Food and Agriculture Organization of the United Nations

CLIMATE RESILIENCE and DISASTER RISK ANALYSIS for GENDER-SENSITIVE VALUE CHAINS

A guidance note

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A guidance note

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ABSTRACT

The purpose of this publication is to facilitate gender analysis in value chain operations, considering climate change effects, in order to enhance adaptive capacities of value chain actors. It aims to facilitate the analysis of the factors that determine gender-differentiated vulnerability to climate change and risks. It is intended for use by practitioners and service providers, including governments, civil society and academia, to guide interventions within the agrifood sector.

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ABBREVIATIONS AND ACRONYMS

ESP	Inclusive Rural Transformation and Gender Equality Division
FAO	Food and Agriculture Organization of the United Nations
ICT	Information and communication technologies
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IPCC	Intergovernmental Panel on Climate Change
OCB	Office of Climate Change, Biodiversity and Environment
RNE	Regional Office for the Near East and North Africa
SPC	The Pacific Community
SFS	Sustainable food systems
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
UNFCCC	United Nations Framework Convention on Climate Change
UNFSS	United Nations Forum on Sustainability Standards
UN Women	United Nations Entity for Gender Equality and the Empowerment of Women
WHO	World Health Organization

INTRODUCTION

Women are particularly active in agriculture, a sector that is highly sensitive to climate change. Any stresses within the sector are likely to have differentiated impacts on how women and men participate in agricultural value chains and the benefits they derive from them. In particular, women have less resources with which to respond and adapt to climate- and risk-related challenges. As such, their livelihoods are more vulnerable. Furthermore, women play a major role in natural resource management as agricultural producers, labourers, farm managers, processors, traders and entrepreneurs. Consequently, gender equality and women's empowerment are core aspects of both sustainable value chains and climate-resilient agriculture.

In practice, however, women's roles in the sector are often undervalued and limited by constraints on their access to key assets, productive resources, services, information and labour market opportunities. Discriminatory social norms can deny women the right to own land and natural resources, to benefit from financial services and credits, to access technology and expand their networks, all of which affect the productivity and efficiency of their economic operations. Moreover, such norms diminish their capacity to deal with crises and climate risks, maintain their livelihoods, and fully participate in building resilience in the agrifood sector.

As climate change advances, it exacerbates structural gender inequalities and aggravates enduring factors of poverty, food insecurity and injustice (IFAD, 2021). Adding to these issues, the COVID-19 pandemic is having short- and long-term repercussions on the most vulnerable, including women and youth. In order to adequately respond to women's needs and preferences, these specificities must be considered in all climate change and resilience plans, and gender must be mainstreamed across countries' agricultural adaptation and mitigation policies and programmes (FAO and UNDP, 2020). This will make it possible to address gender inequalities in order to reduce vulnerability to climate change and crises, such as the COVID-19 pandemic, and increase the adaptation capacities of male and female value chain actors.

Women can play a key role in adaptation actions and disaster risk reduction through value chain operations if they are directly involved in identifying related threats and developing potential solutions. However, they are often excluded from decision-making processes, preventing them from adopting innovative solutions and technologies that could contribute to climate adaptation and to mitigating emissions in agriculture, while strengthening their resilience.

This guidance note focuses on the gender and climate change nexus in the specific context of agrifood value chains. It aims to facilitate the analysis of the factors that determine gender-differentiated vulnerability to climate change, risks and crises, and the identification of actions and strategies to enhance adaptive capacity. It is intended for use by practitioners and service providers, including governments, civil society and academia, to identify and integrate local climate and risk priority measures into gender-sensitive value chain analysis, and to further guide interventions within the agriculture sector.

1. Sustainable Value Chains in the Context of Food Systems Transformation

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According to the Food and Agriculture Organization of the United Nations (FAO), food systems:

> encompass the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption and disposal of food products that originate from agriculture, forestry or fisheries, and food industries (FAO, 2018b).

Food systems must also be viewed in the context of their impacts on the environment, human health and society (von Braun *et al.*, 2020). To be sustainable, a food system must provide nutrition for all who depend upon it, without compromising the very economic, social and environmental pillars upon which it operates (FAO, 2018b). Viewed in this way, as detailed in **Figure 1** (p. 3), a sustainable food system is one that (FAO, 2018b):

- **is profitable throughout** (economic sustainability), generating benefits for all actors involved, including women and men, through value-added processes;
- **provides broad-based benefits for society** (social sustainability), with equitable distribution of benefits, without discrimination due to gender, age, race, disability status, ethnicity or other social locations, and contributing to the advancement of sociocultural outcomes, such as nutrition and health;
- **has a positive or neutral impact on the natural environment** (environmental sustainability), including biodiversity, water, soil, animal and plant health, the carbon footprint and the water footprint (FAO, 2018b).

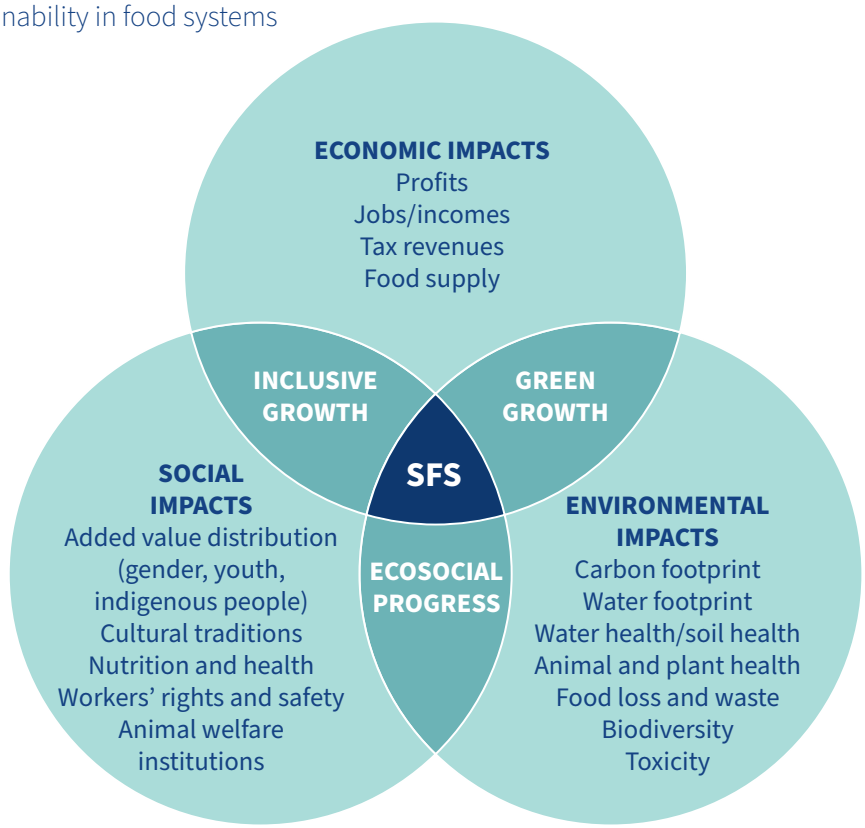
By applying a food systems approach, the main interactions and interdependencies between the different processes and nodes can be visualized, which facilitates a better understanding of the three pillars of sustainability and value chain operations.

Food systems are impacted by interrelated drivers of change,[1] which can facilitate a positive shift towards inclusive and sustainable development. Among these drivers, the biophysical and environmental category deals with climate change and related risks. Other categories include political and economic, socio-cultural, and demographic drivers, as well as innovation, technology and infrastructure. All drivers influence the food supply, food environments, consumer behaviour and the social outcomes of the food system, including nutrition and health (HLPE, 2017).

