) or might choose not to use them. In this case, the milk losses experienced by women producers in the dairy value chain of Wasteland would not be reduced.

Scenario D describes the worst case scenario, in which strategies and interventions apply a gender-blind perspective. As a result, they are unsuccessful in reducing food loss and might exacerbate gender inequalities.

Under scenario D, an intervention introduces a new technology for processing in the dairy value chain of Wasteland with the aim of targeting women producers. This technology is extremely efficient in preserving the quality of the milk in line with the quality standards of the formal market. However, it requires specific training and constant maintenance to be used effectively. The limited mobility of women producers due to cultural norms and to their burden of domestic care constitutes a barrier for them to access training and to maintain technology, which results in its abandonment. In some cases, in Wasteland, men took over women's activities in the processing node (traditionally a women's task) and started using the improved technology. By not duly considering women's and men's different needs and barriers in the dairy value chain, this intervention was unsuccessful in significantly reducing losses and contributed to increasing gender inequality.



IN FOCUS

Reducing food losses and gender inequalities in the Barotse Floodplain fishery, Zambia

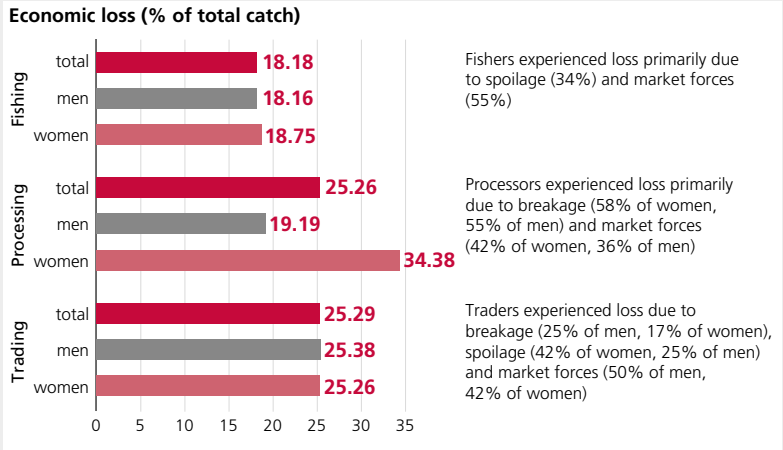
In Zambia, WorldFish implemented a strategy in the fish value chain simultaneously targeting food losses and gender inequalities. In the country, there is a cultural belief that women lack the physical skills needed to fish. Consequently, there is a higher concentration of women in the processing node, the less economically rewarding part of the fish value chain. In addition, women processors working in the Barotse Floodplain, where the project was implemented, experienced higher physical and economic losses than men.





IN FOCUS (continued)

Reducing food losses and gender inequalities in the Barotse Floodplain fishery, Zambia



In order to address this situation, the project combined participatory, gender-transformative and quantitative approaches to carry out a gender-sensitive post-harvest loss assessment in order to design and implement appropriate interventions.

By collecting and using sex-disaggregated data and analysing socio-cultural norms, the project gained a deeper understanding of the different roles and responsibilities of men and women in the fish value chain, the quantity of food losses experienced by men and women in the different nodes of the chain (fishing, processing and trading), as well as the causes of these losses. In this way, the project could identify fish losses linked to the presence of gender-based constraints.

The project adopted a two-fold strategy of addressing both the technological and social challenges to target fish losses: improved post-harvest fish processing technologies were developed in a participatory way. Women and men were involved in the design of the improved technologies as well as in the testing at the community level. Using this participatory approach increased ownership and effective adoption of the technologies, which resulted in a reduction of losses and of the workload of women processors.

In addition, the project involved community members in gender-transformative drama skits with the aim of increasing women’s self-esteem and community awareness on the importance of gender equality. The drama skits encouraged men and women to critically reflect on harmful socio-cultural norms and power relations that impact the fish value chain actors, particularly female processors.

