

Part 1: Concepts and tools

A. Introduction

It is widely accepted that agricultural development will be severely curtailed without addressing the risks and capitalizing on the opportunities posed by climate change (FAO, 2010b). The agriculture sector must adapt to the impacts of climate change in order to provide food security to the world's growing population. At the same time agriculture must mitigate its contributions to climate change (13.5 percent of global greenhouse gas emissions) in order to slow the progression of this global challenge (FAO, 2009).

Concurrently, it is internationally recognized that addressing gender issues in agriculture reduces hunger and poverty. In fact, it is estimated that more than 100 million people could be lifted out of poverty if women had the same access to and control of resources as men (FAO, 2011a). Although they are important food producers and providers, women presently have limited access to and control of resources. However, to date, these ideas – that climate change and gender issues are integral parts of agricultural development – have not been implemented in an effective way.

This guide seeks to fill that gap by supporting work to investigate the gender dimensions of responding to climate change in the agriculture and food security sectors. The final goals are to improve food production, livelihood security and gender equality in the context of the changing climate.

B. How to use the guide

1. The purpose and objectives of this guide

The purpose of this guide is to promote gender-responsive and socially-sensitive climate change research and development in the agriculture and food security sectors through participatory approaches. The guide focuses on the household and community level. It provides users with resources and tools for collecting, analysing and sharing gender-sensitive information about agricultural communities, households and individual household members who are facing climatic changes.

The objectives of the guide are:

- To sensitize users to the links between socio-economic and gender issues in the context of climate change in the agriculture and food security sectors;
- To develop the capacity of users to utilize Participatory Action Research (PAR) tools in gathering socio-economic and gender-sensitive information for climate change research and development;
- To help users understand how to analyse field research outputs in a field research setting;
- To apply knowledge gained beyond research to promote gender-sensitive adaptation and mitigation activities in agriculture.

2. The audience

The guide is intended for agricultural development professionals who are using field-based research in their work with households and communities to respond to the impacts of climate

change, prepare for future climate risks and impacts of climate change or modify agricultural practices to reduce contributions to climate change. It is anticipated that users of this guide have a prior knowledge of agriculture and development issues and some experience with PRA, but limited experience incorporating gender issues in the context of climate change into their work.

3. Major topics and content of this guide

First attention is given to the linkages between economic, environmental, social and institutional patterns that affect individuals in the agricultural sector within the context of climate change. Both opportunities and constraints for agriculture and food and livelihood security development are identified.

Second, understanding gender, wealth, ethnicity, caste and other social differences in communities and households is considered fundamental to understanding livelihood strategies and priorities of different socio-economic groups. Special efforts are made so that the poor and marginalized groups are ensured a voice in the process of responding to and preparing for climate change.

Third, this guide provides tools specifically designed to support a gender-sensitive participatory process that focuses first on an analysis of the current situation, and second, on planning for the future.

Table 1.0: Guide's parts and modules

PART I	
Introduction	provides an overview of the guide with exercises and tips aimed at training users of the present guide;
Module 1	explains key gender terms and gender analysis frameworks;
Module 2	builds on module 1 to explain key climate change issues in the agriculture and food security sectors with a gender analysis approach;
Module 3	is a tool box of participatory research tools that can be used in field research;
Part II	
Module 4	provides guidance to users on how field work can be prepared using the concepts of modules 1 and 2;
Module 5	presents a work plan for carrying out field research on gender and climate change among agricultural households;
Module 6	consists of a reporting format for reporting on field research; and
Module 7	explains how data generated by the field research can be analysed.
Part III	
Annexes	1: Glossary, 2: Additional Resources and 3: Bibliography

It should be noted that in Part I, Modules 1 and 2 provide an overview of the importance of understanding climate change and food security issues in a gender-sensitive manner. Module 3 focuses on a range of possible participatory research tools aimed at understanding the linkages

between gender, climate change and food security. In Part II, Modules 4–7 outline a research effort designed to address three particular research topics of interest to the CCAFS program: climate analogues, weather information, and climate-smart agriculture. These refer to three intervention areas that CCAFS has prioritized in its initial stages, and is conducting research on in order to test some of the approaches described in Part 1. The objectives of this learning approach are to: 1) see how well the tools help us address complex gender and social-differentiation questions related to these potential areas of intervention, and 2) to generate research results that will inform and improve the design of future CCAFS and partner research and development efforts. Part II provides important information on how to rigorously implement these research tools, use a sampling strategy, and think about analysis and reporting on the findings from such approaches right from the beginning of study planning. It is hoped that this example will help (and indeed, be used by) future study teams that may have additional research questions, as the same framework can be applied and additional modules added, for example. Thus readers may want to consult both Parts I and II.

4. What this guide does not cover

This guide addresses multiple dimensions of climate change in agriculture and food security, but it is not exhaustive and you are advised to consult additional resources on issues such as disaster risk management (see Annex 1). This guide focuses on the gender and socio-economic dimensions of agriculture and food security in the context of climate change. If you would like to enhance your understanding of the physical science basis of climate change, you are strongly recommended to consult FAO's E-Learning Tool, "*Planning for Community Based Adaptation to Climate Change*" which is available on CD or [ONLINE](#) (FAO, 2011f).

C. Key concepts related to climate change

In carrying out research on gender and climate change in the agriculture and food security sectors, it is important to bridge disciplines, cultures and different fields of practice and it is helpful to be familiar with the terms used by practitioners. The following list presents key terms used in this guide. Many of the definitions are adapted from the definitions of the Intergovernmental Panel on Climate Change (IPCC), which refers to a group of governments that periodically ask scientists from around the world to come together and assess the state of knowledge around the causes and impacts of climate change. As a result it is typically viewed as the definitive source of information around climate change. Where necessary, definitions from different disciplines are included in order to clarify variations in approaches. Please refer to the list of the sources below. It is recommended that you review this list and consult it as a reference, in addition to consulting the more extensive glossary in Annex 1.

Table 1.1: Key concepts related to climate change

Adaptation	IPCC Definition: Adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation (Source 4 in the end of this Table). In other words, addressing the impacts of climate change.
	Other Definitions: Outside of the climate change discourse, natural science disciplines use the term <i>adaptation</i> to “broadly refer to the development of genetic or behavioural characteristics which enable organisms or systems to cope with environmental changes in order to survive and reproduce.” Social science disciplines, including anthropology, archaeology, and political ecology, utilize the term <i>adaptation</i> in reference to human systems; according to Denevan, “cultural practices that allow societies to survive (and beyond that, flourish) in the context of changing circumstances are considered adaptations” (Adapted from Source 9).
Adaptive capacity	IPCC Definition: Adaptive capacity is the ability or potential of a system to respond successfully to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities or to cope with the consequences (Adapted from Source 4). It includes adjustments in both behaviour and in resources and technologies. Adaptive capacity varies with social characteristics such as gender.
Food Security	Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (Source 13).
Mitigation	IPCC Definition: An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases (Source 4). In other words, reducing the causes of climate change.
	Other Definitions: Note that outside the climate change discourse, <i>mitigation</i> often has a different, almost opposite, meaning. In the context of Disasters, <i>mitigation</i> means: measures taken to limit the adverse impact of natural hazards and related environmental and technological disasters. Examples of mitigation are the retrofitting of buildings or the installation of flood-control dams, and specific legislation (Source 7).
	In other words, in the context of climate change, the word <i>mitigation</i> refers to reducing the <u>causes</u> of climate change, while in other contexts, the word <i>mitigation</i> refers to reducing or lessening a negative <u>outcome</u> .
Resilience	IPCC Definition: Amount of change a system can undergo without changing state (Source 4).
	Other Definitions: Many disciplines use the term <i>resilience</i> , for example, a sociological definition is: The ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change (Source 10; consult this source for additional definitions).
Risk	IPCC Definition: Risk combines the magnitude of the impact with the probability of its occurrence, and captures uncertainty in the underlying processes of climate change, exposure, sensitivity and adaptation (Source 14).
(Carbon) Sink	Any process, activity or mechanism that removes a greenhouse gas, an aerosol, or a precursor of a greenhouse gas or aerosol from the atmosphere (Source 4).
Stakeholders	IPCC Definition: Person or entity holding grants, concessions, or any other type of value that would be affected by a particular action or policy (Source 4).
	SEAGA Definition: Stakeholders are all the different people and institutions, both insider and outsider, who stand to gain or lose, given a particular activity (Source 8).
Vulnerability	Climate Definition: Vulnerability is the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system or social entity is exposed, its sensitivity, and its adaptive capacity (Source 6).
	SEAGA Definition: Vulnerability is the extent to which a household may be adversely affected and rendered more food insecure by possible future events. Several factors influence a person or household’s vulnerability in a crisis. These include events that undermine household food supplies and access by: (i) Loss of own food production or stocks; (ii) Loss of income and/or tradable assets; (iii) More difficult economic access to food (e.g. due to price increases), and (iv) Break-down of traditional support systems (Source 8).
	Vulnerability of a Food System to Environmental Change: A function of exposure to an environmental hazard, which is mediated by social factors and institutions, which combine to determine the adaptive capacity and hence the overall vulnerability of the food system (Source 15).

Sources of definitions:

1. SEAGA Field Level Handbook. WWW.FAO.ORG/SD/SEAGA/DOWNLOADS/EN/FIELDEN.PDF

2. FAO Gender website. WWW.FAO.ORG/GENDER/EN/
3. FAO The FAO Gender and Development Plan of Action (GaD PoA) 2002–2007. WWW.FAO.ORG/DOCREP/005/Y3969E/Y3969E00.HTM
4. FAO publication of IPCC glossary. WWW.FAO.ORG/CLIMATECHANGE/65923/EN/
5. FAO E-Learning Tool, *Planning for Community Based Adaptation to Climate Change (CBA)*, which is available on CD or at: WWW.WEBGEO.DE/FAO-WEBGEO-2-INTRO/.
6. FAO Climate Change and Bioenergy Glossary. [HTTP://WWW.FAO.ORG/CLIMATECHANGE/65923/EN/](http://WWW.FAO.ORG/CLIMATECHANGE/65923/EN/)
7. Norman M. Messer. 2003. The Role of Local Institutions and their Interaction in Disaster Risk Mitigation: A Literature Review. WWW.FAO.ORG/DOCREP/006/AD710E/AD710E00.HTM#CONTENTS
8. SEAGA for Emergency and Rehabilitation Programmes - Module 2: Foundation (SEAGA overview). WWW.FAO.ORG/DOCREP/008/Y5702E/Y5702E04.HTM
9. Smith, B. and J. Wandel. 2006. Adaptation, adaptive capacity and vulnerability. *Global Environmental Change*. 16 (2006) 282-292. (Also available at [HTTP://WWW.SCIENCEDIRECT.COM/SCIENCE/ARTICLE/PII/S0959378006000410](http://WWW.SCIENCEDIRECT.COM/SCIENCE/ARTICLE/PII/S0959378006000410))
10. Adger 2000 in Brand, F.S. and K. Jax. 2007. Focusing the Meaning(s) of Resilience: Resilience as a Descriptive Concept and a Boundary Object. *Ecology and Society*. 12(1): 23. (Also available at [HTTP://WWW.ECOLOGYANDSOCIETY.ORG/VOL12/ISS1/ART23/](http://WWW.ECOLOGYANDSOCIETY.ORG/VOL12/ISS1/ART23/))
11. IPCC website. WWW.IPCC.CH
12. UNFCCC website. WWW.UNFCCC.INT
13. Rome Declaration on World Food Security. [HTTP://WWW.FAO.ORG/DOCREP/003/W3613E/W3613E00.HTM](http://WWW.FAO.ORG/DOCREP/003/W3613E/W3613E00.HTM)
14. Schneider, S.H., S. Semenov, A. Patwardhan, I. Burton, C.H.D. Magadza, M. Oppenheimer, A.B. Pittock, A. Rahman, J.B. Smith, A. Suarez and F. Yamin, 2007: Assessing key vulnerabilities and the risk from climate change. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 779-810. Page 782.
15. Ingram and Brklacich, 2002 in Ericksen, P. J. 2008. What is the vulnerability of a food system to global environmental change? *Ecology and Society* 13(2): 14.(Also available at [HTTP://WWW.ECOLOGYANDSOCIETY.ORG/VOL13/ISS2/ART14/](http://WWW.ECOLOGYANDSOCIETY.ORG/VOL13/ISS2/ART14/))

Module 1: Conceptual framework: gender issues and gender analysis approaches

In this module, you will:

- explore the definitions of 'gender' and 'sex';
- understand what the key gender issues are in agriculture and food security; and
- learn about the gender analysis frameworks you will use to address gender issues in climate change research in the agriculture and food security sectors (continued in next module 2).