From a gender perspective, all food system drivers operate in contexts of structural gender inequalities that influence value chain operations and food environments in terms of how people access food and the nutritional quality of the foods they access, what foods they choose to consume and the outcomes of food systems, including dietary, gender-equality and women's empowerment, economic and livelihoods, and environmental outcomes (Njuki *et al.*, 2021).

[1] As stated by the UNFSS Scientific Group (2020), "Drivers of the change processes are developments within science and related innovations as well their interlinkage with policies, both of which are linked to the interests, needs and accomplishments of farming communities, the food industry, and the demand of consumers."

Figure 1. Sustainability in food systems

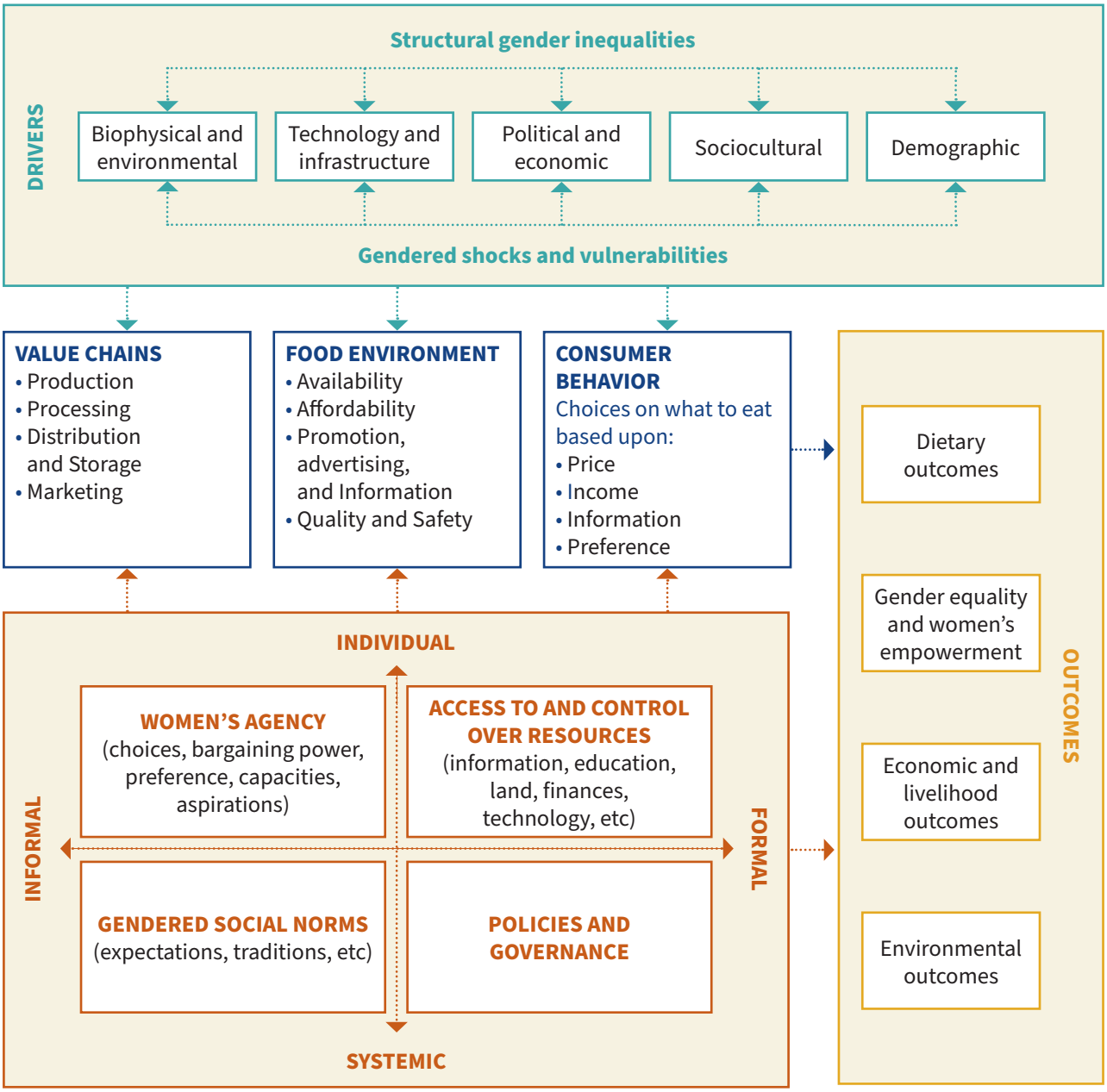


Source: FAO. 2018b. Sustainable food systems. Concept and framework [online]. http://www.fao.org/3/ca2079en/CA2079EN.pdf

All these drivers are interrelated, and relevant gender aspects are not reduced to socio-cultural factors, but are rather mainstreamed throughout the components of the food system. As food systems are impacted by climate change, and can also contribute to it, examining environmental drivers reveals climate change effects and risks and sheds light on how women and men are impacted differently in their value chain operations, as well as which measures should be adopted to deal with the negative effects of climate change. This enables the development of appropriate solutions for mitigating and adapting to climate change according to each specific situation and sets of needs and priorities. In particular, environmental aspects are identified in order to map out opportunities to use available natural resources more efficiently and reduce the negative impacts of food production, while addressing structural inequalities and gendered dimensions of shocks and vulnerabilities. As is apparent, the natural resource base is part of the biophysical and environmental driver of food systems in terms of natural resource capital, ecosystem services and climate change effects, and how these impact value chain actors and food systems outcomes at large.

To strengthen sustainable food systems and build resilient agriculture, structural gender inequalities must be tackled, the gendered dimensions of shocks and vulnerabilities must be addressed and the rate and magnitude of climate change and disaster impacts must be limited. This implies analysing the main components of food systems – value chains, food environments and consumer behaviour – and how these are concerned with gender inequalities in multiple dimensions: individual and systemic, formal and informal. Gender inequalities in the individual and informal dimension are those related to limiting attitudes and behaviours that determine gender norms, for example, regarding women's participation in meetings and cooperatives. Gender inequalities in the individual and formal dimensions are those related to discriminatory practices and regulations, for example on women's access to assets, resources and services. The formal and systemic dimensions are related to laws, policies and the way institutions operate, for example, in the provision of services. All these dimensions are interrelated and must be considered in order to transform food systems in equitable ways, as reflected in **Figure 2** (p. 4).

Figure 2. The gendered food system framework



Source: Njuki, J., Eissler, S., Malapit, H., Meinzen-Dick, R., Bryan, E. & Quisumbing, A. 2021. A Review of Evidence on Gender Equality, Women's Empowerment, and Food Systems. IFPRI Discussion Paper 02034. Dakar, IFPRI. http://www.indiaenvironmentportal.org.in/files/file/A%20Review%20of%20Evidence%20on%20Gender%20Equality.pdf

2. Relevance of Gender Equality in Climate Change Adaptation and Disaster Risk Response in the Context of Food Value Chains

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Women involved in food system operations are not a homogenous group and they can face multiple and compounding forms of discrimination. Intersectional analysis entails assessing how multiple individual characteristics, such as gender, ethnicity and age, interact with discriminatory social norms to shape an individual's position in society (WHO, 2020). This type of analysis can inform policy response and interventions in the areas of gender and climate change, showing how gender intersects with a variety of social locations to determine an individual or group's vulnerability or resilience to climate change and to crises such as the COVID-19 pandemic. Although these interactions are context-specific and will change according to the specific group, some common topics arise, such as:

- **Harmful social norms and practices** determine the gendered distribution of both paid and unpaid work; limit women's access to and control over assets, productive resources and markets; restrict women's mobility and undermine their leadership potential. All these factors increase women's vulnerability to climate change and risks. For example, climate change and natural disasters may reduce the supply of raw materials, and social norms regarding women's mobility often make it even more difficult for women to access those scarce resources.
- **The denial of rights, as a result of formal and informal institutions and laws,** also impacts women disproportionately, particularly in rural settings. Systematic institutional and legislative discrimination against women is apparent in issues of land ownership, employment, decision-making and participation, access to health and education, all of which diminish women's agency and reduce their capacities to adapt and diversify their livelihood options.