WorldFish took into consideration gender dynamics, which resulted in a reduction of both food losses and gender inequalities. This has also offered the potential for long-term transformative change in the fish value chain in Zambia.

For further reading, see www.worldfishcenter.org/pages/improving-fisher-livelihoods-gender-relations-rural-zambia



Designing gender-responsive food loss reduction strategies and interventions

IN BRIEF

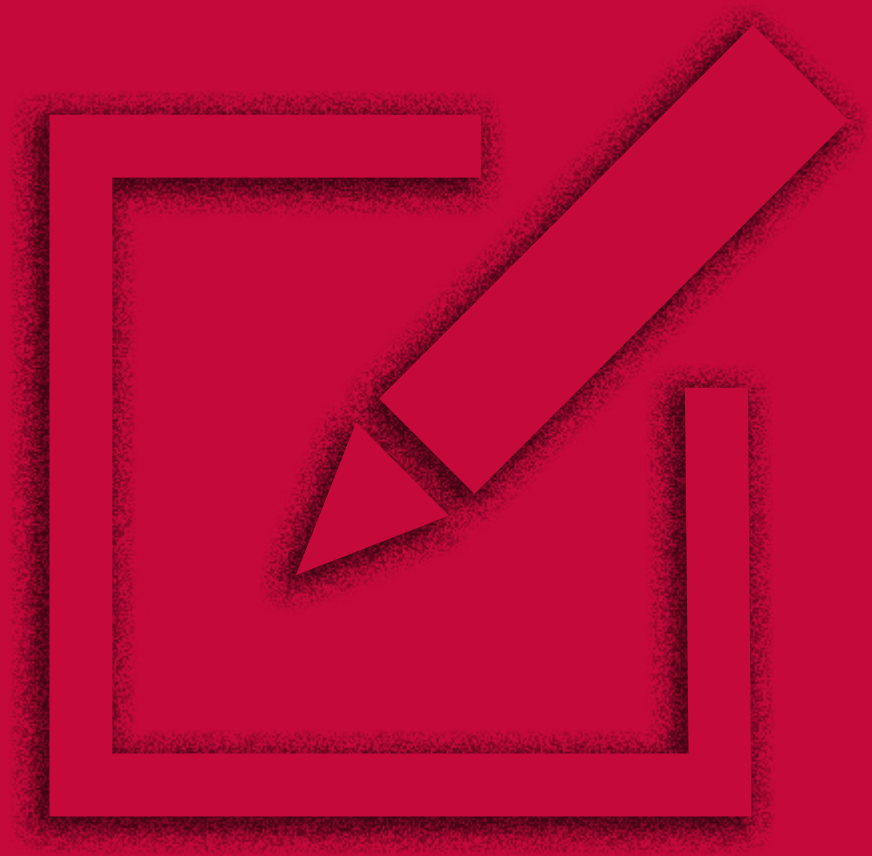
Gender-responsive planning, designing and implementation of food loss reduction strategies and interventions are fundamental to achieve effective and long-lasting results.

In order to systematically include gender concerns in the planning and designing of food loss reduction interventions, the policy-maker/practitioner should:

- take into consideration the results and the recommendations of the gender-sensitive mapping and analysis of the food value chain;
- identify the gender-based constraints faced by the value chain actors in the nodes that correspond to critical loss points;
- when suggesting solutions to food loss reduction, take duly into consideration the different needs, constraints and preferences of women and men as value chain actors;
- assess the gender and social implications of the suggested solutions: Do the suggested solutions exacerbate gender inequalities? Are they appropriate for the cultural and social context of the value chain so as to be adopted widely and have a long-term impact on food loss reduction? Mitigation measures can be adopted to avoid or reduce negative impacts. However, if they are not possible, a more appropriate entry point to reduce losses and gender inequality should be identified with no or less negative effects.