A. Defining gender

“**Gender** refers not to male and female, but to masculine and feminine - that is, to qualities or characteristics that society ascribes to each sex. People are born female or male, but learn to be women and men. Perceptions of gender are deeply rooted, vary widely both within and between cultures, and change over time. But in all cultures, gender determines power and resources for females and males” (FAO, 2011b).

Gender is a central organizing factor in societies, and it can significantly affect the processes of production, consumption and distribution. In fact, the influence of gender on rural people’s lives and livelihoods is so substantial that “by any indicator of human development, female power and resources are lowest in rural areas of the developing world. Rural women make up the majority of the world's poor. Notwithstanding recent improvements in their status, they have the world's lowest levels of schooling and the highest rates of illiteracy. In all developing regions, female-headed rural households are among the poorest of the poor.” (FAO, 2011b) Social and economic inequalities between men and women undermine food security and hold back economic growth and advances in agriculture (FAO, 2011a).

In other words, gender often constrains women to an unequal position in society in comparison to men. The goal of development interventions, legal and institutional strategies is **gender equality**. This means equal participation of women and men in decision-making, equal ability to exercise their human rights, equal access to and control of resources and the benefits of development, and equal opportunities in employment and in all other aspects of their livelihoods.

Enhancing gender equality and promoting women’s empowerment has been enshrined in many international commitments, including the United Nations Millennium Development Goals, the Universal Declaration of Human Rights and the Convention on the Elimination of All Forms of Discrimination Against Women. Despite international commitments, gender inequalities persist.

One way toward reducing gender inequalities is through the pursuit of **gender equity**, which means “fairness and impartiality in the treatment of women and men in terms of rights, benefits, obligations and opportunities. By creating social relations in which neither of the sexes suffers discrimination, gender equity aims at improving gender relations and gender roles, and achieving gender equality. The essence of equity is not identical treatment - treatment may be equal or different, but should always be considered equivalent in terms of rights, benefits, obligations and opportunities” (FAO, 2011b). FAO recommends that development must encompass rural women's long-term needs and aspirations, their decision-making power, and their access to and control of

critical resources such as land and their own labour (Ibid.). The reason for this is that it is typically women's needs that have been overlooked, hence there is a specific need for their inclusion. However, we should also bear in mind that gender equity must consider both men and women. It is important to remember that women's and men's roles are a result of negotiations and relations between them.

B. Analysing gender in the agriculture sector

Gender analysis is the study of different roles and responsibilities of men and women; their differentiated access to and control of resources; and their priority needs to better understand and address gender inequalities (FAO, 2011b).

Gender analysis requires data on mixed households, as well as on male- and female-headed households. This data is often not directly available, making gender analysis essential. This is why gender-responsive and socially-sensitive climate change research work is important – it will help pinpoint data needs and data collection approaches in the context of climate change.

Gender roles

Gender is shaped by other social factors, including country/region, ethnic group, age, economic class and religion. Gender defines the roles and relations between men and women, as well as boys and girls. **Gender roles:**

- are socially constructed;
- determine social and economic activities;
- reflect biological differences;
- vary according to regions and cultures; and
- change over time.

Gender relations are the ways in which a society defines rights, responsibilities and the identities of men and women in relation to one another. Gender relations are based on power and negotiations, and gender roles are closely linked influencing the definition and development of one another.

In addition to the roles ascribed to men and women in relation to each other, men and women each have multiple roles (see Box 1.1). “While men typically play their roles sequentially, focusing on a single productive role, women must usually play their roles simultaneously, balancing the demands of each within their limited time constraints. The gender-based division of labour ascribed in a given socio-economic setting determines the roles that men and women actually perform. Since men and women play different roles, they often face very different cultural, institutional, physical and economic constraints, many of which are rooted in systematic biases and discrimination” (ILO, 1998).

Box 1.1. Men's and women's multiple roles at community level

Reproductive role: Childbearing and rearing responsibilities, and domestic tasks done by women, are required to guarantee the maintenance and reproduction of the labour force. This includes not only biological reproduction but also the care and maintenance of the work force (male partner, oneself and working children) and the future work force (infants and school-going children). This work is usually unpaid.

Productive role: Work done by both men and women for pay in cash or kind. It includes both market production with an exchange-value, and subsistence or home production with actual use-value, and also potential exchange-value. For women in agricultural production, this includes work as independent farmers, peasant wives and wage workers. The work is both paid (but often underpaid) and unpaid.

Community managing role: Activities undertaken primarily by women at the community level, as an extension of their reproductive role, to ensure the provision and maintenance of scarce resources of collective consumption, such as water, energy sources, health care and education. This is unpaid work, undertaken in 'free' time.

Community politics role: Activities undertaken primarily by men at the community level, organizing at the formal political level, often within the framework of national politics. This is usually paid work, either directly or indirectly, through status or power.

(Moser in ILO, 1998.)

“In traditional rural societies, commercial agricultural production is mainly a male responsibility. Men prepare land, irrigate crops, and harvest and transport produce to market. They own and trade large animals such as cattle, and are responsible for cutting, hauling and selling timber from forests. In fishing communities, capturing fish in coastal and deep-sea waters is almost always a male domain.” (FAO, 2011b.) “Rural women have primary responsibility for maintaining the household. They raise children, grow and prepare food, manage family poultry, and collect fuel wood and water. But women and girls also play an important, largely unpaid, role in generating family income, by providing labour for planting, weeding, harvesting and threshing crops, and processing produce for sale.” (FAO, 2011b.) Women may also earn a small income for themselves by selling vegetables from home gardens and forest products. They spend this income mainly on meeting family food needs and child education.

Gender roles shape men's and women's **decision making** in all areas of household and community life, from agricultural decisions such as what crops to grow or when to harvest, to how to earn or spend income, what foods to eat and how to raise their children. Depending on the context, it may be typical for men and women to have different spheres of decision making or they may share decision making. An individual's decision making is shaped by the information and knowledge they possess, their level of participation (this may be dictated by social norms), the options available to them and the urgency and risk they perceive is posed by the decision.

Access to Resources

Women's unequal access to and control over resources compared to men is one of the underlying causes of global hunger. According to FAO, “the number of hungry people in the world could be reduced by more than 100 million people if women in rural areas were given equal access to the same resources as men” (FAO, 2011a). It is not only the access that is important though, control over resources, such as land titling and tenure rights are equally important issues. The reasoning is that if women were to have the same access to and control over resources as men this would provide for increased possibilities for food production by women. Women who have access to higher quality (and not marginal) resources are burdened less and are able to produce more.

The term **resources** refers to physical inputs such as land, livestock, fertilizers and mechanical equipment; human resources such as farm labour; social resources such as education and institutional resources such as extension services. The gender gap in access to resources between men and women and ways for reducing the gaps have been documented by FAO (see Table 1.2):

Table 1.2: Gender gaps in agriculture

Assets/ Resources	The gender gap	How to close the gap
Land	For those developing countries for which data are available, between 10 percent and 20 percent of all land holders are women, although this masks significant differences among countries even within the same region. The developing countries having both the lowest and highest shares of female land holders are in Africa.	Closing the gap in access to land and other agricultural assets requires, among other things, reforming laws to guarantee equal rights, educating government officials and community leaders and holding them accountable for upholding the law. It also involves empowering women to ensure that they are aware of their rights and able to claim them.
Labour Markets	Farms run by female-headed households tend to have less labour available for farm work because these households are typically smaller and have fewer working-age adult members. Furthermore, women have heavy and unpaid household duties that take them away from more productive activities.	Women’s participation in and access to rural labour markets requires freeing women’s time through labour-saving technologies and the provision of public services. It also entails raising women’s human capital through education, eliminating discriminatory employment practices and capitalizing on public work programmes.
Financial Services	Access to credit and insurance are important for accumulating and retaining other assets. Smallholders everywhere face constraints in accessing credit and other financial services, but in general, female smallholders have less access to loans, for example, as they generally have less control over the types of fixed assets necessary as collateral for loans. Female smallholders may also face institutional discrimination where they are offered smaller loans than male smallholders.	Closing the gap in financial services requires legal and institutional reforms to meet the needs and constraints of women and efforts to enhance their financial capacity. Innovative delivery channels and social networks can reduce costs and make financial services more readily available to rural women.
Education	Education has seen improvements in gender parity at the national level, with females even exceeding male attainment levels in some countries, but in most regions women and girls still lag behind. The gender gap in education is particularly acute in rural areas, where female household heads sometimes have less than half the years of education of their male counterparts. Nevertheless, recent years have shown significant gains, especially in primary school enrolment rates for girls.	Women’s groups and other forms of collective action can be an effective means of building relations and networks and addressing gender gaps in other areas as well, through reducing transactions costs, pooling risks, developing skills and building confidence. Women’s groups can be a stepping stone to closing the gender gap in participation in other civil society organizations and government bodies and improve access to education.
Technology	Women are much less likely to use purchased inputs and improved seeds or to make use of mechanical tools and equipment. In many countries women are only half as likely as men to use chemical fertilizers. One of the underlying reasons being the obstacles of access to credit.	Improving women’s access to agricultural technologies can be facilitated through participatory gender-inclusive research and technology development programmes, the provision of gender-sensitive extension services and the scaling up of Farmer Field Schools.

(FAO, 2011a.)

FAO concludes that “while the size of the gender gap differs by resource and location, the underlying causes for the gender asset gap are repeated across regions: social norms systematically limit the options available to women” (FAO, 2011a). In addition, the gains from closing this gap include higher productivity, reduced hunger, women’s empowerment and other social and economic benefits.

Needs

Because the roles of men and women in societies are often different, their needs vary accordingly. With relation to promoting gender equality, women's needs can be distinguished as either practical gender needs or strategic gender needs (see Box 1.2). By distinguishing between these needs and the related constraints in meeting them, it is possible to differentiate between needs that relate to women's daily life (practical) and those that could transform current gender roles and relations.

Box 1.2. Practical and strategic gender needs

Practical gender needs are the needs women identify in their socially accepted roles in society. Practical gender needs do not challenge gender divisions of labour and women's subordinate position in society, although they arise out of them. Practical gender needs are a response to immediate perceived necessity, identified within a specific context. They are practical in nature and often reflect inadequacies in living conditions such as water and energy provision, health care and employment.

Strategic gender needs are the needs women identify because of their subordinate position in society. They vary according to particular contexts, related to gender divisions of labour, power and control, and may include such issues as legal rights, absence of domestic violence, equal wages and women's control over their bodies. Meeting strategic gender needs assists women to achieve greater equality and change existing roles, thereby challenging women's subordinate position and aiming towards their own empowerment.

(Moser in ILO, 1998.)

C. Gender analysis of food security

Food security exists when all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2011c).

Food security consists of four components: *availability, stability, utilization and access*. Gender issues are a cross-cutting factor in all four dimensions of food security (see Table 3 below).

“Food security analysed at the household level is conditioned by a household's own *production* and household members' *ability* to purchase food of the right quality and diversity in the market place. However, it is only at the individual level that the analysis can be truly accurate because only through understanding who consumes what can we appreciate the impact of socio-cultural and gender inequalities on people's ability to meet their nutritional needs”. (World Bank, et al., 2009.)

D. SEAGA approach to gender analysis

There are multiple frameworks for gender analysis. In essence, they all ask the question “Who?”. See Box 1.3. for some examples of classic gender analysis questions. Asking these questions can help you understand how gender impacts the way societies and communities work. In this guide we use similar questions under each topic.

Table 1.3: Gender issues related to the four components of food security

Components	Definition	Gender Issues
Availability	Food availability means sufficient quantities of food of appropriate quality, supplied through domestic production or purchase.	Women and men each play key roles in food production, “however the asymmetries in ownership of, access to, and control of livelihood assets (such as land, water, energy, credit, knowledge and labour), negatively affect women’s food production... [In addition,] insecurity of tenure for women results in lower investment and potential environmental degradation; it compromises future production potential and increases food insecurity...The lower production reduces not only women’s potential income, but also the availability of food for household consumption” (World Bank, et al., 2009).
Stability	Stability means having access to adequate food at all times.	“Individuals whose access to an adequate diet is conditioned by seasonality are food insecure and are generally called seasonally insecure. Individuals who normally have enough to eat but become food insecure in the face of disasters triggered by economic, climatic, and civil shocks (war and conflict) are transitorily food insecure” (Ibid.). Differences in risk and vulnerability between men and women can affect the stability of their food security in different ways. “During times of crisis, women and girls are often forced to reduce their intake in favour of other household members” (Ibid.).
Utilization	Utilization means utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met.	“Women’s role in food utilization for food security is perhaps the most critical and outweighs the importance of their role in food production and how they spend the income they earn...Women are typically responsible for food preparation and thus are crucial to the dietary diversity of their households” (Ibid.).
Access	Food access refers to access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet and to produce and sell food for consumption and the market.	Food distribution within the household can vary according to one’s gender. Although food may be available, adequate amounts to maintain nutritional intake may not necessarily be as accessible by women compared to men based on hierarchy within the family. Therefore, access to food within a household is determined by cultural practices and power relationships within the family.