According to the FAO framework on gender-sensitive value chains, gender relations are a prime component of the social and economic context that shapes value chains at all levels. As such, gender dynamics are indissolubly linked with value chain growth. Determining factors might include the jobs that are available to men and women, wage differences and the nature of individuals' roles in value chains (which are related to how time is allocated to different activities, whether labour-saving technologies are adopted and for what types of tasks, and the level of participation in decision-making) (FAO, 2016).

Social inequalities render many people more vulnerable to climate change impacts and limit their options to manage climate and other risks – to take preventive action, to access and adopt mitigation and adaptation measures. Gender is often

> "The gendered differences in the dependence on natural resources and ecosystem services explain differentiated adaptive capacities and exposure to risk and vulnerability to losses in biodiversity and changes in access to and management of natural resources. In many areas, women have more limited access to agricultural advisory services and formal rural institutions. This further reduces their opportunities to learn about coping strategies and climate-smart agriculture."
>
> Source: FAO. 2013. Climate Smart Agriculture Sourcebook. Rome. https://www.fao.org/3/i3325e/i3325e.pdf

a crucial factor of these obstacles. Therefore, key gender inequalities must be identified and effective measures to address the inequalities must be devised in order to strengthen climate and disaster resilience and adaptation. Working with both women and men to recognize their equal rights as agents of change and decision-makers along the value chain, including at the household level, is a critical pathway towards gender equality and women's empowerment and resilience (Jost, Ferdous and Spicer, 2014).

Due to their roles and responsibilities at the household and community levels and in value chain operations, women generally rely more than men on the available natural resources, which makes them more dependent on ecosystem services for their livelihoods (FAO, 2013). As such, they are affected more severely than men by the negative impacts of climate change within agricultural value chains, and are constantly pushed to adapt to water scarcity, land degradation and unexpected natural events, all of which threaten their livelihoods (Least Developed Countries Expert Group-UNFCCC, 2015). Furthermore, in developing countries, women are greatly affected by energy poverty. For example, in some countries women have the primary responsibility for collecting firewood, which can be labour-intensive and time consuming.

Incorporating the perspectives and priorities of both women and men is key to guaranteeing equality and effective climate action. A gender-sensitive approach to climate change adaptation in value chains would build resilience as it would lead to the inclusion of the different capacities, experiences, expertise and perspectives of men and women in the design and implementation of related projects and programmes (FAO and UNDP, 2020). Identifying and addressing the differentiated constraints faced by women and men and other social groups (youth, ethnic groups, persons with disabilities, etc.) along the value chain, would enable them to equitably engage with and influence decision-making on how to respond to climate related challenges.

To improve value chain operations and address gender inequalities, it is important to:

- **recognize gender differences in the distribution of work, resources and services,** and address women and men's specific needs, opportunities and coping skills (FAO and UNDP, 2020);
- **ensure equal participation and influence of women and men in decision-making** with regard to implementing adaptation measures (FAO and UNDP, 2020);
- **ensure gender-equitable access to and control over financial resources and other benefits** resulting from adaptation investments (FAO and UNDP, 2020);
- **challenge discriminatory social norms** and ensure that men, women, boys and girls can benefit equally from interventions, which will lead to more sustainable and equitable results.

Figure 3. How climate change exacerbates gender inequalities

CLIMATE CHANGE IMPACTS	IMPACTS EXACERBATE GENDER INEQUALITIES
Crop failure	Household food provision; increasing work load
Fuel shortage	Household fuel provision; more time for fuelwood collection
Water scarcity	Household water provision; contaminated water; more time for water collection
Natural disasters	Women's greater incident of mortality
Disease	Lack of access to health care; women's burden as care givers
Displacement	Forced migration increases women's vulnerability
Conflict	Loss of lives and livelihoods; violence against women

Source: FAO and World Bank. 2017. How to integrate gender issues in climate-smart agriculture projects. Rome. https://www.fao.org/3/i6097e/I6097E.pdf

3. Gender, Climate Change Adaptation and Disaster Risk Reduction Analysis in Value Chains

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With climate change threatening food systems, applying a value chain approach is useful for analysing the climate risks at all stages of the value chain (going beyond production) and determining a more systemic approach to risk management (FAO and UNDP, 2020). Value chain analysis makes it possible to understand the performance of processes and how the different actors participate and benefit. It also provides insights regarding the main challenges in the value chain, including those related to climate change and risks, and potential appropriate upgrading and adaptive measures.

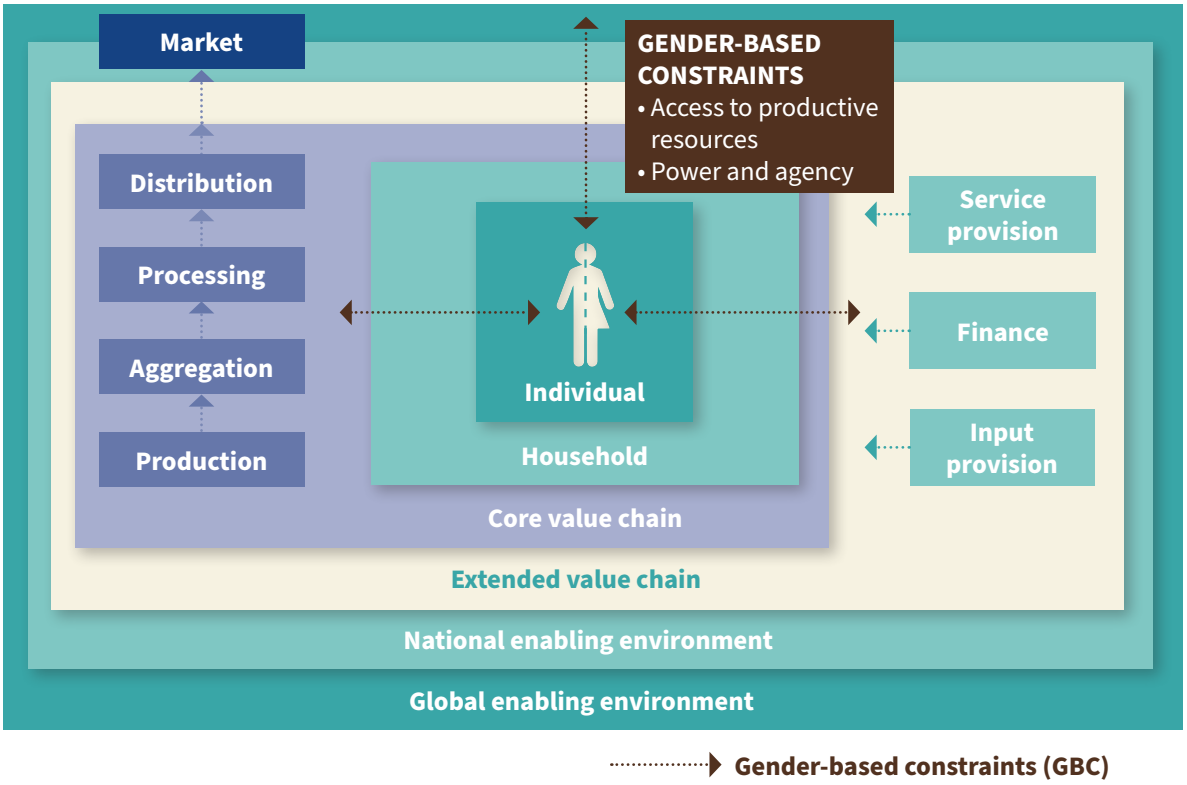
Furthermore, value chains do not operate in isolation. They are affected by the environment in which they function, including the impacts of climate change. In this regard, a value chain approach provides a systemic method to enhance resilience. This includes analysing the performance of the chain and climate change risks and effects in the:

- **core value chain**, (especially, production, aggregation, processing, distribution and consumption), which relates to value chain actors who produce or procure from the upstream level, add value to the product and then sell it on the next level (Mwesigye and Nguyen, 2020);
- **extended value chain,** considering business-development service providers; and
- **enabling environment,** which determines the conditions under which value chain actors **and support services operate, such as policies, laws and regulations (FAO, 2016).**

Societal elements also influence the environment of value chain operations, as well as consumer trends that shape demand and, ultimately, determine the value of agrifood products. Finally, the type of **ecosystem and natural resources** available and how these are used, will determine exposure to climate change effects and disaster risks.