PART 2

Practical tools

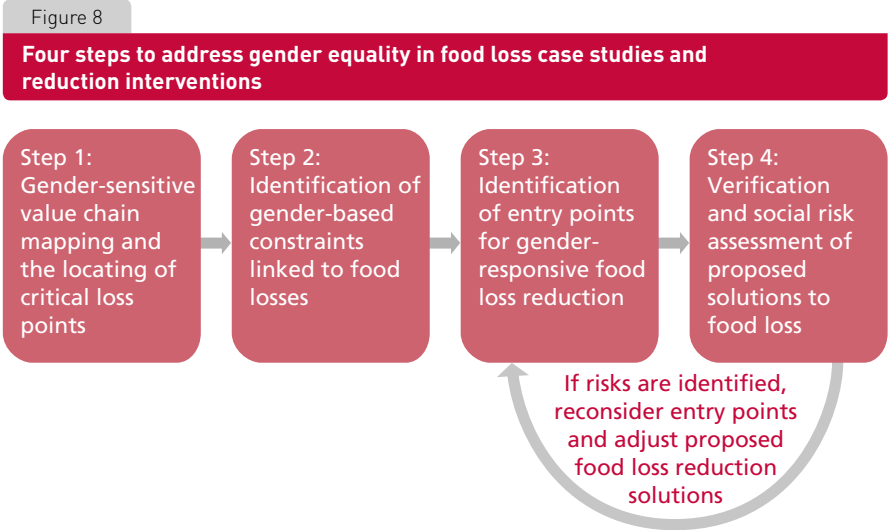




The second part of this Guiding Note provides practitioners and researchers with the essential elements to address gender equality in food loss case studies on selected value chains and in the design and implementation of food loss reduction interventions. This part will guide the reader through a four-step approach, which will be presented together with practical tools for its implementation. Each step and tool has been designed to allow practitioners and researchers to adapt them to their specific needs and to diverse contexts. The suggested approach is composed of the following steps:

- » **Step 1.** Gender-sensitive value chain mapping and the locating of critical loss points
- » **Step 2.** Identification of gender-based constraints linked to food losses
- » **Step 3.** Identification of entry points and solutions for gender-responsive food loss reduction
- » **Step 4.** Verification and social risk assessment of the proposed solutions to food loss.

The collection and the use of sex-disaggregated data are a key component of the four steps. The integration of gender equality concerns into food loss case studies and food loss reduction interventions is not a step-by-step approach, but rather a continuous process. Some of the steps may overlap, and the information gathered in one step may inform the design of the next one, or raise the need to go back in the sequence in order to gather additional information and adjust the suggested solutions.





STEP 1. GENDER-SENSITIVE VALUE CHAIN MAPPING AND THE LOCATING OF CRITICAL LOSS POINTS

This first step focuses on producing a gender-sensitive value chain map and the locating of critical loss points within it. In order to serve as the basis for a gender-sensitive analysis, the value chain mapping exercise (possibly in the form of a flowchart) should provide information on:

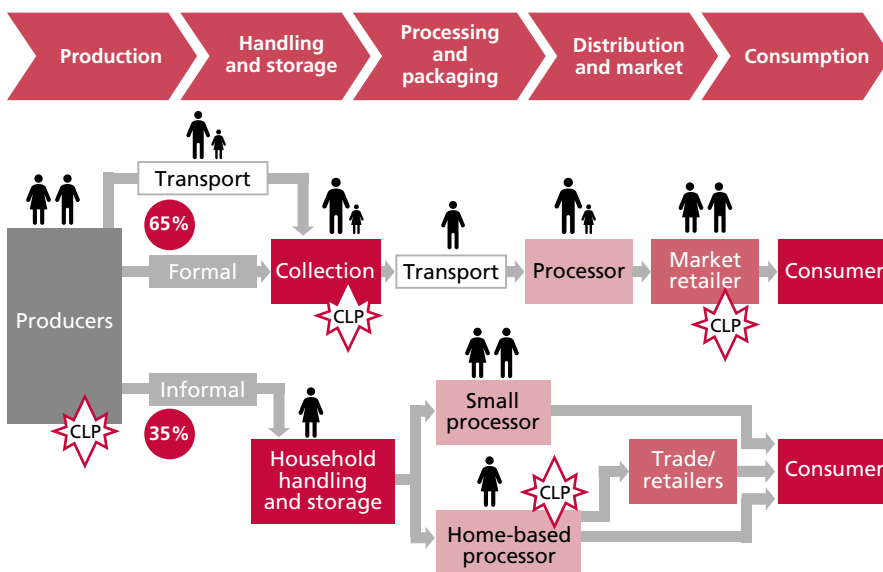
- » the nodes of the core value chain, which represent the functions and the value-adding activities of the chain (including both formal and informal activities);
- » the actors involved in the different nodes (men, women, boys and girls within farms and firms);
- » the vertical and horizontal linkages of the different nodes, identifying women's and men's position and contribution to the value chain functioning;
- » the extended value chain, including service provision, finance and input provision.