Box 1.3. Classic gender analysis questions

Who does what? How? Where? When? Why? (Labour)

Who uses what? How? Where? When? Why? (Access)

Who controls what? How? Where? When? Why? (Decision-making and control = power)

Who knows what? How? Where? When? Why? (information = power)

Who benefits from what? How? Where? When? Why? (benefit-sharing)

Who is included in what? How? Where? When? Why? (participation)

(Hill, 2011.)

This guide uses the Socio-Economic and Gender Analysis approach (SEAGA). Developed in 1993, SEAGA is an approach to development based on the analysis of socio-economic patterns and participatory identification of women’s and men’s priorities and potentials. SEAGA tools help promote understanding about community dynamics, including the linkages among social, economic

and environmental patterns. They help clarify the division of labour within a community, including divisions by gender and other social characteristics, and facilitate the understanding of resource use and control, as well as participation in community institutions.

The SEAGA approach is a useful framework for integrating gender issues into climate change work in the agriculture and food security sectors because it facilitates the examination of the social dynamics that may shape how different members of a community and a household experience and respond to climate changes. This approach, by putting people at the centre, is one way toward ensuring that climate change related projects, initiatives and policies meet the needs of those who will be most affected. In addition, the participatory nature of this approach ensures that those who will respond to the impacts of climatic changes on their livelihoods on a day-to-day basis are engaged in the process as actors and are fully engaged in implementing climate change solutions.

Using the SEAGA approach will enable you to:

- capture the diverse views, needs/priorities, experiences and visions among members in a community;
- ensure participation of men and women and equitable distribution of benefits;
- support decision-making that reflects the views, needs and priorities of men, women and vulnerable groups: and
- understand the institutional context and make plans for how institutions can support community members, especially disadvantaged groups.

The SEAGA approach has three guiding principles:

- Gender roles and relations are of key importance.
- Disadvantaged persons and groups are a priority in development initiatives.
- Participation is essential for sustainable development and climate change adaptation.

Each of these guiding principles is described below in more detail.

Principle 1. Gender roles and relations are of key importance

“Gender equality is defined in various ways, but tends to refer to five main components: rights, opportunities, value, situation and outcome and agency” (UNDP, 2010). In the context of climate change, differences and inequalities in these five areas mean that men and women often have different capacities to adapt to or mitigate climate change. In addition, risk perception and willingness to adapt/act are important components of responding to climate change.

Furthermore, as an intervention coming from the outside, climate change adaptation or mitigation activities could reinforce existing inequalities by maintaining power and resources in the control of those who already have it.

Principle 2. Disadvantaged persons and groups are a priority in development initiatives

Disadvantaged groups are those most likely to lack resources to satisfy their basic needs such as food, water, energy, health services and housing. The disadvantaged are a priority because they are the most vulnerable to the impacts of climate change. In addition, the elimination of poverty is essential for achieving sustainable adaptation and mitigation solutions. While women are generally disadvantaged in comparison to men, it is not necessarily always so. Also, women are not

necessarily a homogenous group, and other group attributes must be taken into account when identifying disadvantaged groups. These attributes include age, education, race, ethnicity, religion, income level and location.

Because communities are composed of a number of different groups – some more powerful than the rest, some particularly disadvantaged, and some that may be in direct conflict with each other – there is room for many differences of opinion and widely varying needs. Even within one household, decisions are more often based on compromises between different members' priorities rather than on total agreement. But it is those individuals and households, who lack control over resources essential for survival and adaptation, that are most constrained in their efforts to meet basic needs, resulting in suffering and a waste of human resources. Furthermore, often the most vulnerable groups are those that are food insecure.

Principle 3. Participation is essential for sustainable development and climate change adaptation

Participation of all socio-economic groups is essential because local men and women know most about their own situation and what is needed to improve their quality of life. These insights must form the basis of climate change adaptation and mitigation activities.

Participation in climate change solutions is crucial, because local stakeholders will be responsible for implementing the activities once the project has been set up (with possible outside support). Participation enhances self-reliance and ownership of outcomes and increases the likelihood of success.

Finally, facilitating community participation can strengthen the capabilities of institutions and community-based groups to form partnerships. Climate change solutions require that multiple institutions work together and engaging them in a participatory process from the beginning can help build a foundation for ongoing collaboration.

The SEAGA approach uses a variety of PRA tools and checklists to explore the capacities, vulnerabilities, resources, livelihoods and institutions of the target population. The tools can be divided into three broad categories: context analysis, stakeholder analysis and livelihood analysis. These are summarized below.

Context analysis

Understanding the context in any particular community – the socio-economic patterns of how people earn an income and obtain other resources – is useful in understanding the patterns of vulnerability to multiple risks, including climate risks. Some questions for understanding the context for climate change adaptation and mitigation are:

- What are the important environmental, economic, institutional and social patterns in the village? Do men and women have the same views on these?
- What were past climate conditions like, what are they like now, and what are future projections? Do men and women report seeing impacts? What are women's/men's perceptions of these?
- What are the supports for climate change adaptation or mitigation? The constraints?

Livelihood analysis

Livelihood analysis focuses on how individuals, households and groups of households make their living and the access of men and women to resources and services. It reveals the activities people undertake to meet their basic needs and generate income. Some questions include:

- How do people make their living? How do the livelihood systems of women and men, boys and girls compare? How do the livelihood systems of different socio-economic groups compare?
- What are the likely climate change impacts on current livelihood strategies? Are certain sectors or groups of people more or less vulnerable? Why? What are perceptions of women and men on these?
- How diversified are the livelihood activities of men and women? Describe the activities.
- What are the patterns for use and control of key resources? By gender? By age? By socio-economic group? How will a changing climate affect the use of resources for men and women?
- What are the most important sources of income? Expenditures for each socio-economic group, including women and men? Tribal and indigenous groups?

Stakeholder analysis

Stakeholders are all the different people and institutions, who stand to gain or lose, given a particular activity. For every adaptation and mitigation activity proposed, the different stakeholders are identified, revealing where there is conflict or partnership. Key questions include:

- What adaptation activities do different men and women propose? For what?
- For each proposed adaptation or mitigation activity, who are the stakeholders? How big is their stake? What is their historical relationship to each other?
- Is there conflict between stakeholders? Is there partnership?
- How do different stakeholders perceive the risks associated with climate change? How do they perceive the benefits of mitigation and adaptation activities?
- How can short and long-term needs of different stakeholders be balanced?
- Will men and women benefit equally?
- Will men and women differentiated by wealth benefit equally?
- Is participation of women ensured? Is participation of other marginal groups ensured? By whom?
- Is access to information ensured? By whom?

Module 2: Concepts: gender and climate change issues in agriculture and food security

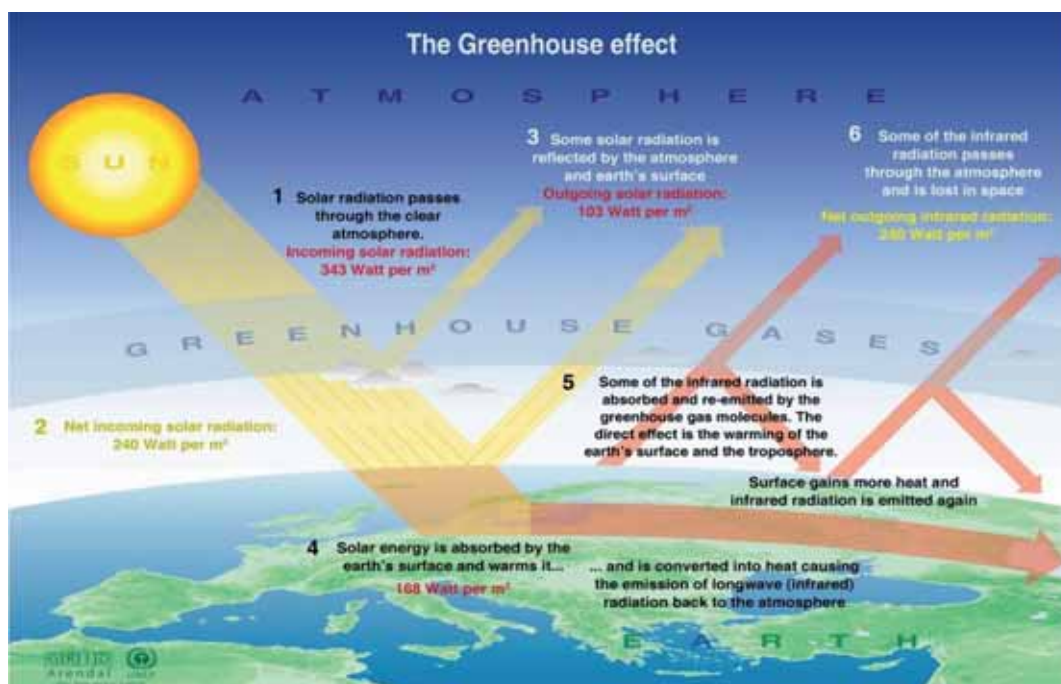
In this module you will:

- review the key concepts of climate change;
- explore climate-smart practices from a gender perspective; and
- understand the importance of researching and addressing gender issues in the context of agriculture, food security and climate change.

A. What is climate change?¹

You are probably already familiar with the environmental explanation of global climate change, as well as some of the policy responses; here is a brief summary. You are encouraged to consult additional resources depending on your level of familiarity with these issues (see Annex 1 for glossary and Annex 2 for additional resources).

Figure 1: The greenhouse effect mechanism



(GRIDA, 2011.)

1. The Enhanced greenhouse effect

The Earth's atmosphere naturally contains greenhouse gases (primarily carbon dioxide, methane and nitrous oxides) that allow solar radiation to pass through and trap heat reradiated from the Earth after it has been heated by the sun in a manner similar to a greenhouse (see Figure 1).

¹ Section 1 is based substantially on FAO 2011d.

The greenhouse effect created by these gases maintains the Earth's surface temperature at about 14°C on average; without this, the Earth's global average temperature would be closer to -19°C. The greenhouse effect is therefore essential for keeping the world warm enough for human habitation.

However, since the Industrial Revolution started in the mid-18th Century human activities that produce greenhouse gases have altered the composition of the atmosphere, leading to an enhanced greenhouse effect. The human activities that lead to greenhouse gas emissions include burning of fossil fuels for transport and energy consumption, as well as agriculture and forestry. In the agriculture sector, emissions of greenhouse gases arise from fertilizer production and use, cattle, rice production, biomass burning and other activities. Agriculture and land conversion, combined, contribute up to **one-third** of emissions leading to the enhanced greenhouse effect. Thus, the agricultural sector contributes significantly to climate change through its emissions of greenhouse gases. Consequently, there is a high potential in agriculture for climate change mitigation.

The enhanced greenhouse effect has led to an increase in the overall mean global temperature as well as changes in precipitation patterns (see box 2.1). While climate varies naturally, these significant changes cannot be attributed to natural variability alone and the role of humans in changing the climate has been determined with confidence.

Box 2.1. Scientific evidence of global climate change

Eleven of the twelve years from 1995 to 2006 rank among the twelve **warmest years in the instrumental record** of global surface temperature (since 1850).

Global mean temperature has increased at the rate of **0.74°C for the last 100 years**.

The temperature increase is **widespread over the globe** and is greater at northern latitudes.

From 1900 to 2005, precipitation **increased** significantly in eastern parts of North and South America, northern Europe and northern and central Asia but **declined** in the Sahel, the Mediterranean, southern Africa and parts of southern Asia. Globally, the area affected by **drought** has likely increased since the 1970s.

(IPCC in FAO, 2010b.)

2. Bio-physical Impacts of climate change

The implications of these changes are and will be numerous and will vary from place to place; there will be more and more intense extreme weather events and increased unpredictability globally. In summary there will be:

Increase in temperature

- Overall, the mean temperature is increasing and will continue to increase. This suggests that the coldest days will become warmer, and the hottest days will become even hotter.
- The frequency of cold days will decrease, and the frequency of hot days will increase.
- In some areas the frequency of warm spells and heat waves will increase.
- Number and intensity of wildfires will increase.

Rainfall

- Over many areas the frequency of heavy rain will increase.
- There will be an increase in number and intensity of floods and landslides.
- Drought risk will increase in many areas.

Sea level rise

- The global sea level rise is estimated to be up to 60cm by 2100; however, some important processes are not well understood yet.

These bio-physical impacts will differ in time and place, but the impacts will hit the hardest in the agricultural and fisheries sectors especially among already poor and vulnerable populations, as the resources they have access to are often marginal and already under stress. These impacts include reductions in crop yields, heat stress for people, livestock and plants: changes related to the crops, varieties and animal species and races that thrive locally; stressed water resources; and increases in agricultural prices. In essence, for people whose livelihood depends on agriculture, climate change will alter what they can do, as well as their ability to manage natural resources and access traditional safety nets. Climate change impacts also limit access to basic resources, such as water and agrobiodiversity. The impacts of climate change on all four dimensions of food security are also potentially severe as adaptive capacity and resilience diminish (see Box 2.2 Climate Change Impacts on the Four Dimensions of Food Security below).