The FAO framework on gender-sensitive value chains (2016) introduces the **household and individual level** of analysis, recognizing the distinctive characteristics, capabilities and aspirations of value chain actors according to gender, ethnicity and age, among other social locations. This approach also recognizes that social dynamics and power relations among household members define the distribution of gender roles and responsibilities, as well as rights and resources.

Figure 4. FAO gender-sensitive value chain framework



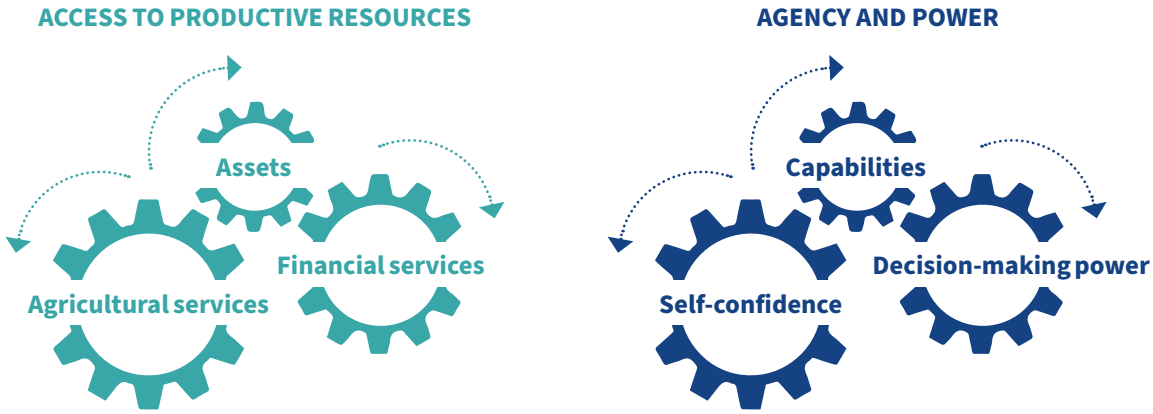
Source: FAO. 2016. Developing gender-sensitive value chains – A guiding framework. Rome. http://www.fao.org/3/i6462e/i6462e.pdf

Gender analysis is a systematic effort to identify the key underlying causes of gender inequalities, which most often also result in poor value chain outcomes and in the failure of climate change adaptation measures. 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). These constraints can hinder an individual´s ability to participate in the value chain and limit the benefits the individual is able to receive (FAO, 2016).

Identifying gender-based constraints through gender-sensitive value chain analysis entails identifying women's and men's roles and relations at the different levels of value chain operations: interpersonal, household, community, local and national. It explores access to and control over productive resources, and access to and control over benefits, and looks at both the public and private spheres, including households, communities, institutions, formal and informal practices, laws and regulations. A gender analysis must also recognize other considerations that affect all members of society, such as age, ethnicity, class, caste and other socioeconomic conditions, in order to explore how other categories of difference, together with gender, amplify processes of social discrimination (WHO, 2020).

Two main interrelated dimensions guide this analysis: i. **access to productive resources,** including assets (land, equipment, networks), agricultural services (training and information, technology and information and communication technologies [ICTs], agricultural inputs) and financial services; and ii. **agency and power,** agency referring to the ability to make autonomous choices and transform those choices into desired outcomes (FAO, 2016), and power relating to the ability to control resources and profits. Power and agency include capabilities, self-confidence and decision-making power (see **Figure 5,** p. 9).

Figure 5. Components of access to productive resources, and agency and power



Source: FAO. 2016. Developing gender-sensitive value chains – A guiding framework. Rome. http://www.fao.org/3/i6462e/i6462e.pdf

As mentioned, analysing gender-based constraints related to climate change and risks through a value chain approach can assist in identifying vulnerabilities and hotspots across the chain to assist in adaptation planning for value chain operations.

Figure 6. Illustrative impact of climate change on women across a value chain

PHASES OF VALUE CHAIN	PRODUCER	AGGREGATOR/ PROCESSOR	WHOLESALER/ RETAILER	CONSUMER
Impact of Climate Change across value chain	• Recurrent droughts lower productivity and yield	• Increased pressure on storage, transportation and logistics	• Limited supply of commodity lead to increased cost	• Increased price of final product
Impact of Climate Change on women across Value Chain	• Fall in farm based income for women, may shift to non income generating activities	• Women led MSMEs with low working capital are forced out of business	• Limited access to market information leads to reduced profit margins	• Fall in disposable income leads to change in resource allocation in the household

Source: FAO & UNDP. 2020. Toolkit for value chain analysis and market development integrating climate resilience and gender responsiveness – Integrating agriculture in National Adaptation Plans (NAP-Ag) Programme. Bangkok. https://www.fao.org/publications/card/en/c/CB0699EN/

4. Tools and Guiding Questions for Gender, Climate Change Adaptation and Disaster Risk Reduction Analysis in Value Chains

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The guiding questions, techniques and tools presented in this section aim to facilitate: **i. the analysis of the main challenges and gender-based constraints** that value chain actors deal with in response to climate change and disaster risks; and: **ii. the identification of entry points for programme and project design,** that reinforce women's and men's capacities to adapt to climate change and absorb shocks from disasters.

The instruments and guiding questions presented build on several instruments and frameworks[2] and use a value chain approach, as all stages of the value chain have associated climate risks, while using a more systemic approach to risk management. Therefore, climate change and disaster risk analysis should be part of a broader value chain analysis, including the economic, social and environmental factors that are the basis for sustainable operations.

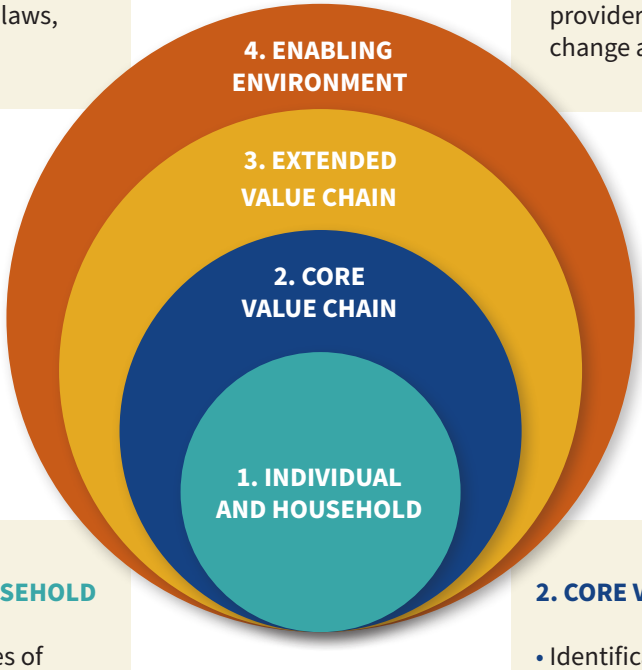
Figure 7 (p. 11) shows the different levels of analysis in a gender-sensitive value chain approach (individual and household level, core and extended value chains, and the enabling environment in which the value chains operate), and the main topics of analysis at each level.