The mapping should not only indicate where men and where women are involved in the different activities, but also who is the *main* actor leading the activity at each specific node. In case women and men are both present, they should be proportionally indicated by smaller and bigger icons (Figure 9). If

Step 1. Gender-sensitive value chain mapping and the locating of critical loss points

Figure 9

Example of gender-sensitive value chain mapping, including the locating of critical loss points (CLPs)



Note: The symbols indicate the (quantitative) presence of women and men in the different nodes of the value chain. When both are involved, the bigger symbol indicates the sex of the group that is the main actor at the particular step. Based on FAO 2017.

information on critical loss points is available, they should be located within the value chain map, so that it is possible to focus on these specific nodes of the chain when resources and time are limited.

Table A, *Gender-sensitive analysis of food loss and value chain activities*, is a useful and practical tool to analyse in greater depth the roles and responsibilities of the value chain actors, and the specific conditions, including the socio-cultural context, in which they operate. Table A is used to assess the conditions under which women and men operate in the nodes by providing a clear evaluation of the constraints they face, and describes the link between such constraints and food loss experienced. In this analysis, the organizational level of the actors should also be described, since membership in producers' organizations is often a precondition to access technologies, training and infrastructures for processing and post-harvest activities. With the information gathered in Table A, women's and men's roles in the value chain is more visible and can serve as a basis for identifying solutions for food loss reduction.



To fill in Table A:

1. Based on the value chain mapping exercise, fill in the columns to describe activities and food losses (including a rough estimate of the amount of losses) under each node (or critical loss point). The main value chain nodes include production (primary production and harvest), aggregation, handling and storage, processing and packaging, distribution and market, and consumption. This list is not exhaustive and may vary depending on the considered food value chain.
2. Indicate if it is men or women that are *mainly* involved or leading the activities under each value chain node (or critical loss point).
3. Evaluate the conditions under which women and men engage in each node by looking at access to and control over: productive resources; advisory services and training; infrastructure; and knowledge and information – and provide a score. (If other categories are more relevant in the specific context, consider adapting the proposed ones.) The scores range from 1 to 4, where: 1 is bad/very constraining; 2 is moderately good/moderately constraining; 3 is good/enabling; and 4 is excellent/highly enabling. The following questions can help to evaluate the conditions and determine a score:
 - *Productive resources*: Do the actors own/have access to appropriate technologies and equipment at an affordable price? Do the actors have access to improved seed varieties, fertilizers and pesticides/insecticides? Do the actors have access to credit and financial services?
 - *Advisory services and training*: Do the actors have access to advisory services? Is knowledge and training on the optimal practice and use of technologies available? Is training accessible to all actors (is it taking place at times and in venues that are accessible for women and men)?