Box 2.2. Climate change impacts on the four dimensions of food security

	Climate impacts	Gendered differences in impacts
Availability	The most direct impact of climate change on food security is through changes in food production. Short-term variations are likely to be influenced by extreme weather events that disrupt production cycles and change seasonality. Climate change impacts on the availability of food will vary geographically – temperate regions in the high latitudes will see a slight increase in productivity. However South Asia and southern Africa will suffer negative impacts on food crops, livestock, forest produce and fisheries.	Although availability has consequences for both men and women, each attaches importance to different issues. For example, men tend to focus on there being less fodder for animals; whereas women are more likely than men to focus on the implications for the well-being of their families.
Stability	Weather extremes and climate variability are the main drivers of food production instability, especially in rain-fed farming systems with limited irrigation. More research is needed especially on this issue.	A shortage of water affects both men and women, but men tend to focus on there being less water for farming and production whereas women tend to focus more on lack of drinking water and its implications on the health of their families.
Utilization	Increases are projected in weather-related disasters, such as flooding, caused by rising sea level and increased precipitation especially for coastal settlements. This is likely to lead to an increase in the number of men and women exposed to vector-borne (e.g. malaria) and water-borne (e.g. cholera) diseases. This, in turn, lowers people's capacity to utilize food effectively, which compromises their food security status.	With farming systems changing there is a risk that traditional crops for food will not be available. As women tend to be responsible for the households, food preparation and food security this is felt especially strongly by them.
Access	Access to food by all members of the population is arguably as important as food availability. Access to food is likely to be influenced by complex secondary impacts of climate change including conflict, human insecurity, migration and soaring food prices.	Women are often more vulnerable than men in conflict situations and will thus be affected more than men when access to food is threatened. Both men and women migrate in order to secure income, but women tend to be less flexible in the distances they can travel from their homes. Men travel farther away while women stay closer to home.

(FAO, 2008a & Lambrou & Nelson, 2010.)

3. Solutions – climate-smart agriculture

Definition of climate-smart agriculture: agriculture that sustainably increases productivity, resilience (adaptation), reduces or removes greenhouse gases (mitigation) and enhances achievement of national food security and development goals (FAO, 2010b).

Responding to the challenge of climate change has become a global priority. At the international policy level, the major response has been institutionalized in the United Nations Framework Convention on Climate Change (UNFCCC). Within the UNFCCC, two major approaches to addressing climate change have been established, which have also shaped the way climate change responses have been designed outside of the UNFCCC. These two approaches are mitigation (addressing the causes of climate change by lowering greenhouse gas emissions) and adaptation (responding to the impacts of climate change by reducing vulnerability). However, the end result of climate change negotiations is not the main issue in the nexus between climate change, agriculture and food security. We must start to produce food in a climate-friendly way, adopting practices that will increase productivity on existing land areas, increase resilience, reduce risks and reduce GHG emissions regardless of the progress of the negotiations, in order to reach the global development goals of peace and prosperity.

While adaptation and mitigation have been developed as distinct communities of practice in reality, we do not necessarily do only one of these at a time when responding to climate change. Especially in the agricultural and food security sectors, a strategy that may help farmers adapt to climate change impacts may also reduce greenhouse gas emissions or sequester carbon, and therefore it can also be considered mitigation. Strategies that can solve multiple climate-related purposes are increasingly recognized as an effective approach to both addressing climate change and reducing poverty. That is why agencies like FAO and the World Bank are mobilizing around the concept of Climate-smart agriculture

The idea is to promote the notion of addressing multiple goals simultaneously. In fact, by aiming to reduce poverty, address climate change and reduce food insecurity at the same time, it is possible to make more efficient use of resources. For this to happen, climate change considerations must be included in agricultural policies, investments and development activities of agriculture, extension messages and school and university curricula. Fortunately, we already know a lot of practices which are climate-smart, such as managing natural resources, soil, water and biodiversity sustainably, diversifying incomes of households, introducing more trees to the farming landscape and improving the productivity of livestock in environmentally sustainable manner. For more examples, see Box 2.3 Examples of climate-smart activities of small holder farmers.

All production systems and household livelihood strategies have to adapt to the diverse impacts of climate change. We must also manage and curb global warming. If we are unable to do this, it will not be possible to adapt satisfactorily. Hence, it is in the best interest of all farmers to adopt farming systems that help them adapt to the changing conditions and contribute to mitigation of climate change. However, this must not compromise household food security or livelihoods.

Food security is typically equated with food production. However, food security, which is an outcome of a food system, is made up of several components see Figure 1 below (Ericksen et al. 2010). The first component is food **availability**, which is the amount, type and quality of food. Food may be available through production, distribution, and exchange. The second component is **access** that can depend on the affordability, allocation, and social preferences. The third component is food **utilization**, which refers to the nutritional value of food, social value placed upon food, and food safety. These three components of food security are influenced by social and environmental welfare, which includes drivers of change, such as demographics, economics, land cover and water availability. The diagram below provides a helpful way to understand food security and what influences availability, access, and utilization.

Box 2.3. Examples of climate-smart activities of small holder farmers

Increasing use of weather and climate forecasting to reduce production risk.

Increased productivity and resilience through altering inputs, varieties and species for increased resistance to heat shock and drought, flooding and salinization; increased soil carbon content, optimizing organic and inorganic fertilizer rates to maintain production levels and grain or fruit quality while minimizing greenhouse gas emissions; altering amounts and timing of irrigation and other forms of water management for stable yields and maximum biomass production and altering the timing or location of cropping activities and local seed storage (seed banks).

Managing river basins for more efficient delivery of irrigation services and prevent water logging, erosion and nutrient leaching, making wider use of technologies to “harvest” water to maximize “crop by drop” and conserve soil moisture, use and transport water more effectively.

Improving livestock management practices for increased productivity per animal while decreasing emissions.

Matching livestock stocking rates with pasture production, altered pasture rotation, modification of grazing times, alteration of forage and animal species/breeds, integration within livestock/crop systems including the use of adapted forage crops, re-assessing fertilizer applications and the use of supplementary feeds and concentrates for increased productivity and increased carbon sequestration.

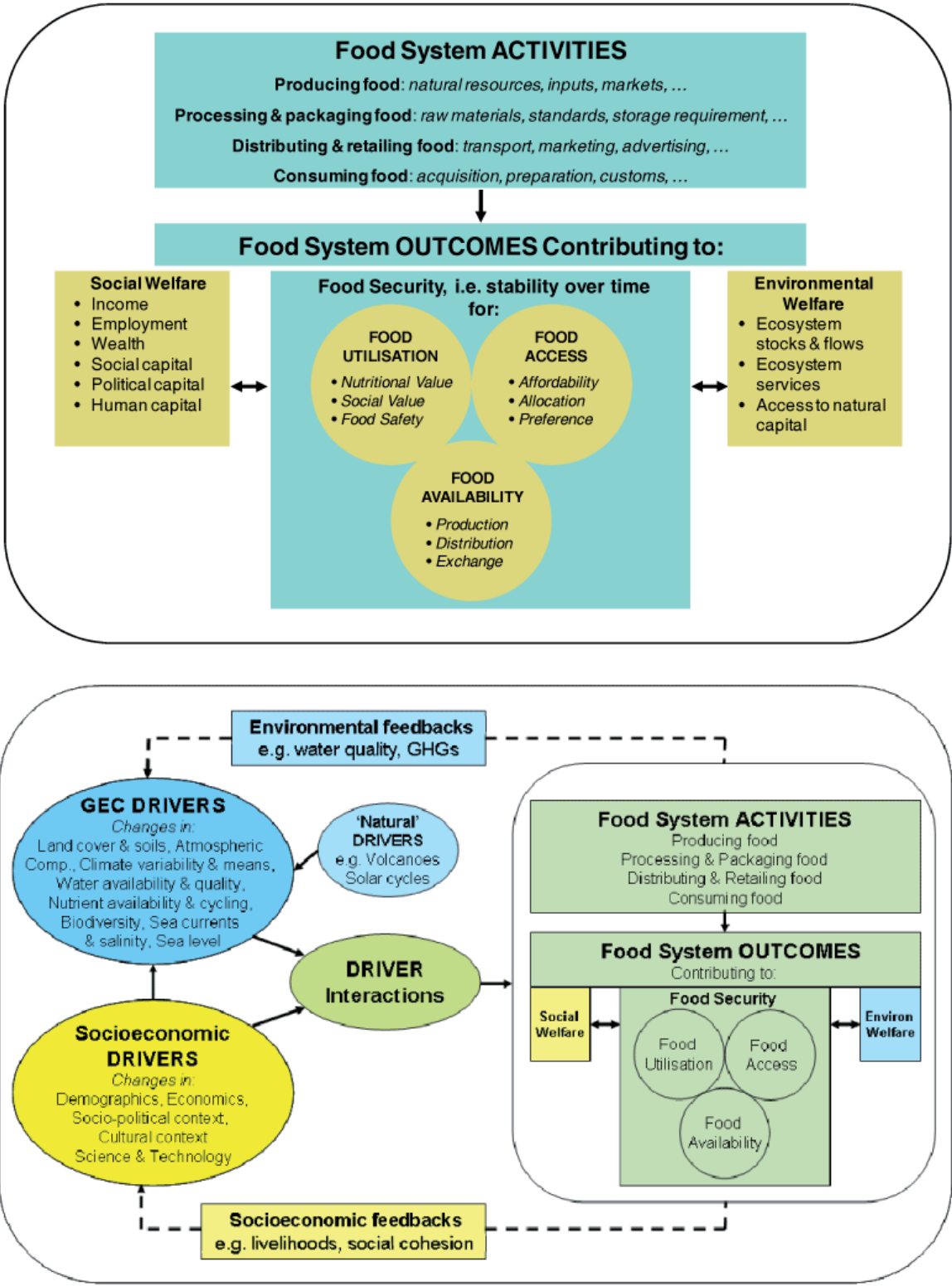
Diversifying income through the integration of activities such as marketable crops, livestock raising, fish production in rice paddies, bee-keeping and non-timber forest products.

Introducing forest conservation, agroforestry and forest-based enterprises for diversification of rural incomes, increased resilience and carbon sequestration.

Making wider use of integrated pest and pathogen management, developing and using varieties and species resistant to pests and diseases increasing productivity per used inputs; improving quarantine capabilities and monitoring programmes.

(Howden, *et al.*, 2007 in FAO, 2008b & FAO, 2010b.)

Figure 2: Food system



(Ericksen et al. 2010.)

The following will describe the gender dimensions of climate-smart agriculture and food security, drawing on the gender concepts and gender analysis frameworks presented in Module 1: Conceptual framework: gender issues and gender analysis approaches.

B. The Gender dimensions of climate-smart agriculture in the context of rural livelihoods

Adaptation

Adaptation to climate change requires making adjustments to prepare for climate variability and changing average climate conditions, in order to moderate harm and exploit beneficial opportunities (IPCC, 2007a). Adaptation can also take place in response to climate change impacts.

Most ecological and social systems have built-in **adaptive capacity**. However, the current climate variability and rapid rate of climate change are imposing new pressures that have the potential to overwhelm existing coping capacity². The indigenous knowledge of women and men farmers, forest-dependent people and fishers can be a valuable entry point for localized adaptation. The different knowledge of women and men must be acknowledged making sure that all local knowledge is gathered and treated equally. This means recognizing the advantages of and capitalizing on locally adapted crops, fish and livestock, farming systems, soil, water and nutrient management, agroforestry systems and wild fire management. It is important also to note that local knowledge about less obvious resources, such as small crops, forest food and medicinal plants is often held only by women. Nevertheless, in efforts to address complex and long-term problems caused by changing climate, indigenous knowledge often needs to be complemented by 'conventional' scientific know-how, recognizing that new scientific knowledge is also needed.

Adaptation efforts by households and communities must create the capacity to deal with increasingly difficult and more frequent conditions and gradual changes in climate, although it is often not possible to anticipate the precise nature of these. This requires a focus on capacity development at all levels recognizing the different needs and roles of men and women. The community level is, in practice, the level where most of the adaptation activities are carried out and gender conscious support actions are needed at this level. Furthermore, it is vital also to strengthen institutions dealing with monitoring, research and extension with appropriate recognition of gender perspectives, as well as social learning, innovation and development processes. If localized projections of climate change impacts are not available, it is necessary to take a precautionary approach, which means taking adaptive actions that are beneficial even if climate change threats do not occur exactly as anticipated (FAO, 2009b).