A list of guiding questions is proposed for analysing the climate change and disaster risks at these different levels. The list is not exhaustive and must be adapted to each context. The questions are organized as follows: i) the capacity of value chain actors to adapt to climate change, ii) their capacity to deal with disaster risks, iii) their technical capacity, and iv) the gender-related factors.

To facilitate a gender analysis and use the guiding questions, it is fundamental to generate sex-disaggregated data and consider the different social groups rural women and men belong to, such as indigenous, afro-descendant communities and youth, among others. Identifying and including the different social locations of individuals involved in value chain operations provides a better understanding of how diverse people participate and the specific constraints they face, as well as valuing their experience and knowledge.

[2] These include the Climate Vulnerability and Capacity Analysis Handbook developed by CARE (2009) and the FAO gender-sensitive value chain framework (2016) and guidelines for practitioners (2018).

Figure 7. Levels of analysis for a gender, climate resilience and disaster risk analysis of value chains



4. ENABLING ENVIRONMENT

- Context in which the value chain operates
- Geographic location
- Social and economic relevance of the chain
- Main economic, social and environmental threats to value chain operations
- Enabling factors that enhance women's and men's participation and benefit: policy, laws, programs, etc.

3. EXTENDED VALUE CHAIN

- Identification of service providers
- Linkages of service providers and value chain nodes/actors
- Ability (or inability) of service providers to provide gender-sensitive services
- Existing services related to climate change and disasters risks
- Ability (or inability) of service providers to address climate change and disaster risks

1. INDIVIDUAL AND HOUSEHOLD

- Main livelihood strategies of value chain actors
- Roles and responsibilities in household chores
- Literacy rate, information and skills
- Membership, leadership and decision-making in producer organizations
- Key productive resources and services
- Climate resilience and disaster risk resources

2. CORE VALUE CHAIN

- Identification of value chain nodes
- Value chain mapping: flow of processes, actors, products and added value
- Analysis of value chain actors' roles and responsibilities per node
- Linkages among value chain actors

Source: Developed by the authors for this publication, 2021.

Individual and household level of analysis

The FAO framework on gender-sensitive value chains (2016) includes the household and individual level of analysis. Analysis at this level identifies gender inequalities originating at the household level in the distribution of roles and responsibilities in the domestic and economic spheres, through which rights and resources are assigned.

Main livelihood strategies of value chain actors

To address this level of analysis, it is important to identify the main livelihood strategies value chain actors rely on and to determine if these strategies are diversified, and if they are different for women and men. This step includes assessing the economic relevance of the value chain activities, the benefits these generate for women and men, and the importance of the natural resources on which these activities depend.

What are the most relevant livelihood resources for women and for men involved in the value chain?

Roles and responsibilities in household chores

Rural women of all ages devote considerable amounts of time to domestic chores, including collecting water and firewood, processing and preparing food, and caregiving, in addition to their productive activities (IFAD, 2012). In contrast to men, women's work is mostly unpaid and unrecognized, restricting their time and mobility (Grassi *et al.*, 2015). This influences the types of tasks they perform and limits the time they devote to value chain operations.

What are the current daily activities of (all) family members, including cooking; cleaning; caring for children, the elderly and the ill; collecting water and firewood; backyard crop or livestock production; and family farm and paid work?

Literacy rates, information and skills

Low literacy rates are an important factor in women's unequal access to information, knowledge and training, which, in turn, impacts the productivity and efficiency of their economic operations. Because of this, women often operate in the lower-skilled and less profitable nodes of agrifood value chains, as well as encountering barriers to market access and having less opportunities to implement climate-resilient measures and get proper information about disaster risk prevention (FAO, 2018a).

What are the main barriers women and men face to accessing information, knowledge and training regarding value chain operations, climate-resilience measures and disaster-risk prevention?

Key services

Women often have less access to productive resources and services than men, which diminishes their role in value chain operations. Key services include financial, marketing, extension and innovative technology services (including ICTs), among others.

What are the main barriers women and men face to accessing key services to improve value chain operations?

Membership, leadership and decision-making in producer organizations

Unequal levels of participation and decision-making power on the part of men and women at the household, community and organizational levels is a constraint that leads to low productivity (FAO, 2018a) and low engagement in improving value chain operations, including implementing climate-resilient or risk-prevention measures. Limited voice and decision-making power in managing their economic activities in family farms and in other nodes of value chain operation, reduces women's opportunities to decide about their time, mobility, use of resources and investments. Women's membership rates in producer organizations are usually low, which reduces their opportunities to engage with other value chain actors and access services and markets.

Do women and men have equal opportunities to make decisions about the family farm and the benefits produced?

Do women and men participate in and benefit from producer organizations equally?

Resources to adapt and respond to climate change and disaster risks

As mentioned previously, climate change and disaster risks affect women and men differently due to their different roles, the resources they control and their specific needs and preferences. Persistent gender-based inequalities influence the degree to which women and men participate in planning and implementing adaptation actions as well as the distribution and control of resources. Furthermore, there is a lack of knowledge regarding the different impact that climate change and adaptation measures have on men and women and the visibility of the different contributions they make to adaptation actions and value chain operations (FAO and UNDP, 2020). All these aspects play a role in determining the distribution of opportunities and benefits among women and men.

The following questions are aimed at all members of the household – both male and female.

Climate resilience (Capacity to adapt to climate change)	Disaster risk	Technical capacity	Gender-equality factors
• Over the past five years, what are the main changes in climate affecting the activities you perform to meet the needs of the family (livelihoods), including the value chain in which you participate? • Do you have access to social and economic safety nets (conditional cash transfers, child allowances, or non-contributory pension programs)? • Do you have access to insurance to protect your assets? Who does, who doesn't and why? • What coping strategies are you and household members currently employing to deal with these changes? • Do you keep a record of these changes or consult information related to climate change to plan your activities within the value chain? • Which climate resilient agricultural practices are you using, and which are employed by other members of the household?*	• What are the biggest hazards you experienced in the past five years (climate and non-climate related)? • Were any of your possessions affected? If so, can you replace them? • Have these hazards had an impact in the value chain activities in which you operate? (Which activities? What are the impacts on productivity and on employment?) • Did you or anyone working in the value chain seek alternative livelihood activities due to hazards? • Do you have protected reserves of food and agricultural inputs to face hazards? • Does your household have secure shelter? • Are key assets protected from hazards? How? • Do you and other members of the household have access to early warning for climate hazards? If not, why not? • Do you have means of mobility to escape danger in the event of climate hazards? If not, why not? What about the rest of the household members? • Do you see any difference in mobility between the different members of the household?	• What information channels are used to share information on disasters? • Are you involved in meetings and initiatives on disaster risk reduction or climate adaptation? • Do you use traditional knowledge/practices that can be useful to adapt to climate change? What kind of knowledge? • Do you have access to specialized training and resources (agricultural advice, innovative technologies, financial resources, etc.) to develop adaptation strategies and integrate climate-resilient practices? • What training and what resources? Who has such access, who doesn't and why? • Is there anyone – a person or an organization – available to help you if a disaster occurs? • What else would help you?	• Who in your household leads the work to address climate and non-climate related hazards? • Do women and men have equal opportunities to decide how to face these hazards? • Who in the family decides about and uses the main resources of the household, such as land, savings, etc.? • Who in your family has knowledge and skills to employ adaptation strategies? What type of knowledge and skills? • Do you see any difference between the knowledge and skills family members have (women, men, youth, the elderly)? If so, why is this so? • Do all members of the household have equal access to key resources to cope with risks and adapt to climate change? If not, why not? • Are the specific needs and preferences of all household members taken into consideration in the design of preventive and recovery measures?

Source: Developed by the authors for this publication, 2021.