Step 1.
Gender-sensitive value chain mapping and the locating of critical loss points

- *Infrastructure*: Do the actors have access to and control over infrastructures such as storage and cooling facilities, transportation and appropriate technologies for packaging? Do mobility restrictions, time poverty and the work burden hamper the capacity of the actors to access them?
 - *Knowledge and information*: Do the actors have adequate knowledge of good and appropriate post-harvest handling practices? Do the actors have access to information about quality and safety standards to avoid discard at the market level?
4. Describe value chain actors' organizational/institutional context: Indicate if they act as individuals, as family workers within their household, or as members of a cooperative, women's groups or producer's organization, or if they are employees of a firm.
 5. For the last column, take into consideration the information collected up to this point. The influence of the constraints originated at the household and the individual levels should also be considered. Use this information to identify the main challenges that they are facing while carrying out their activities with respect to accessing productive resources, advisory services and training, infrastructure and knowledge and information. Be specific in describing the challenges faced by the actors and the correlation with food loss. Recognize challenges that are linked to gender inequalities and score accordingly.

Giving everyone a voice in interviews and focus-groups discussions

- Allocate sufficient time to understand groups and power structures in a community or context.
- Recognize the heterogeneity of the value chain actors experiencing food losses by considering the different socio-economic and/or ethnic groups. This requires well-prepared field visits.
- Interview value chain actors and/or carry out focal group discussions from both similar and different socio-economic statuses and/or ethnic groups.
- Ensure that women have the opportunity to participate actively, for example, through women-only focus group discussions and/or individual interviews.
- Include in your interviews questions to understand why there are differences between women and men in accessing inputs and services, as well as in accessing and controlling benefits.

Table A
Gender-sensitive analysis of food loss and value chain activities

Value chain nodes – critical loss points	Description of activities	Description and estimate (%) of food losses	Who is mainly involved: women or men	Involvement of women		Involvement of men		Organizational/ institutional setting (individual/ household level/ cooperative/ firms)	Challenges for the actors and remarks on the scores
				Women	Girls	Men	Boys		
				Score	Score	Score	Score		
Primary production	Land preparation, application of fertilizer and pesticides	---	Men	---	---	3	---	Individual	Limited technologies are available.
Harvest	Weeding and harvesting of crops	Harvest left on the field or discarded due to not meeting quality standards, around 15%	Women	2	2	---	2	Household level	Work is manual and labour-intensive. Women suffer from an additional work burden due to caregiving and domestic chores, large distances between fields and homes, and limited access to transportation means.
Processing	Threshing and milling of crops	Crops damaged and spilled, around 20%	Women and men	1	---	3	---	Household level	Both women and men are involved. However, women are mainly involved in immediate processing such as milling, which is carried out manually and with scarce technology. This leads to a significant loss risk. When technology is available, men are often involved. Advisory services are scarce, and women are often excluded.
...									



STEP 2. IDENTIFICATION OF GENDER-BASED CONSTRAINTS LINKED TO FOOD LOSSES

Step 2 aims to provide a deeper level of analysis and identify the gender-based constraints that are connected to the challenges faced by women and men in the food value chain nodes (or critical loss points). **Five main categories of gender-based constraints** are considered:¹

- a) Limited access to knowledge and information
- b) Limited participation and decision-making
- c) Limited access to finance
- d) Limited access to inputs and resources
- e) Work burden and time poverty.

The analysis of Step 2 requires that the individual and the household levels are taken into consideration as inter-household dynamics and power relations have a major influence in determining access to productive resources and decision-making power. Table B builds on the information collected for Table A regarding the challenges faced by women and men, and describes their consequences on the performance of the chain and on food losses. Successively, Table B provides information on the underlying gender-based constraints connected to food loss.

Step 2. Identification of gender-based constraints linked to food losses



To fill in Table B:

1. Describe the assessed challenges (identified in step 1) that actors face at each node of the food value chain (or in critical loss points) where losses are experienced.
2. Describe the consequences of the challenges on the value chain's performance and on food losses.
3. Identify the gender-based constraints linked to value chain inefficiencies and food loss. Describe gender-based constraints by making reference to the five categories. Indicate if they originate at the individual or household level.