Both **risk management** and **change management** play roles in adaptation to climate change. Disaster risk management focuses on preventing, mitigating, preparing for and responding to shocks in short- and medium-term scales, while change management adds a strategic, long-term objectives to policy, legal and research frameworks. Both perspectives are interrelated and mutually complementary, providing incentives to modify behaviours and practices over the medium to long term.

When optimizing current conditions and minimizing the **vulnerability** of women and men to future changes, trade-offs, which may be gender specific, might need to be made. For example, converting

² It should be noted that coping is not equal to adaptive capacity. In fact coping strategies may even be negative from a gender or long-term perspective. But in the short term, people have no choice but to cope regardless of long-term perspectives.

mangroves into shrimp farms may increase incomes and food supply, but it might also increase vulnerability to climate extremes and climate change. Diversifying agriculture or rural livelihoods builds long-term **resilience**, but at the same time it might require new or different work input, and the control of new income is often gender specific. Another consequence might also be a decrease in income in the short-term. For people in developing countries, short-term challenges, including immediate decreases in income and climate risks, are often so important that long-term climate risks cannot be given sufficient attention. Designing responses that acknowledge both short- and long-term food security usually requires parallel processes, such as phased and iterative participatory and gender-sensitive planning alongside introduction of short- and long-term measures.

Adaptation is not accomplished in a single intervention. Rather, it is a continuum, requiring an overarching approach that incorporates interventions that range from those that address underlying drivers of vulnerability to those designed exclusively to respond to climate change impacts (ODI, 2010). The vulnerability of a system depends on its exposure and sensitivity to changes, and on its ability to manage these changes (IPCC, 2001). Climate change adaptation can thus be enhanced by i) altering exposure ii) reducing sensitivity of the system to climate change impacts and iii) increasing the adaptive capacity of the system while simultaneously explicitly recognizing genders specific consequences (OECD, 2010).

Adaptation processes need to be location-, gender- and context-specific, integrated and flexible. This is accomplished by basing the processes on climate monitoring and impact and vulnerability assessments, as well as concurrently engaging and working with both women and men stakeholders to develop institutional capacity and identify, evaluate, prioritize and select available adaptation options and tools.

Although adaptation and development are needed in both smallholder and commercial agricultural systems, the two systems present significant differences in priorities and capacities. Commercial systems are chiefly concerned with increasing resource efficiency and reducing emissions. In agriculture-based countries, where agriculture is critical for economic development, adaptation in smallholder systems is important for food security and poverty reduction, as well as for growth and structural change (FAO, 2010b).

Adaptation to variable climatic conditions is a process and has taken place for centuries. Women and men are continually modifying their agricultural practices to naturally varying climate conditions according to their specific needs, knowledge and access to resources.

Sometimes these modifications are called coping strategies, which can be described as shorter-term plans to overcome immediate challenges. These plans do not always take into account the longer term consequences. They may in fact have negative long-term impacts for users. Coping strategies help men and women to get by, but do not alter their long-term vulnerability. If they are exposed to the same climate conditions in the future (e.g. flood, drought) they will still likely be adversely affected. Conversely, adaptation suggests a more permanent shift in approach. See below Box 2.4 for examples of coping strategies of men and women.

Box 2.4. Examples of coping strategies local women and men apply

In case of harvest lost, due to drought for example, people, especially women, reduce the intake of food;

Reduce household expenditures – such as taking children out of school;

Sell assets;

Economize on the use of resources. A common strategy is, for example, shifting to other food products, such as wild food or food that needs less cooking time (these products are often less nutritious);

Use energy-saving or resource-saving devices. Many cases are known in which these technologies are introduced without adequately consulting women as users in their planning and implementation;

More time, effort and energy are put into work, particularly by local women;

Specific activities aimed at making available more natural resources and increasing their supply. Examples are women's initiatives in tree-planting and reforestation, as well as forest conservation activities;

Both women and men organize themselves. Women, who are already used to working together in the field or in the collection of natural resources, share the problems they face with each other and look into solutions together. Groups might be formed or pre-existing women's organizations take up the environmental issues in their livelihoods. Men, who are often more familiar with organized activities since they are often supported to do so for such events as village meetings, also organize themselves to tackle challenges.

Migrating to find work. Both women and men may choose to migrate to find work for example, but the distance they chose to migrate differs. Men are willing to migrate further away from home than women.

(Dankelman, 2010 and from Lambrou & Nelson, 2010.)

Experiences with past climate variability offer important lessons for understanding women's and men's vulnerability to climate variability. How and why they are exposed and sensitive to climate variability will give an idea of what may cause them to be vulnerable to climate change. In addition, understanding men's and women's past or current coping strategies can help develop longer-term adaptation plans and can be an entry point for adaptation projects. One way of approaching this is by using the Climate Analogue Approach, which is based on the idea of learning from the experience of others. See below Box 2.5 Climate analogue approach.

Box 2.5. Climate analogue approach

The Climate Analogue Approach is a new initiative developed by CCAFS with the aim of helping communities explore options for adaptation by learning from the experiences of other, 'analogous' communities. Exchanges have proved to be an important way of learning. The idea is to match a community that is likely to experience a change in climate conditions to a community that already experiences those climate conditions, allowing the community facing the change can learn from the community already coping with those conditions.

While this may seem like a highly technical approach, in essence, it is about people who are facing likely impacts of climate change exchanging ideas with other people who have already faced similar conditions. A gender-specific approach and equity in participation are key to making sure that all community members could benefit from this approach. Some of the key questions to ask are:

What do men and women, (adolescent) boys and girls want to learn from the analogue community? (needs/priorities)

Is it culturally appropriate for men and women to interact with members of another community? If there are restrictions, are there ways to overcome them so men and women can both participate in this exchange?

What is the likelihood that men and women would act on the information gained from the exchange of knowledge? (Socio-economic conditions may impact their ability to act.)

In what form will the exchange of information take place – written, verbal, or other? Do men and women have the same educational background to enable them to participate in the dialogue?

Are men and women able to travel? How far and when (both according to daily and seasonal schedules)?

The implementation of adaptation strategies can lead to changes in the social context. There can be an increase in migration, by both women and men, in search of alternative livelihood opportunities. The division of labour can shift. For example, women may take on more care giving work within the family if climate change causes negative health impacts, or women may take on new income-generating work, which could change their position in the household and increase in the number of female-headed households. Adaptation is often part of a coping strategy and not always planned, although it may be calculated to take long-term impacts into account. Conversely, the notion of mitigation, the complementary aspect of adaptation within the concept of climate-smart agriculture, does focus on long-term impacts.

Mitigation

Definition of mitigation : Climate change mitigation refers to an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases (FAO, 2011d). In other words, mitigation means taking action to reduce the causes of climate change by limiting the amount of heat-trapping gases that are emitted into the Earth's atmosphere.

For farmers in developing countries, the main aim of agriculture is to secure their livelihoods and to produce products that can be used directly or sold at the market. Mitigation is not the first activity consciously undertaken, but can be integrated into the current practices if it enhances their livelihoods. Thus, mitigation must be seen in the context of farmers' decision making. For most farmers, the emphasis will be on increasing agricultural productivity, entailing necessary adaptation to the changing climate. This could include the co-benefit of mitigation.

Projects that specifically aim to integrate mitigation activities into agricultural practices are termed carbon projects (see Box 2.6).

Box 2.6. Carbon projects in agriculture

In the agriculture sector a carbon project entails agricultural practices that mitigate climate change. These can be activities which either:

reduce emissions, for example by reducing methane emissions from livestock through the introduction of different feeds;

avoid emissions, for example by substituting fossil fuels with bioenergy produced from wood, agricultural feedstocks, residues, algae or fish waste; and

remove emissions, through agroforestry activities, for example, which can sequester carbon from the atmosphere.

When a project can account for the reduction or removal of greenhouse gas emissions, it can receive so-called carbon credits or payments for the delivery of this environmental service.

Mitigation of greenhouse gas emissions in agriculture has several approaches: (i) emissions can be reduced; (ii) emissions can be avoided or displaced, or (iii) sinks can be created to remove emissions.

To **reduce emissions from farming systems** several means are available. In the livestock sector, for example, emissions can to some extent be regulated by increasing the productivity per animal unit or through the implementation of certain production practices and more efficient use of feeds. In crop and feed production, the use of (greenhouse gas emitting) inorganic fertilizer can be optimized, or in some cases, replaced by organic fertilizers to reduce emissions. Additionally, technical changes in production systems and practices, such as manure management and water management in rice farming provide options to reduce greenhouse gases (FAO, 2006).

To **avoid emissions in the agricultural sector** energy efficiency needs improving in many systems. There is a diversity of different greenhouse gas mitigation strategies, which are highly specific to location and management practice (Schneider and Smith, 2009). Through efficient household energy systems, greenhouse gas emissions can be displaced at a relatively low cost.

Box 2.7. CASE study on the Western Kenya sustainable agriculture land management project

The Western Kenya Sustainable Agriculture Land Management Project is supported and run by VI Agroforestry and the World Bank. The project currently works with 65 000 households, and will continue to do so with over the next 30 years. Before the initiation of the project soil erosion and nutrient mining were very common in the region, agricultural productivity was very low, and there was little knowledge on sustainable agricultural practices. However, the project is changing the situation.

The aim of the project is to support the removal of greenhouse gases by promoting sustainable agricultural practices such as terracing, use of cover, mulch and fodder crops, manure management and agroforestry practices.

(Vi Skogen 2011.)

According to the IPCC (2007), the main potential for mitigation lies in **enlarging carbon sinks**, which can be described as natural carbon storages capable of storing more carbon from the atmosphere than they emit. Forests are an example of carbon sinks. There are different approaches to enlarging these carbon sinks in agriculture, such as increasing biomass (and carbon) by incorporating trees and bushes into farming systems, as is done in silvo-pastoral or agroforestry systems for example. Great potential is assumed to exist in increasing the carbon content of soils and landscapes, although whether or not this can be achieved in practice at a large scale remains to be determined. By restoring degraded soils, especially in vast grassland and pasture areas, and regulating animal numbers and improving pastures, the soil **carbon sequestration** rate (the ability of the soil to absorb carbon) is improved. It is likely that significant mitigation potential can be tapped by adopting farming practices that increase the organic matter content of the soils.

The **benefits** that arise from adopting mitigation techniques can provide the basis for farmers to take up new practices. For example, by improving the organic matter content of soils, the water retention capacity and nutrient content can be improved. Agroforestry systems can diversify income sources and enhance productivity. Diversified production systems, such as integrated rice-livestock systems, can increase the resilience of farming systems. Practices are varied and often specific to regions. Consequently now systems and practices will have to be chosen accordingly. Moreover, agricultural mitigation options need to provide adaptation, food security and rural development in order to be sustainable for farmers in the long-term.

In farm decision-making and practices, the adaptation and mitigation measures are often the same agricultural practices that also benefit farmers by increasing productivity and resilience. However, there may be important trade-offs too. In these situations, where climate-smart practices entail costs for the farmers and these changes are deemed to bring substantial benefits to the society, the farmers facing extra costs should be compensated through different payment mechanisms, rewarding these farmers for the environmental service they provide.

Mitigation on a large scale is essential for slowing the pace of climate change and will require the engagement of smallholder farmers in mitigation activities. However, for all household members to engage in and benefit from the uptake of mitigation activities, it is important to examine key gender aspects.

Box 2.8. Mitigation activities of smallholder farmers – some insights from existing projects

A recent global survey undertaken by FAO, examined 50 agricultural mitigation projects involving agriculture activities that reduce, avoid or sequester GHG emissions through the agricultural, agroforestry, forestry or bioenergy activities.

The entry point for many projects was agricultural practices that prove to be unsustainable in the specific region, such as slash-and-burn, overharvesting, conventional/traditional agriculture, low input (rain-fed rice), intensive farming systems, as well as degraded land. The mitigation projects generally brought a shift to more sustainable agricultural practices, including conservation agriculture, compost production, organic agriculture, agroforestry, improved management (coffee, livestock, manure), as well as afforestation, reforestation, forest conservation and bioenergy production.

The predominant activities in the projects were restoration of degraded soils and agroforestry. Cropland management and ecolabelling were also relatively frequent activities, as were forest management activities (conservation, plantation, forest restoration, non-wood forest management or nurseries), mangroves, rain water harvesting, organic manure and composting.

The benefits generated through the agricultural projects were numerous. Farmers were the main recipients of benefits, either in the form of payments or as a result of increased agricultural productivity. In addition, the community benefited through the recognition of its land use rights and carbon rights. Among the socio-cultural impacts, the implemented projects provided both improved knowledge of practices and helped to strengthen community institutions. Other benefits mentioned were that the projects improved the local communities' livelihoods and made it possible to retain the subsistence and cash value of the ecosystem services.

(Seeberg-Elverfeldt and Tapio-Biström, 2010.)

Mitigation is a co-benefit, which might be remunerated in the future through different payment schemes. The experience today suggests that the economic benefits will in practice come from increased productivity due to climate-smart practices. Specific payments, including carbon market payments, would not be of great importance for small farmers in developing countries.