*Practices could include: use of climate-adapted seed varieties; integrated management of pests and diseases in crops, livestock and fisheries; measures to reduce soil erosion; water conservation measures; the use of green energy sources for production and post-harvest processes; mixed crop/livestock farming systems; food-loss-reduction measures, use of ICT-based forecasts, environmentally sound recycling technologies; environmentally friendly packaging; low emission processing and transportation.

Information for individual and household analysis can be captured through the following techniques:

- desk review of existing literature;
- individual interviews with key stakeholders involved in the targeted value chain;
- interviews at household level, involving several family members;
- mixed-group discussions, followed by women's group discussion.

These techniques can be complemented using the following tools:

- **A daily activity clock** (24-hour daily calendar), which is a gender analysis tool that describes women's and men's daily activities and is useful for examining relative workloads between women and men.
- The **seasonal calendar** tool is used to guide farmers' perceptions of typical seasonal conditions, such as rainfall amounts and timing and how these affect value chain operations, as well as key dimensions of food security and livelihoods. The tool facilitates discussion about an entire year, rather than a single season, as events over the course of the year influence each other. It also facilitates discussion of the linkages between climate variability and specific key activities and resources that occur or are available at different points during the year to influence value chain operations. (CASCAPE, 2015).

These resources are available at:

FAO, 2012. Training Guide: Gender and Climate Change Research in Agriculture and Food Security for Development. Module III Field research and toolbox. http://www.fao.org/3/md280e/md280e00.htm

CASCAPE, 2015. Manual on Gender Analysis Tools. https://agriprofocus.com/upload/CASCAPE_Manual_Gender_Analysis_Tools_FINAL1456840468.pdf

Core value chain analysis

The core value chain is one of the levels of agrifood system analysis proposed by FAO's Sustainable Food Value Chain Framework (2014). The core value chain is at the centre of the food system and refers to those who produce or procure from the upstream level, add value to the product, and then sell it to the next level (FAO, 2014). The core value chain includes the nodes of production, aggregation, processing and distribution to markets. At this level, efficiency and sustainability rely heavily on the nature of linkages among actors, along the different nodes of the chain, and within the overall chain.

Identification of value chain nodes

The first step of the core value chain analysis is to identify the different nodes or processes of the targeted value chain that reflect the product flow, which vary according to the sector and specific products being generated. In turn, these nodes or processes are determined by the market demand, which is strongly linked to the specific context and culture.

What are the nodes or processes of the targeted value chain from production to markets?

Value chain mapping

A value chain map is a visual representation of the flow of processes, actors and products through all the nodes of the chain that are identified, from production to distribution. It reflects the value addition at each node of the chain and identifies the most lucrative nodes. A gender-sensitive value chain map identifies the actors involved and the rough percentages of men and women (including youth) involved in each node of the chain, which sheds light on the gendered division of labour and on who controls the main gains (FAO, 2016). The mapping process will make women's roles visible, making it possible to target their roles within value chain interventions. Value chain mapping also makes it possible to identify gender-based constraints and barriers that women face in their operations. Both formal and informal value chains can be mapped, as women are often involved in informal practice.

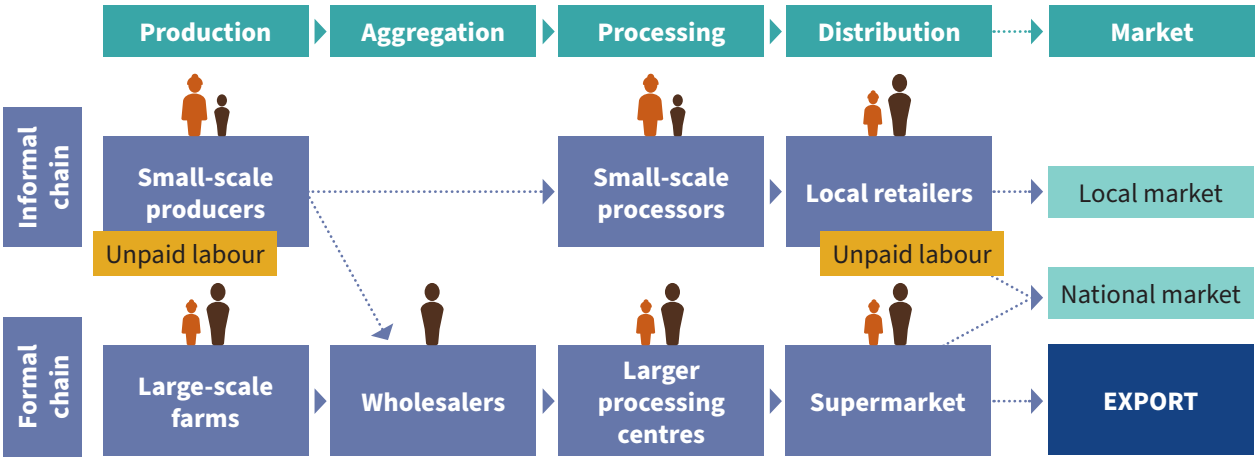
Who are the main actors – women and men – involved in each node of the chain?

What are the functions each actor plays in each node – the roles and responsibilities of women and of men?

What are the main constraints women and men face in carrying out their activities?

What are the linkages among actors and value flows along the nodes of the chain?

Figure 8. Gender-sensitive mapping: product flow and value chain actors



Source: FAO. 2018a. Developing gender-sensitive value chains – Guidelines for practitioners. Rome. https://www.fao.org/3/i9212en/I9212EN.pdf

Climate resilience and disaster risk resources

Value chain actors, including producers, transporters, collectors, processors and retailers, can better cope with climate change and disasters through coordinated action, taking advantage of available resources such as information, early warning systems and green technology. Due to gender-based inequalities, women often are left out of the planning and implementation of adaptation actions. This reduces their opportunity to access key resources and services and limits their capacity to adapt to climate change and deal with risks, compromising the efficiency of the value chain nodes in which they operate.

The following questions are aimed at value chain actors at the different nodes, including women and men producers, collectors, transporters, processors and retailers.

It is important to specify the characteristics of the responder (sex, main activity and the node in which the responder operates, and whether the responder responds on behalf of a private or governmental entity or a producer organization).

Climate resilience (Capacity to adapt to climate change)	Disaster risk	Technical capacity	Gender-equality factors
• What are the observed and predicted impacts of climate change for the geographical area in which the chain operates (region or ecological zone)? • Do you have access to information on current and future climate risks? • Which nodes of the chain and which value chain actors are most vulnerable to climate change (production, aggregation, processing, distribution, marketing)? • Why are they vulnerable? • How are these nodes affected? • Are you implementing adaptation measures in your activities to better cope with climate change? • Which measures?* • What are the main barriers to adopting these practices?	• What are the most important climate-related hazards of the geographical area (region or ecological zone) of the value chain? • Do you have access to disaster-risk information? How? • Are there early warning systems operating at the local level? • If so, are these accessible to other people involved in the value chain in which you operate? • Do you know if there are local disaster-risk management plans being implemented? • If so, do you participate in the implementation?	• Do you have the capacity to monitor and analyse information on current and future climate risks? • Do you coordinate with other people involved in the value chain to plan and implement adaptation activities? • Do you have the capacity to plan and implement adaptation activities? • Are there mechanisms established for disseminating this information about climate adaptation? • If so, what are these mechanisms (private service providers, local authorities, NGOs, etc.)? • What new capacities do you need to better address the changing circumstances due to climate change and disasters?	• Which social groups (women, men, indigenous peoples, youth, etc.) within the value chain you operate in are most vulnerable to climate change and disasters? • Are those social groups highly represented in the most vulnerable nodes identified? • Do you think women have a voice in local adaptation and resilience planning processes? If not, why not? • Do local policies facilitate women's access to critical resources, services and information to cope with climate change and risks? If not, why not? • What are the main factors constraining women's adaptive capacity? • Are specific needs and priorities of women or other groups, such as youth, considered in designing measures to cope with climate change and risks?