¹ As will be shown in *Developing gender-sensitive value chains: guidelines for practitioners* (FAO forthcoming), these categories are not be exhaustive because the gender-based constraints in agriculture are multi-faceted and context-specific. They can simultaneously affect different levels and nodes of the value chain (individual, household, core, extended, etc.).

Table B
Value chain performance and gender-based constraints

Value chain nodes /critical loss points	Challenges actors face (indicate if mainly women or men)	Consequences on the efficiency and performance of the value chain and food loss	Gender-based constraint(s)
Primary production	Mainly men: limited technologies are available.	---	---
Harvest	Mainly women: Manual/labour-intensive work, high additional work burden due to household chores, large distances to cover between the homestead and the field.	Premature or late harvesting, poor equipment, lower product quality and high losses.	Limited access to resources (technologies and means of transportation), work burden and time poverty.
Processing	Mainly women: manual milling with scarce technology. When technology is available, men are more often involved. Advisory services are scarce, and women are excluded.	Poor processing equipment and technologies, lower product quality and losses.	Limited access to resources (technologies); work burden/time poverty; weak participation and decision-making; poor access to knowledge and information.
...			



STEP 3. IDENTIFICATION OF ENTRY POINTS AND SOLUTIONS FOR GENDER-RESPONSIVE FOOD LOSS REDUCTION

Step 3 aims to identify concrete entry points for food loss reduction interventions and suggests solutions to address the gender-based constraints identified in Step 2. As mentioned, gender-based constraints can cut across multiple nodes and simultaneously be found at the different levels of the food value chain:

- » the individual and household level;
- » the core and extended value chain level; or
- » the level of the national and global enabling environment.

Consequently, entry points and solutions to address food losses linked to gender-based constraints should be suggested through an integrated approach that addresses gender inequalities and food loss by considering these different levels. Figure 10 is a helpful tool that provides examples to identify entry points for the design of gender-responsive food loss reduction interventions.

Step 3.
Identification
of entry points
and solutions
for gender-
responsive food
loss reduction

The importance of applying participatory approaches

When designing an intervention strategy, the relevance of adopting a participatory approach should not be underestimated. To map a value chain in a gender-sensitive manner, identify challenges and underlying gender-based constraints, consulting with all the value chain stakeholders is vital.

Similarly, designing gender-sensitive solutions to food loss should include participatory discussions with women and men as value chain actors. To go one step further, interventions could be designed in a participatory process where the suggested solutions to food loss are also piloted or tested by the value chain actors themselves. Using such a participatory approach is crucial to increase ownership and uptake of new practices and/or techniques to reduce food loss.

Using a participatory approach also helps to clearly understand the composition and the socio-cultural and economic status of the target group.

Figure 10

Examples of entry points to address gender-based constraints and food loss at all levels of the value chain

Entry points to address food loss and gender inequality	Potential solutions for food loss reduction strategies and interventions
Individual and household level	
Equal decision-making power in the household	Engage with men and women to reflect on intra-household dynamics that cause gender inequalities and ultimately lead to food loss. Increase women's and men's capabilities in decision-making on how to use their time and allocate income to reduce food loss.
Work burden and time poverty	Create and disseminate gender-sensitive and labour-saving technologies that improve labour-intensive activities and reduce food loss.
Limited mobility	Increase access to safe and appropriate transportation means and infrastructure.
Access to information, knowledge and training	Increase access to knowledge and information on improved post-harvest practices and storage techniques to mitigate the negative impacts caused by aflatoxins and mycotoxins.
Core and extended value chain level	
Equal participation and leadership in producer organizations	Support the equal and effective participation of women and men in producer organizations in order to provide them with access to facilities, services and improved technologies that are managed at the producer organization level, and establish mechanisms to enhance women's participation in decision-making bodies.
Gender-sensitive tools and technology	Develop skills and disseminate appropriate tools and technologies to reduce food loss.
Access to productive resources	Increase and ensure equal access of value chain actors to adequate and timely transportation means for their products.
Access to adequate rural advisory services	Strengthen the capacities of service providers to deliver gender-sensitive rural advisory services to reduce food loss.
Access to financial services and products	Strengthen producer organizations and value chain actors' equal access to finance through credit schemes designed to support the acquisition of post-harvest technologies to reduce losses.
Access to information, knowledge and training	Provide women and men with equal access to training, information and knowledge on improved post-harvest practices and techniques, and on food safety.
National and global enabling environment level	
Institutional and legal frameworks	Remove barriers for women and men to access markets due to quality and standard regulations on food products.
Cultural norms and traditions	Invest in women's businesses so that value can be added and women can preserve what they produce and improve their market linkages. This would enhance the perception of women as entrepreneurs, improve their self-confidence and increase their decision-making power.