Gender roles and decision making within the household

Adoption of climate-smart practices involves a series of decisions based on multiple goals. Men and women often attach different weight to different goals, and adoption of new farming practices will have differentiated implications to men's and women's income, labour requirements and well-being. At the household level, the main incentives are securing livelihoods and food security, reducing risks and increasing income. To achieve this farming systems and coping strategies have to be changed to adapt to changing circumstances, be it due to extreme events or fundamental long-term changes with increasing incidence of warmer temperatures, less rain or raising sea level.

Decisions regarding adaptation at the household level revolve around preparing for or responding to climate risks. Climate risks do not only affect cash crops and large livestock (areas that men are usually responsible for). Climate risks also affect household water and energy resources, health, subsistence farming (crops/livestock) and kitchen gardens (areas that women are typically responsible for). Therefore, adaptation at the household level is a continuous negotiation of how to protect the different dimensions of the household's well-being and livelihoods that are at risk due to climate change. Due to their gender roles, tasks and responsibilities and gender-based division of labour, men and women may have different perspectives on and knowledge about what is at risk and how it can be protected. Therefore the participation of both men and women in adaptation activities and projects should be encouraged, and their distinct roles in decision making should be acknowledged and supported.

Box 2.9. Carbon markets

There are many efforts underway to reduce greenhouse gas emissions and promote activities which help decrease, avoid or store carbon and other greenhouse gases. This has made carbon a valuable economic commodity. Carbon markets work in a similar way to financial markets. The currency used on these markets is carbon credits.

There are two types of carbon markets: regulatory compliance and voluntary markets. The compliance market is used by companies and governments that by law have to account for their GHG emissions. It is regulated by mandatory national, regional or international carbon reduction regimes. On the voluntary market the trade of carbon credits is on a voluntarily basis. The size of the two markets differs considerably. In 2008, carbon credits worth US\$119 billion were traded on the regulated market whereas on the voluntary market it was US\$704 million's worth of carbon credits.

Regulatory market

One of the important (Kyoto Protocol) mechanisms for the regulatory market is that of the Clean Development Mechanism (CDM). Developing countries are not obliged to reduce their GHG emissions under the Kyoto Protocol, whereas industrialised countries must fulfil specified targets. They can achieve these by reducing GHG emissions in their own country, by implementing projects to reduce emissions in other countries or by trading. This means that countries that have satisfied their Kyoto obligations can sell their excess carbon credits to countries that are having difficulties or find it too expensive to meet their targets. The idea of the CDM is that an industrialised country implements an emission reduction project in a developing country. This can be an afforestation, an energy efficiency or a renewable energy project.

Examples of CDM projects

Methane avoidance: energy, and fertilizer enterprise from dumped cattle waste in Pakistan

Biogas: methane capture and combustion from poultry manure treatment at Lusakert Plant, Armenia

Biomass production: electricity generation from mustard crop residues in India

Reforestation programme: planting trees for timber, firewood and fodder production on degraded land in Bagepalli, India

Afforestation of grassland: establishment and management of forest plantations in Tanzania

The voluntary market

The voluntary market has become very important for agriculture and forestry projects. Voluntary carbon credits are mainly purchased by the private sector. Corporate social responsibility and public relations are the most common motivations for buying carbon credits. Other reasons are considerations such as certification, reputation and environmental and social benefits. There are a number of companies that offer clients the opportunity to neutralize their carbon emissions (e.g. some airline companies offer carbon neutral flights and global financial services companies provide the equivalent amount of carbon credits). The private sector can either purchase carbon credits directly from projects, companies (e.g. Ecoscurities) or from carbon funds (e.g. The World Bank BioCarbon Fund).

In general, the voluntary market is more interesting than the regulatory market for small-scale agriculture projects in developing countries, because the CDM market has rather complex procedures and methodologies for project registration.

(FAO, 2010a.)

Key questions to be addressed are:

- What role do men and women play with regards to food security of family members?
- Who in the household is vulnerable and how? How is this vulnerability differentiated according to gender, age and other social indicators?
- What do men and women perceive is at risk due to changes in climate?
- What do men and women currently do to deal with the risks?
- Who decides what adaptation strategy to implement? Who takes action and implements the strategy and is he/she involved in the decision making?
- What are the implications of a given adaptation strategy on men's and women's use of time and labour and on their health?

- What information is needed to decide which strategy to implement? Is this information shared in the household?
- How might household and individual food security be affected by the adaptation strategy?

Adopting climate-smart practices implies that the household will make a decision to change their practices, whether the change is a modification in farming practices to reduce emissions or sequester carbon or an alteration of the household energy system to reduce emissions. This decision making is likely to take place according to gender roles and has implications for men's and women's livelihoods. The following are questions that could be asked to clarify their respective roles:

- What are men's and women's roles in decision making about agricultural practices? Do they participate equally?
- How do men and women participate in carrying out the change in agricultural practice?
- Are the implications for labour time of men and women considered when agricultural practices change?
- How might a change in the household energy system affect men and women? Could it increase or decrease the amount of time ensuring the family's energy security? Do men and women have a voice in deciding how the family's energy security is ensured?
- Does land tenure of men and women differ and does it affect their decision making on which agricultural practices to employ?

Access to resources

Men's and women's access to and control over agricultural resources is often unequal. Many of these resources are essential for adaptation to climate change. Taking women's persistent lack of access to and control over resources into consideration is thus essential when supporting adaptation strategies to improve women's access to resources, and achieve gains in agriculture and food security in the context of climate change adaptation.

Key questions include:

- What are men's and women's resources for coping with climate change?
- Do women and men access climate information that they use in responding to climate risks? In what form? Do they use this information?
- What are the formal and informal institutions that supply men and women with the resources needed for adapting, such as information, financial support and technological inputs?
- Do men and women have access to labour markets for earning an income in times of need?
- Are men and women able to access the resources they need (e.g. cash and land) when they need them?
- Who owns and controls as opposite who uses the agricultural resources in the household? Specify land, seeds, manure, livestock, pest control systems and/or other resources.
- What are men's and women's individual food security status in times of crisis? Are they equally capable of accessing the resources they need to meet their food security requirements?

The adoption of climate-smart practices by a household is based in part on the household's and its individual members' access to resources. It is not a given that male- and female-headed households, nor men and women in the same household, will have the same capacity to take up better practices, given persistent gender inequalities in access to the resources needed for adoption of climate-smart practices, such as technology and information.

Key questions include:

- What information is available to men and women, male- and female-headed households, about the various climate-smart farming practices and farming systems?
- Do men and women, male- and female-headed households, have access to the agricultural inputs, like organic and inorganic fertilizers, seeds and seedlings and veterinary services, which are a part of the climate-smart farming strategy?
- Do men and women, male- and female-headed households, receive institutional support for implementing an agricultural practice that also has mitigation benefits?
- Do men and women, male- and female-headed households, receive or have access to the technology needed for implementing an agricultural practice that also has mitigation benefits?

Strategic and practical agricultural needs of men and women

Adapting to new environmental conditions can be an opportunity for creating new social conditions. By addressing the strategic and practical agricultural needs of men and women, adaptation can contribute to development and food security goals. Men and women may have different and sometimes conflicting needs, as may male- and female-headed households.

Key questions include:

- What are men's and women's priorities in terms of short-term and long-term adaptation needs?
- Can addressing adaptation priorities meet some of the educational or resource needs of men and women?
- Does meeting men's needs compromise women's needs or vice versa?
- Are women's groups active in the community and can they support a process of social change engaged in the adaptation process and adoption of climate-smart practices?
- Is a gender-differentiated vulnerability analysis available to assess the needs and constraints of men and women?
- Are gender-sensitive approaches adopted in adaptation and risk management support?
- Climate-smart farming systems including mitigation activities, by implying a modification or change in current practices, can be an opportunity for improving the well-being, food security and equality of men and women. It is important to assess whether climate-smart approaches meet the practical and strategic needs of women in order for new improved farming systems to contribute to social transformation.

Key questions include:

- How do the proposed mitigation activities meet the practical needs of men and women, boys and girls, e.g. in meeting needs for provision of adequate water energy, health care and employment?
- How do the proposed mitigation activities meet the food security needs of men and women, boys and girls?
- Do these mitigation activities entail changes that impact men and women? What kind of changes and within which sector?
- How are the financial needs and constraints of men and women considered, especially with regards to how benefits of the mitigation activity might be distributed to meet those needs?
- How are groups such as women's organizations who are not necessarily focused on mitigation a part of the process, helping to bring forward the needs of women?
- How are women empowered and how do they participate in the decision making regarding mitigation projects?

Climate-smart agriculture is thus an important approach to supporting men and women farmers in overcoming climate change related challenges to improve livelihoods, and food security by increasing productivity and resilience, while at the same time reducing greenhouse gas emissions. As we have seen from the above it is very important to include a gender perspective in carbon projects in agriculture due to the different roles, responsibilities and circumstances of men and women.

Module 3: Field research tool box

In this module you will:

- learn best practices for preparing for and carrying out participatory research exercises; and
- understand which tools you can use to gather data on gender and Climate-smart Agriculture.
- The intention of this module is for users to get inspiration from the proposed outlines and questions, rather than following each and all the questions stringently.

A. Preparing for and carrying out participatory field research

Preparatory meeting

This approach to participatory field research builds on the idea of research being done in teams. You should thus keep in mind that the process you use in preparing for and carrying out field research is just as important as the tools themselves. You will need to establish the working methods and guiding principles of the project with your fellow team members. Before commencing field work with the communities, it is recommended that you **hold a preparatory meeting** with all the team members. The meeting may last a day or less, depending on the size of the team and the experiences of the members. The purposes of the meeting include:

- a) making the team members function as a team;
- b) clarifying the roles of each team member, including agreeing on a team contract, deciding on who is to be the coordinator and who will be the note takers etc.;
- c) familiarizing team members with the approach and the importance of participation;
- d) training team members in the approach and in necessary tools; and
- e) preparing or reviewing the work plan (including timing and frequency of site visits).

Background research

Prior to visiting the community or communities to carry out your research work, it is crucial that you carry out background research. The following lists of questions on (1) institutional settings (who are the actors) and (2) environmental, economic, and social trends will help you ensure that you identify socio-economic and gender issues from the beginning of the field visit research.

Both of these lists of questions should be explored using existing information on the area to the extent it exists, including:

- statistics and reports from government departments and ministries;
- programme and project documents from agencies and NGOs;
- studies and surveys from universities and research institutions; and
- documentation from service organizations in the local area.

Note that this background information should not lead your analysis but may help inform you of key stakeholders and issues to be aware of. Answers to the following questions may not be readily available but it is important to be aware of the local context to the extent possible.

Questions on institutional settings:

- Are there local groups that are organized around environment issues (e.g. climate change, forest user groups or water user groups)? Do both women and men participate in these?
- Are there local groups that are organized around economic issues (e.g. credit, agriculture production)? Do both women and men participate in these?
- Are there local groups that are organized around social issues (e.g. health, literacy, religion, youth)?
- Are there groups exclusively for women? If so, what is the focus of these groups? What do women gain from them? Are the groups open to all women?
- Are there groups from which women are excluded? Which ones? Why? What do the women lose due to the lack of their participation?
- Are there groups exclusively for the poor separated along gender lines? If so, what is the focus of these groups? What do the poor gain from them?
- Are poor men and women excluded from any of the local groups? If so, which ones? Why? What do the poor lose due to the lack of their participation?
- Are there groups exclusively for youth and are they separated by gender? If so, what is the focus of these groups? What do youth gain from them?
- Are there groups from which young men and women are excluded? Which ones? Why? What do the youths lose due to the lack of their participation?
- What are the links between local groups or organizations and outside institutions (e.g. NGOs, political parties and government institutions)?

Questions on local trends:

- What are the most important environmental trends (e.g. drought, deforestation, erosion or other meteorological trends)?
- What are the most important trends in agricultural production and food security?
- What are the most important economic trends, e.g. jobs, wages, prices, costs of living, crop yields and livestock population?
- What are the most important demographic trends (e.g. birth rates, infant mortality, in-migration, out-migration, increases in female-headed or child-headed households and the role of HIV/AIDS)?
- Which other trends are important (e.g. governance, social changes, in for instance the household or change in government policy)?
- What are the linkages between the trends?
- Are there linkages or causes stemming from intermediate or macro levels?
- What is getting better? What is getting worse?
- Which trends impact women and men, boys and girls differently? And how?
- Which trends impact poor men and women more than richer men and women (e.g. health, access to resources etc.)?
- Are there differences in gender roles by ethnicity, class etc.?

As you explore these issues, you should keep in mind that the questions are a starting point. When entering the community, you may find that the people you speak with perceive different trends, or prioritize challenges differently to what you found during your background preparations. In

addition, it is possible that the community uses different terms or ways to express what they perceive around them. You will need to bridge language, vocabulary and conceptual barriers. In addition, you will need to be careful not to lead the discussion toward trends you have read about, but use this information only to facilitate discussions among community members.