Source: Developed by the authors for this publication, 2021.

*Measures could include: using climate-adapted seed varieties; integrated management of pests and diseases in crops, livestock and fisheries; measures to reduce soil erosion; water conservation measures; use of green energy sources for production and post-harvest processes; mixed crop/livestock farming systems; food-loss reduction measures; green labelling and certification; use of ICT-based forecasts, environmentally-sound technologies; recycling; environmentally friendly packaging.

Information for core value chain analysis can be captured through the following techniques:

- desk review of existing literature;
- individual interviews with key stakeholders involved in the targeted value chain;
- interviews at household level, involving several family members;
- mixed group discussions, followed by women's group discussion.

These techniques can be complemented using the following tools:

- **Gender-sensitive value chain analysis and mapping**

Resources are available at:

FAO. 2018a. Developing gender-sensitive value chains. Guidelines for Practitioners. http://www.fao.org/3/I9212EN/i9212en.pdf

Royal Tropical Institute (KIT), Agri-ProFocus and International Institute of Rural Reconstruction (IIRR). 2012. Challenging chains to change: Gender equity in agricultural value chain development. Amsterdam, KIT Publishers, Royal Tropical Institute. https://www.cordaid.org/en/wp-content/uploads/sites/3/2013/02/Challenging_chains_to_change.pdf

Extended value chain analysis

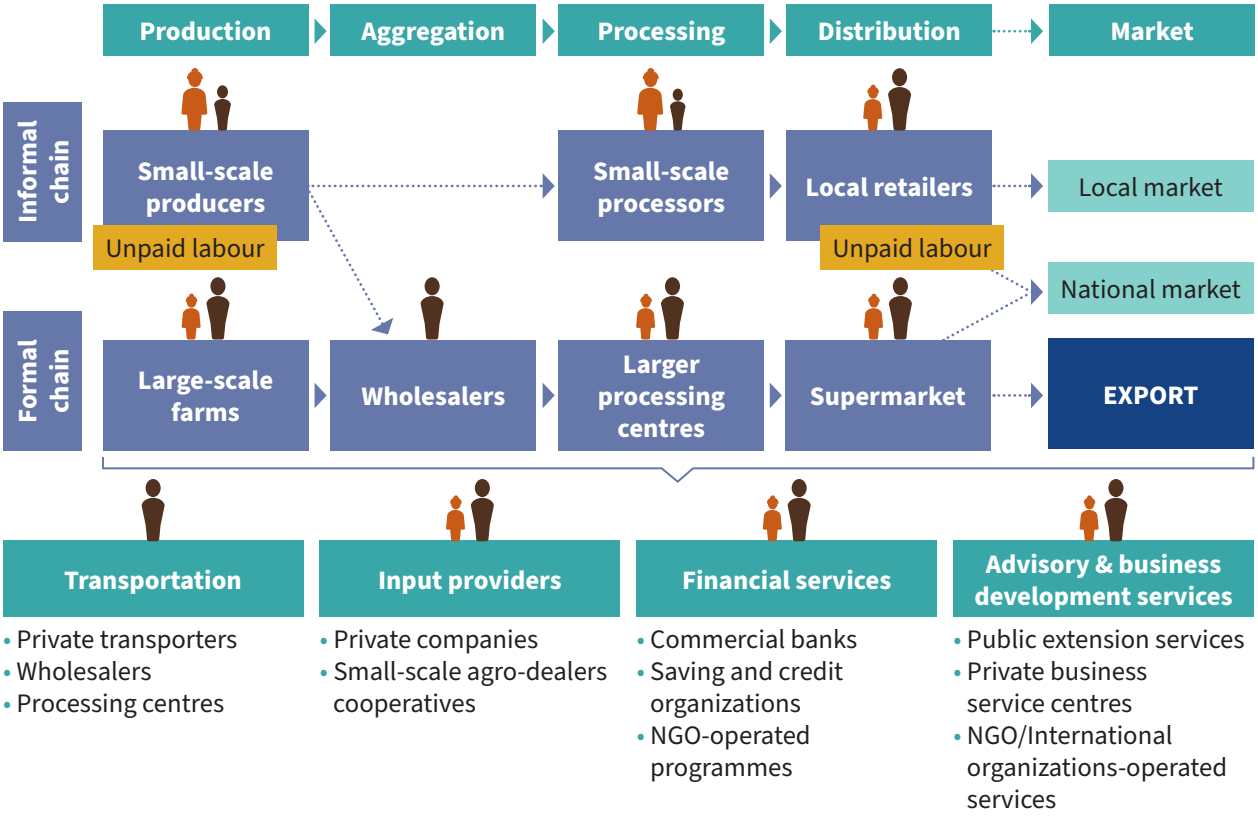
The extended value chain is another level of agrifood systems that should be analysed, according to FAO's Sustainable Food Value Chain Framework (2014). This level includes those who facilitate the operation of the different nodes of the core value chain and their value creation. This includes business development support services providing physical inputs (e.g. seeds, packaging materials), non-financial services (e.g. rural advisory services and extension, transport or market research) and financial services (e.g. loan and insurance provision) (FAO, 2016).

Identification of service providers

Value chain maps provide information related to the flow of processes through the different nodes of the chain, as well as the main actors involved and their interactions. Mapping the extended value chain expands the map to include service providers and the linkages they have with the different actors and nodes of the chain.

Who are the input and service providers supporting the targeted value chain, including extension, certification, financial and business development services, as well as those who provide market information and climate information and support climate-resilient practices?

Figure 9. Gender-sensitive mapping: support services along the chain



Source: FAO. 2018a. Developing gender-sensitive value chains – Guidelines for practitioners. Rome. https://www.fao.org/3/i9212en/I9212EN.pdf

Analysis of service providers

Service providers can play a critical role in improving value chain efficiency and sustainability. They support value chain operations by providing raw materials, linking farmers to markets, strengthening agribusiness, supporting farmers' bargaining position and creating groups and cooperatives, promoting measures to better cope with climate change and disasters, enhancing adaptation capacity, promoting the adoption of innovative technology, supporting investments and more. However, not all service providers develop gender-sensitive and climate-resilient programmes, which could play a critical role in reducing the gender gap while improving value chain operations.

Do service providers recognize women and men as value chain actors with different needs, knowledge and preferences?

Do they adapt their services to these differences?

Do service providers offer services related to climate change and disasters risk?

What are the main constraints service providers face in offering gender-sensitive services and promoting sustainable agricultural practices?

The following questions are aimed at service providers (SP), including those who provide physical inputs, non-financial services and financial services related to climate change and disaster risks.

It is important to specify the type of service provider (main services provided, the node of the chain in which it operates, and if it is a private or governmental entity or a producer organization).

Climate resilience (Capacity to adapt to climate change)	Disaster risk	Technical capacity	Gender-equality factors
• Do you have access to information on current and future climate risks affecting your clients? • Do you provide support for the implementation of any measures that are in place or have been identified to better cope with climate change in the different nodes of the chain?* • How are the services you provide compromised due to climate change?	• Are the services you offer often compromised or affected by disasters? • Do you have access to disaster risk information? How? • Do you participate in local disaster risk management initiatives? • Do you follow information provided by early warning systems to inform your clients?	• Are you involved in research, planning and implementation of adaptation measures related to the targeted value chain? • Do you have the capacity to monitor and analyse information on current and future climate risks? • Do you coordinate with your clients (value chain actors) and have the capacity to plan and implement adaptation activities? • Do you have mechanisms in place to disseminate this information (radio campaigns, training, meetings, etc.)? What are the mechanisms? • Do you have mechanisms in place for value chain actors to prevent and address climate change (insurance, credits, recovery funds, etc.)? What are the mechanisms?	• Have you identified the social groups within the value chain nodes that are most vulnerable to climate change and disasters? • Which are the most vulnerable groups? • Do you offer differentiated services to women and men to cope with climate change and disasters? • If so, which services could be considered women-friendly and women-targeted? • Do you have internal policies to enhance gender equality in disaster prevention and climate adaptation activities? • Do you have a gender parity policy to ensure women staff or extension workers reach women clients?