STEP 4. VERIFICATION AND SOCIAL RISK ASSESSMENT OF THE PROPOSED SOLUTIONS TO FOOD LOSS

According to the four scenarios of potential outcomes of interventions on food loss reduction and gender equality presented in Section 3 of Part 1 of this Guiding Note, food loss reduction solutions and interventions can be inserted in a matrix that considers their impact on food loss reduction and gender equality. Ideally, the suggested solutions should aim for a win-win scenario in which increased gender equality reinforces the reduction of food loss and vice versa (described as scenario A).

These scenarios also suggest that food loss reduction interventions can have unexpected consequences and may be unsuccessful while exacerbating gender inequalities in the food value chain. In order to lower such risks, the proposed interventions should be assessed by looking at the socio-cultural and economic consequences of their implementation.

Table C lists aspects and key questions that can help determine how a suggested solution or intervention for food loss reduction impacts the value chain actors including from a gender perspective. The table also has a column for recommending mitigation measures in case of unwanted impacts.

Step 4.
Verification
and social risk
assessment of
the proposed
solutions to
food loss



To fill in Table C:

1. Determine the relevant gender-based and social aspects within the selected value chain.
2. Describe the potential impacts of the suggested solution in each of the chosen aspects.
3. Describe the gender dimension of the impact: how women and men may be affected differently.
4. Suggest solutions to mitigate negative and/or unwanted impacts.

Table C

A suggested solution for food loss reduction: Dissemination of improved post-harvest technologies

Value chain level	Questions regarding the potential impact of the suggested solution	Description of the potential impact	Gender dimension of the impact (how women and men may be affected differently)	Suggestions to mitigate negative impacts or exacerbated gender inequalities
Individual level	1. How or does the suggested solution increase or reduce the work burden of value chain actors?	Technologies have the potential to reduce the work burden.	A reduced work burden could greatly benefit women; however, technologies require training and/or knowledge on their use to which women have limited access.	Identify the technologies that have the potential to reduce women's work burden and if possible prioritize them. To mitigate the risk that improved technologies remain unused, provide accessible and appropriate training on their use.
	2. How or does the suggested solution impact the employment situation of the value chain actors?	...	...	...
	3. How or does the suggested solution take into consideration mobility restrictions of value chain actors?	...	...	...
Household level	4. How or does the suggested solution distribute benefits to the value chain actors? (income, access and control)	The introduction of new technologies might increase household incomes due to higher production quantities or reduced losses.	Control over incomes might not be distributed equally among the value chain actors and between women and men, undermining the capacity of women to further invest in food loss reduction.	Ensure that the benefits are distributed equally among the actors. Ensure that women have the opportunity to benefit from higher income possibilities and that they have control over the earned income through direct payment and access to bank accounts. Women's membership in producer organizations and ownership and control over productive resources may enhance their control over household incomes.
	5. How or does the suggested solution impact the nutrition situation of the value chain actors and their families.	...	...	...