Preparing your work plan

Your work plan will consist of a combination of the tools in the following sections. It is advised that you carry out the tools with separate groups that represent all the different socio-economic groups in the community in which you are working to avoid fatigue among the participants. If time permits you may choose to observe community dynamics before communicating gender requirements. However, given predominant gender roles, it is recommended that men and women meet in separate groups as this will allow both men and women to speak more freely, but also allow for separate discussions on diverse issues related to gender. Working in separate groups may require flexibility in order to fit in with men's and women's separate schedules and willingness to meet at an appropriate location (e.g. in the fields). The outputs from these different groups should subsequently be assessed by you and the research team. Any differences between answers and discussions in the group should be evaluated and potential reasons for such differences should be considered. It is important to capture different points of view so that you can 'triangulate'³ your findings. Throughout your work, keep in mind the importance of triangulating the information you collect (FAO, 2001a).

You should pay a preliminary visit to members of the community (i.e. village leaders, representatives of existing groups) requesting permission to conduct research, informing them of the process, setting meeting times and organizing focus groups for community women and men.

Use a gender-sensitive approach from the beginning of your planning and from your first interactions with the community. The United Nations Development Programme (UNDP) offers the following advice on addressing gender issues in Community Based Adaptation (CBA), which could also apply to work on climate change mitigation: An initial analysis of community dynamics is imperative to determine how to most effectively address gender issues. Some CBA practitioners prefer to establish women's and men's groups respectively from the beginning of a project to ensure that the participant groups represent the different segments of the community. Conversely, other CBA practitioners choose not to communicate any gender requirements initially in order to get an unbiased insight into the community's gender dynamics first. One example of this is when a CBA coordinator attended the first meeting in a community in Niger. He first noted the presence – or absence – of different groups (e.g., according gender and/or age) for his analysis. Similarly, in Jamaica, a CBA coordinator initially observed the group dynamics within the community without commenting. Then, after observing, he decided on how to approach the situation, especially if one

³ Triangulation is a way to cross-check information for accuracy. It means looking at any problem from as many perspectives as possible, but at least three. Triangulation is achieved by using different tools to gather information on the same issue and/or listening to different people with different points of view on the same topic.

group or person seemed to dominate others, and determined how to facilitate equal opportunities for all groups to participate appropriately according to their gendered roles. (UNDP, 2010.)

This guide however recommends that groups of women and men are set up separately as their perceptions and experiences with climate change adaptation and mitigation are assumed to differ. Separate group discussions are expected to flow more freely leading to more in depth findings.

You find more information about the preparation in the Module 4: Preparing for Field Work.

B. Gender and Climate Change Research Tools

There are a number of tools that can be used to support research on gender and climate change. The ten tools in the Box 3.1. are selected tools that will be described in detail:

Box 3.1. Ten gender and climate change research tools

Tool 1. Village resources map

Tool 2. Seasonal calendar Tool 3. Daily activity clocks

Tool 4. Farming systems diagram

Tool 5. Capacity and vulnerability analysis matrix

Tool 6. Venn diagram

Tool 7. Institutional profiles

Tool 8. Changing farming practices

Tool 9. Seasonal food security calendar

Tool 10. Climate-related risk management practices

The tools can be used to gather data and information of different issues. For the use of this guide we will group the tools roughly into three headings, note that some of the tools can be used in several different contexts and others may in fact not necessarily be used at all:

Climate analogues tools

- Tool 1. Village resources map (application suggestion in Module 5)
- Tool 2. Seasonal calendar Tool 3. Daily activity clocks
- Tool 4. Farming systems diagram
- Tool 5. Capacity and vulnerability analysis matrix

The objective of these tools is to better understand how and if different vulnerable groups exchange knowledge with others, the distances villagers travel, with which villages they interact with and why they have chosen to interact with these. Furthermore, the aim is to explore if and how the climate analogue approach might include gender dimensions of analogues (as well as similar cultures, languages, resource access, for example) that goes beyond similarities of local climates that the analogue principle is based on.

Weather Forecast Tool

- Tool 9. Seasonal food security calendar

The objective of collecting climate-related information is to better understand the types of weather, climate and agricultural information, such as daily and seasonal weather forecasts, available to rural women in comparison to men, and their ability to use that information. This includes understanding the opportunities and constraints in accessing and using climate information. Moreover, the objective is to better understand the degree of intra-household sharing of climate information.

Tools for Understanding and Catalyzing Gender-sensitive Climate-Smart Agriculture Initiatives

- Tool 6. Venn diagram
- Tool 7. Institutional profiles
- Tool 8. Changing farming practices (application suggestion in Module 5)

The objective of this group of tools is first to understand gender differences in access to climate-smart agricultural interventions and opportunities by exploring institutional arrangements. This will potentially provide information supporting improved access to information and benefits linked to climate change-related interventions. Secondly, the aim is to map ongoing farming practices, both climate-smart and conventional farming practices, as a means to determine how to foster climate-smart agricultural practices.

Tool 1. Village resources map

Purpose:

The Village Resources Map is a tool that helps us to learn about a community and its resource-base. The primary concern is not with cartographic precision, but with getting useful information about local perceptions of resources by men and women. Users should determine the contents of the map focusing on what is important to them. Maps may include some or all of the following:

- infrastructure (roads, houses, buildings);
- water sites and sources (drinking water, water bodies, irrigation sources, rivers, plus entitlement and utilization);
- agricultural lands (crop varieties and location);
- agro-ecological zones (soils, slopes, elevations);
- forest lands;
- grazing areas;
- shops, markets, small industries;
- health clinics, schools and religious facilities;
- waste sites; and
- special use places (bus stops, cemeteries, shrines).

A variation of this tool is: *Resources Map of Past and Present*. This tool can be used to map resources during a period in the past (for example, thirty years ago) and at present. This can then be used to facilitate discussion of any changes in resources and linkages to changes in the environment or other factors.

Process:

The Village Resources Map is a good tool to begin with during field research because it is an easy exercise that initiates dialogue among the community and PRA team members. This exercise can be carried out with representative from different groups in the community, or it could be carried out with separate groups in order to ensure their perspectives are documented (e.g. you could create a map with men and women separately or livestock keepers and farmers separately).

A large open space should be found and the ground cleared. It is suggested to start by placing a rock or leaf to represent a central and important landmark. Participants are then asked to draw other things on the map, which are important in the village. Participants should not be interrupted unless they stop drawing, in which case questions can be asked, such as whether there is anything else of importance that should be added. Use the SEAGA Questions provided below to deepen the discussion. When the map is completed, ask the participants to describe it and to discuss the features represented. Ask questions about anything that is unclear.

Finally, you may want to ask participants to indicate some things they would like to see in their village that are not currently on the map - in other words to draw a picture of what they would like the future to look like. This allows for some preliminary planning ideas and encourages people to begin contributing their thoughts at an early stage in the participatory process.

SEAGA Guiding Questions:

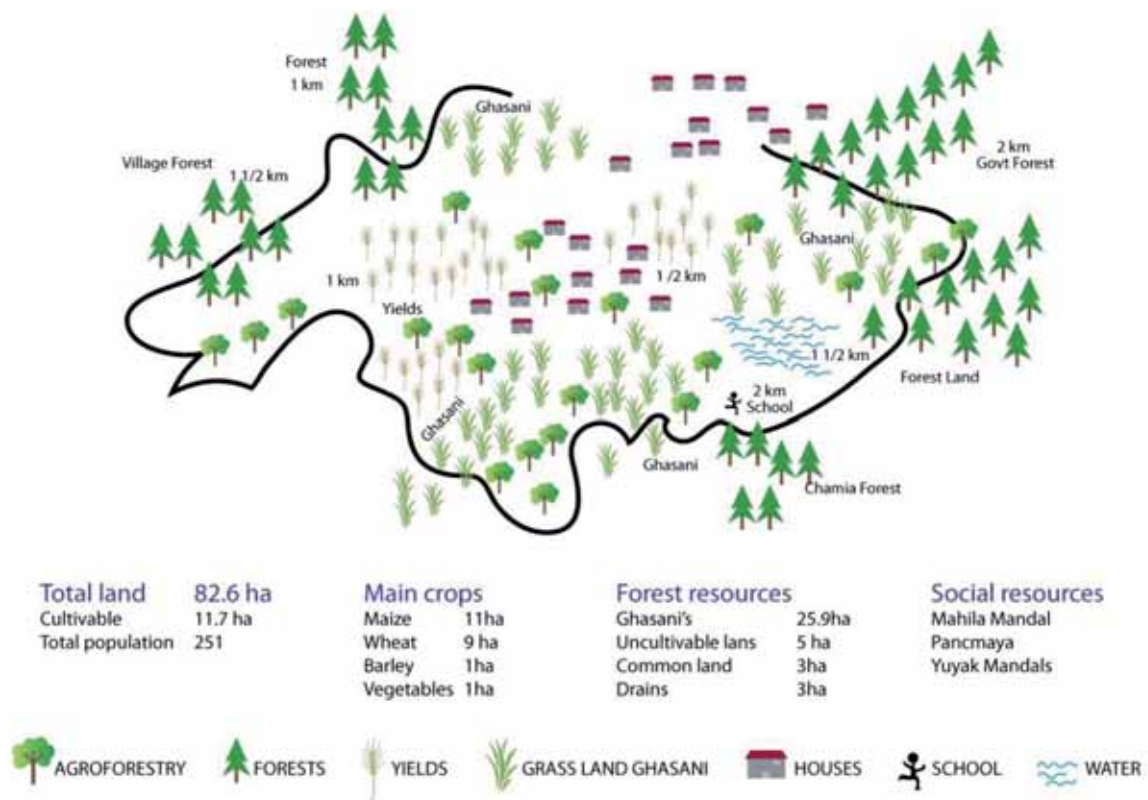
- What resources are in ample supply, which ones are in shortage? Which resources are used by men and women? Which are unused? Which are degrading or improving?
- Who makes decisions about who can use land, water and other important resources, women or men?
- Does the village have land that is held in common? Who decides how common resources will be used, women or men? Do women participate in the decision-making process?
- Where do people go to fetch water? Who collects water for the household? Women, men, girls or boys? How long does it take?
- Where do people go for firewood or other sources of fuel? Who obtains the firewood or fuel – men or women, girls, boys or both? How long does it take?
- Where are animals taken for grazing? Who manages the grazing? How long does it take?
- Are the rights of access different for women and men or for people from different ethnic or other socio-economic groups?
- Are there any conflicts over resources? Why? Who is more affected by these conflicts? Differentiate different social groups.

In addition, you can discuss the social structure of the community and record this separately, or overlay this information on the resources map. Guiding questions include:

- How many households are there? What are the sizes of households? What is the total number of people?
- Is the village growing or shrinking? Why?
- Are families polygamous or monogamous? Are living arrangements by nuclear family or by extended family? How are these defined?

- If the village has more than one ethnic group, class or religion, are they found mostly in certain areas?
- Is there a part of the village where poorer people or landless people are concentrated versus an area where the richer people are concentrated?
- What are the local definitions of 'rich' and 'poor'? Which households are rich, poor and in-between?
- How many households are female-headed? Is the number growing? Why?
- How many households are child-headed? Is the number growing? Why?

Figure 3: Example of a village resource map of Khajret – Uperli Guanguri, India



(Adapted from FAO, 2001a.)

Tool 2. Seasonal calendar

Purpose:

The seasonal calendar tool is used to guide the farmers' perceptions of typical seasonal conditions, such as rainfall amounts and timing, as well as key dimensions of food security and livelihoods. It is useful to discuss an entire year, rather than the growing season, as events over the course of the year impact each other. This tool allows for a discussion of the linkages between climate variability and specific key activities and resources that occur or are available at different points during the year. This tool can also help determine whether workloads have shifted from one season to another compared to previous years by inquiring whether the seasonal calendar has changed over time.

Process:

- Explain that you want to learn what people do in a year.
- Find two large open spaces, one for a group of men and one for a group of women. Calendars can be drawn on a large paper or on the ground or floor. Draw a line all the way across the top of the cleared space (or paper) and explain that the line represents a year – ask the participants to mark the seasonal divisions along the top of the line.
- It is usually easiest to start the calendar by asking about rainfall patterns. Ask the participants to put stones or draw circles under each month (or other division) of the calendar to represent typical amounts of rainfall (where more stones equal more rain).
- Below the rainfall, draw a line and ask the participants to fill in stones or circles indicating the amount of their labour for agriculture, with more stones equalling more labour intensive periods.
- This can be repeated with the following topics: food availability, food security (see example Tool 9. Seasonal food security calendar), water availability, income sources, expenditures, resources (e.g. information, financial such as loans, human such as labour), what is eaten, sources of food, and other key areas most relevant to your work.