Source: Developed by the authors for this publication, 2021.

*Practices could include: use of climate-adapted seed varieties; integrated management of pests and diseases in crops, livestock and fisheries; measures to reduce soil erosion; water conservation measures; the use of green energy sources for production and post-harvest processes; mixed crop/livestock farming systems; food-loss reduction measures, use of ICT-based forecasts, environmentally sound recycling technologies; environmentally friendly packaging; low emission processing and transportation.

Information for extended value chain analysis can be captured through the following techniques:

- desk review of existing literature;
- individual interviews with key service providers involved in the targeted value chain;
- online surveys (e.g., survey monkey).

These techniques can be complemented using the following tools:

- **Gender-sensitive value chain analysis and mapping**
- **Rural services gender assessment**

Resources are available at:

FAO. 2018a. Developing gender-sensitive value chains. Guidelines for Practitioners. http://www.fao.org/3/I9212EN/i9212en.pdf

Royal Tropical Institute (KIT), Agri-ProFocus & International Institute of Rural Reconstruction (IIRR). 2012. Challenging chains to change: Gender equity in agricultural value chain development. Amsterdam, KIT Publishers, Royal Tropical Institute. https://www.cordaid.org/en/wp-content/uploads/sites/3/2013/02/Challenging_chains_to_change.pdf

FAO. 2008. Disaster risk management systems analysis. A guide book. https://www.farm-d.org/app/uploads/2019/05/FAO_DISASTER_RISK_MANAGEMENT.pdf

Petrics, H., Barale, K., Kaaria, S.K. and David, S. 2018. The Gender and Rural Advisory Services Assessment Tool. FAO. https://www.fao.org/3/CA2693EN/ca2693en.pdf

Analysis of national/international enabling environment

The national/international enabling environment determines the conditions under which value chain actors and support providers operate. The main clusters that shape the national/international enabling environment, all of which interact with, and therefore affect, the economic viability of the value chain, are the following:

- **legal frameworks, policies and regulations related to the targeted value chain (FAO, 2014);**
- **societal elements, which include sociocultural, institutional, organizational and infrastructure elements, as well as consumer trends shaping demand and ultimately determining the value of agrifood products (FAO, 2014);**
- **type of ecosystem, which determines the quality and accessibility of soils, air, water, biodiversity and other natural resources, as well as climate-change impacts and disaster risks.**

Legal frameworks, policies and regulations

This level of analysis will reflect the relevance of the targeted sector and specific value chain in terms of food security and nutrition, employment and the strategic character of the natural resources. Specifically, it will reflect the institutionalised guidelines according to which the state regulates sector operations, incentivises the sector and enhances economic growth. This includes trade policies, national adaptation plans, public policies on rural employment and mechanisms to reduce the gender gap, such as decent work with equal pay for equal work, rural finance mechanisms targeting rural women, certification programmes and labelling women's products.

What are the main institutions that regulate the sector in which the value chain operates?

What are the policies, programmes and regulations that govern the sector and the targeted value chain?

What are the enabling factors that enhance women's and men's participation and benefit in the value chain in terms of legal frameworks, policies and regulations; and what are the main constraints?

Societal elements

These elements include sociocultural, institutional and organizational aspects that act at formal and informal levels. At the household level, social norms, attitudes, behaviours and biases shape expectations regarding the gendered division of labour within the household. They also determine "appropriate" roles, jobs and responsibilities in the value chain for women and men of different ages and socioeconomic status. This, in turn, determines the distribution of resources and decision-making power, privileges and rights. For example, customary rights regarding the ownership of land and other assets generally favour men as they are considered the heads of households.

Societal aspects also influence consumer trends, shaping demand and ultimately determining the value of agrifood products. Understanding the preferences and behaviours of consumers and other players in the value chain enables value chain actors to better position their products in a given market structure.

What are the social norms that enable women´s engagement in the targeted value chain, and what are the limiting factors?

Is the demand for the products generated through the targeted value chain growing and what are the new trends?

What are the market opportunities for this product?

Geographical location and type of ecosystem

The type of natural resources that are used in the value chain is highly determined by geographic location. Furthermore, different ecosystems will influence value chain operations and how women and men participate. For example, production systems and transportation in mountainous zones will differ from those in wetlands. The geographic location of value chain operations will also influence the type of climate and disaster risks that threaten the value chain. An additional aspect influenced by geographic location is the available infrastructure, such as communication and transportation infrastructure, which are key to reaching markets, but also to responding to and recovering from climate events and disasters. Understanding climate events and disaster risks will guide value chain actors to better cope with them and take advantage of available resources to adapt and respond appropriately.

What are the characteristics of the geographic location and the ecosystem that impact the targeted value chain?

The following questions are aimed at governmental institutions that regulate and support the sector and value chain operations, including those involved in research, design and implementation of adaptation plans.

It is important to indicate the type of institution and how it is related to the targeted value chain.

Climate resilience (Capacity to adapt to climate change)	Disaster risk	Technical capacity	Gender-equality factors
• What are the most important climate-related hazards the targeted value chain has experienced recently? • Which groups or economic sectors along the value chain are most vulnerable to climate change? • Which nodes of the value chains are the most affected and in what ways?	• What are the most significant disasters that have impacted the targeted value chain in the past? • Is the geographical area of the targeted value chain particularly vulnerable? If so, in what ways? • Is the government engaged in disaster risk management planning and implementation that affect the targeted value chain? • If so, which ministries or government agencies are actively involved?	• What institutions are involved in research, planning and implementation of adaptation measures and disaster response? • Does the government undertake vulnerability assessments to inform policy design and policy interventions for climate change adaptation? • Is the government monitoring and analysing current and future climate change and disaster risk information related to the targeted value chain? • If so, is this information being disseminated? How? To whom? • Are early warning systems (EWS) operating at the national level? • Does the government have national adaptation plans or programmes in place?	• Are policies and programmes on climate change and disasters gender-sensitive? • Are they developed based on a gender analysis? • Do policies and programmes explicitly support the empowerment of women? • Are women involved in adaptation planning? • Are gender issues included in national adaptation plans and agricultural policies?

Source: Developed by the authors for this publication, 2021.

Information regarding the analysis of the national/international enabling environment can be captured through the following techniques:

- desk review of existing literature;
- individual interviews with key stakeholders involved in the targeted value chain.

These techniques can be complemented using the following tools:

- **Gender-sensitive value chain analysis**

Resources for the above are available at:

FAO. 2018a. Developing gender-sensitive value chains. Guidelines for Practitioners. http://www.fao.org/3/I9212EN/i9212en.pdf

Royal Tropical Institute (KIT), Agri-ProFocus & International Institute of Rural Reconstruction (IIRR). 2012. Challenging chains to change: Gender equity in agricultural value chain development. Amsterdam, KIT Publishers, Royal Tropical Institute. https://www.cordaid.org/en/wp-content/uploads/sites/3/2013/02/Challenging_chains_to_change.pdf

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This guidance note focuses on the gender and climate change nexus in the specific context of agrifood value chains. The purpose of this publication is to facilitate gender analysis in value chain operations, considering climate change effects, in order to enhance adaptive capacities of value chain actors. It aims to facilitate the analysis of the factors that determine gender-differentiated vulnerability to climate change and risks. It is intended for use by practitioners and service providers, including governments, civil society and academia, to guide interventions within the agrifood sector.

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