Step 4.
Verification
and social risk
assessment of
the proposed
solutions to
food loss

Value chain level	Questions regarding the potential impact of the suggested solution	Description of the potential impact	Gender dimension of the impact (how women and men may be affected differently)	Suggestions to mitigate negative impacts or exacerbated gender inequalities
Core value chain level	6. How or does the suggested solution impact dynamics of power in the food value chain? (ownership of solutions?)	As practices improve and formerly manual activities become automatized, ownership might move from one group to another.	Men often take over activities that were formerly carried out manually by women and now involve more advanced technological aspects. This might lead to transferred ownership from women to men. As a consequence, food loss experienced by women might not be addressed.	Ensure that women have equal access to newly introduced technologies and receive appropriate training to use them. Ensure cooperation with organizations that have female members. Engage with men to increase awareness of the benefits of working with women to reduce food loss.
	7. How or does the suggested solution raise or increase the need for training in order to apply solutions?	...	...	...
	8. How or does the suggested solution require a degree of organization of value chain actors (e.g. membership in producer organizations)?	...	...	...
	9. How or does the suggested solution cause for some actors' exclusion from the food value chain activities?	...	...	...
Enabling environment	10. How or does the suggested solution coincide with cultural and social norms and will be culturally and socially acceptable?	Some technologies or new practices might be considered unsuitable for some value chain actors due to social and cultural norms.	Women might feel uncomfortable or be excluded from the use of certain technologies for social and cultural reasons.	Be informed of social and cultural norms. Ensure that the suggested solutions do not contribute to the exclusion of women. Use participatory approaches to engage with the target group to develop and disseminate appropriate technologies and practices to foster uptake. Consider working at the community and household level with men in order to gradually change discriminatory socio-cultural norms.

This list is not exhaustive and can be adapted and extended as necessary. If there is a risk that the suggested solution negatively impacts one or more of these dimensions, its appropriateness and effectiveness needs to be evaluated. Possibly, mitigation measures could be adopted to avoid or reduce negative impacts. Where not possible, the practitioner should go back to Step 3 and identify a more appropriate entry point and solution to food loss and gender inequality with no or less negative effects.



Conclusions

This Guiding Note aims to conceptualize and raise awareness on the nexus between gender equality and food loss while offering practical guidance on and tools for integrating gender concerns into the carrying out of food loss case studies and the planning and implementation of reduction strategies and interventions.

There are multiple approaches that can be implemented to address gender-based constraints that are considered the underlying reasons for food loss. Some of them may act at different levels of the food value chain: individual, household, core, extended, and enabling environment levels. While some approaches may aim to provide short-term solutions, others may aim for medium- or even long-term goals in order to trigger gender-transformative change.

Accordingly, the four-step approach, proposed in the Guiding Note, provides the basis for practitioners, researchers and policy makers to collect further evidence on the nexus between gender equality and food loss. Conducting studies and assessments, and implementing strategies and interventions in the coming years will be part of an extremely important process to fill in the knowledge gap on gender and food loss, and to explore further this relatively new area of work.

Working towards the development of more inclusive, efficient and sustainable food systems is crucial to achieve the global goals of the 2030 Agenda for Sustainable Development. Addressing the food loss and gender nexus systematically will be an essential component of the global effort to reduce food loss by aligning technical solutions with broader objectives of sustainable development.



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Gender and food loss in sustainable food value chains

A guiding note

This publication aims to help policy-makers, project designers and field practitioners to conceptualize the nexus between gender equality and food loss while offering practical guidance on and tools for integrating gender concerns into the planning and implementation of food loss studies and reduction strategies and interventions.

By linking key concepts from gender-sensitive value chain development and the issue of food loss, it emerges that gender inequalities affect the overall efficiency of the food value chain and generate a poor performance that may cause produce to be removed from the chain. The publication provides critical information and entry points for food loss reduction interventions that improve the way women and men participate in and benefit from food production.

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ISBN 978-92-5-130346-7



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18620EN/1/05.18