SEAGA guiding questions:

- Are the overall livelihood systems fairly stable or with great seasonal variations?
- How do women's calendars compare with men's? What are the busiest periods for women? For men? For youths?
- How do resources vary over the year? Which resources are controlled by women? Which resources are controlled by men? Which resources are controlled by women and men?
- How does food availability vary over the year? Are there periods of hunger? Does this differ for men and women? Does this differ for boys and girls?
- How does income vary over the year? Are there periods of no income? Are there differences in who obtains income during the year?
- How do expenditures vary over the year? Are there periods of great expense (e.g. school fees, food purchases)? Do women and men agree on this? Who decides on these?
- Have the seasonal calendars changed over time (e.g. does planting, sowing or harvesting start earlier or later than previously)? Has the period with the biggest workload moved forward or backward?
- What are the key linkages among the different factors the participants discussed on the calendar (e.g. how do weather circumstances, such as rain fall, influence workloads, how do periods of great expense influence food availability and labour)?

Figure 4: Example of a seasonal calendar - women from Xuan Truong, Viet nam

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall		*	**	**	***	****	**** *	****	*	*	*	*
Agricultural labour	*	**	***	**** **	**** ***	****	***	**	**** **	**** **	**	****
Off-farm labour	*	*	*	*	*	*	*	*	*	*	*	*
Food availability	****	***	*				**	**	**** **	**** **	**** *	****
Water availability	*	*	**	***	**** *	**** *	**** *	****	*	*	*	*
Human diseases	*	*	*			***	***					
Animal diseases	***	***	*	*	***	***	***	*	*	*	***	***

(Each star represents a kernel of maize)
(FAO 2001b.)

Tool 3. Daily activity clocks

Purpose:

Daily Activity Clocks illustrate all of the different types of activities carried out by an (average) individual in one day. They are particularly useful for looking at relative workloads between different groups of people in the community (e.g. women, men, rich, poor, young and old). Daily Activity Clocks can also illustrate seasonal variations in workload, or the workload at particular times of the year. They can also provide a baseline of what people do now in order to understand how modifications to daily activities or farming practices may increase or decrease the tasks and work burdens of different groups.

Process:

Organize separate focus groups of women and men making sure that each group includes different age and socio-economic groups. Explain that you want to learn what participants do in a typical day. You can introduce the activity by explaining what you do in a typical day, including when you wake up, when you go to work, when you take care of your children and so forth, in order to show that you want them to describe all the activities they do in a day. Then, ask the group to draw a clock representative of what an average woman or man does in a typical day in a chosen season. **It is recommended that you focus on the daily activities during the time of year when the villagers would be implementing changes in farming practices** (e.g. the growing season or the harvest season). The clock should be representative of the average in the group, with differences between age and socio-economic groups noted. Plot each activity on a circular pie chart to look like a clock. Activities that are carried out simultaneously, such as child care and gardening, can be noted within the same spaces. If there is time, you can ask the group to perform the same exercise for a different

season. In addition, you can ask the women's group to create a clock for the average man, and ask the men's group to create a clock for the average woman. This way you can compare at a later stage men's and women's perceptions of each other's activities.

SEAGA guiding questions:

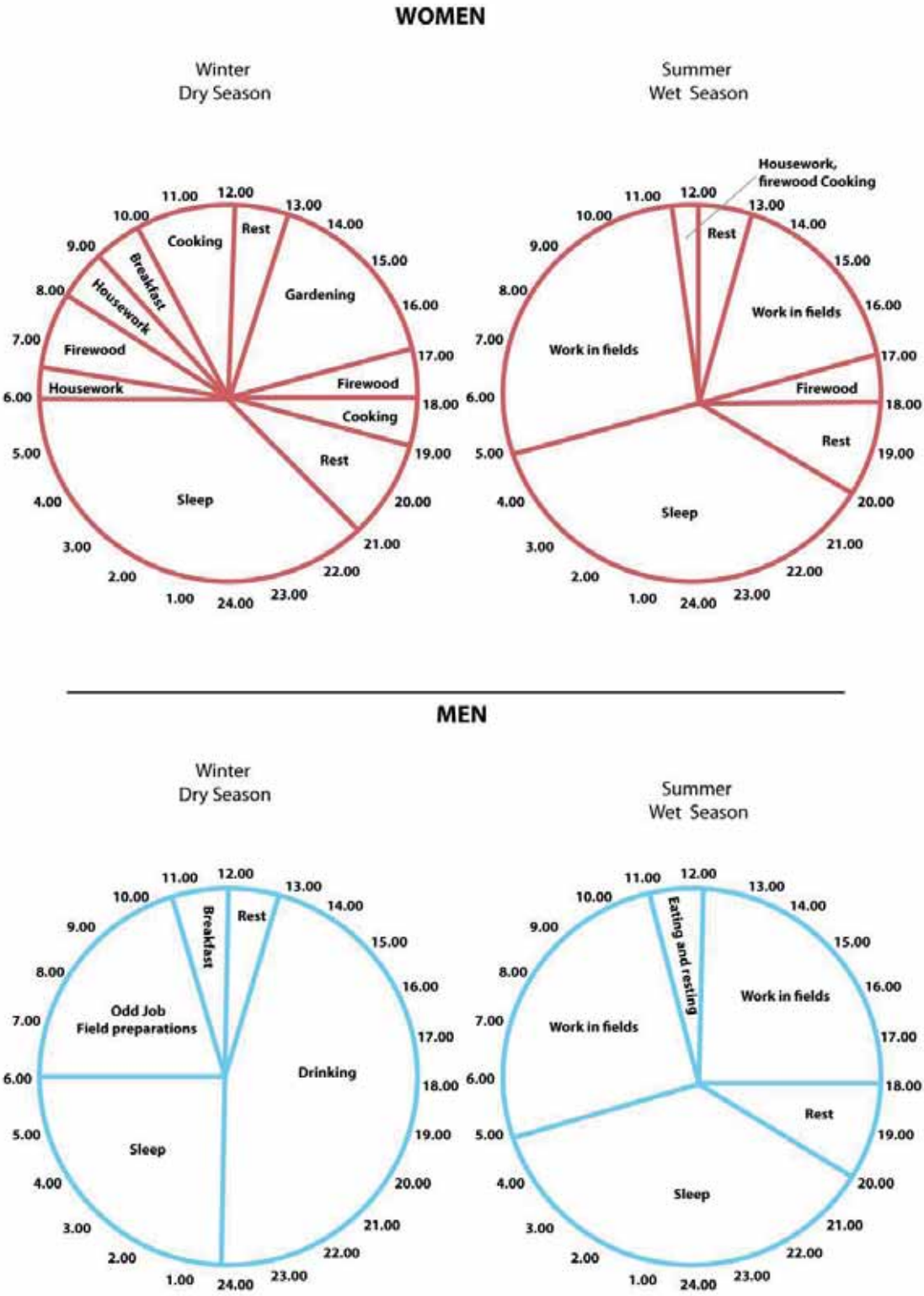
- How is women's and men's time divided? How much time is devoted to productive activities? Domestic activities? Community activities? Leisure? Sleep? How do they vary by season?
- How do the clocks from the different socio-economic groups compare?
- Where could labour time be reduced?
- Which activities involve income or remuneration?
- Who controls the income from the different activities?

The discussion can also be expanded with these questions on livelihood activities:

- What are the major agriculture activities of men and women (e.g. crop production, sowing, harvesting, ploughing, fishing, wood harvesting, livestock production, processing etc.)?
- Who is responsible for the agriculture activities – men, women, girls, boys, or a combination?
- What are the major non-agriculture livelihood activities of men and women (e.g. fuel collection, water collection)?
- Who is responsible for or spends time on the non-agriculture activities – men, women, girls, boys, or a combination?
- What are the other major income-generating activities and who carries them out (e.g. marketing, waged labour)?
- Which activities and resources contribute most to meeting the basic needs of the household?
- Which households have most diversified livelihoods? Which are most vulnerable, depending on only one or two activities or resources?
- What are key linkages between the major activities?

Regarding access to and control of resources, see Tool 1. Village resources map.

Figure 5: Example of a seasonal daily activities of women and men in Dzinavene, Chivi District, Zimbabwe



(Adapted from FAO, 2001a.)

Tool 4. Farming systems diagram

Purpose:

The Farming Systems Diagram helps clarify how rural household livelihoods are assembled. It works with input-output diagrams and stream lines. The diagram is designed to highlight the farming system, including on-farm activities, such as crop production, off-farm activities, such as fuel collection, and non-farm, activities such as marketing. The diagram also shows the flow of resources to and from the household, and who is involved, by gender.

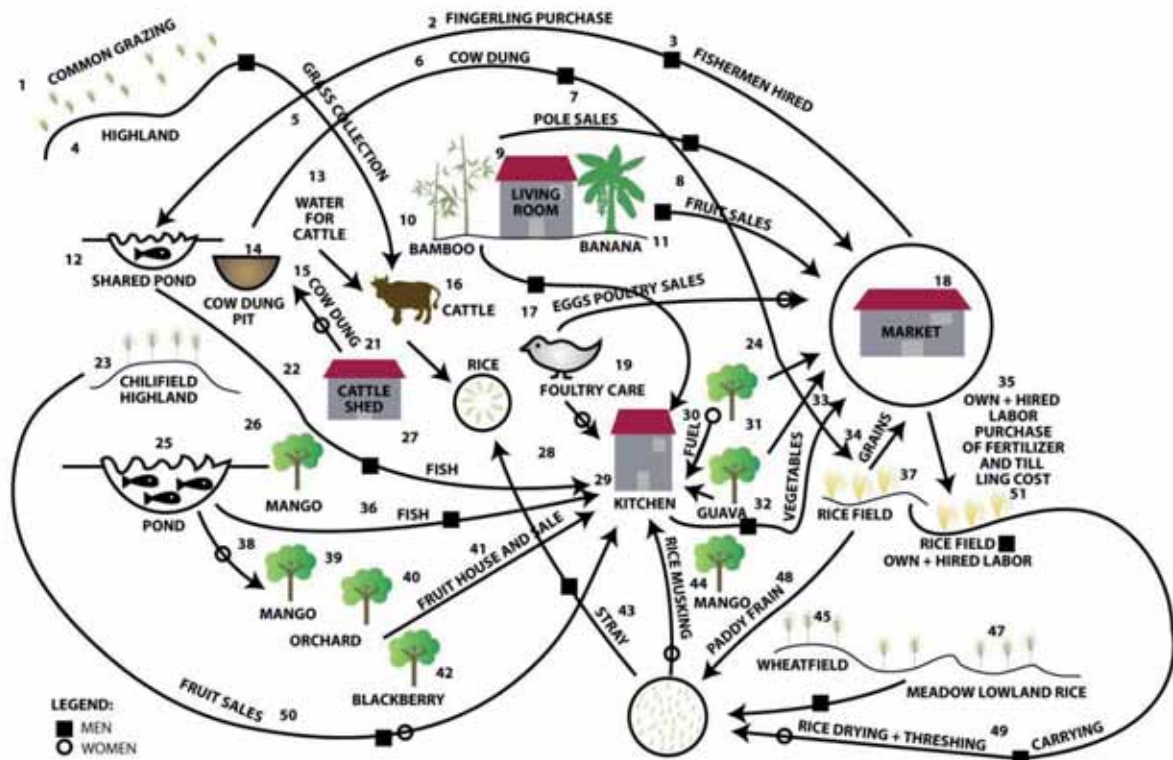
The diagram can show how livelihoods depend on different resources and where they may be vulnerable to changes in climate. The diagram can also illustrate men's and women's specialized knowledge linked to different areas of the farming system; knowledge that can be built upon for adapting to climate change.

Process:

This activity can be carried out using the map created in Tool 5, Village Resources Map, as a basis for discussion of their farming activities. Or, you can ask participants to draw a new picture depicting their farming activities. Do not forget to cover the housing area and common property areas. Be sure that the diagram shows labour and resources flows, as well as roles and responsibilities by gender. Use the SEAGA guiding questions to facilitate discussion and drawing of the diagram.

- SEAGA guiding questions (these are the same as for Tool 3. Daily activity clocks): Tool 3. Daily activity clocks What are the major agriculture activities of men and women (e.g. crop production, sowing, harvesting, ploughing, fishing, wood harvesting, livestock production, processing etc.)?
- Who is responsible for the agriculture activities – men, women, girls, boys, or a combination?
- What are the major non-agriculture livelihood activities of men and women (e.g. fuel collection, water collection)?
- Who is responsible for or spends time on the non-agriculture activities – men, women, girls, boys, or a combination?
- What are the other major income-generating activities and who carries them out (e.g. marketing, waged labour)?
- Which activities and resources contribute most to meeting the basic needs of the household?
- Which households have most diversified livelihoods? Which are most vulnerable, depending on only one or two activities or resources?
- What are key linkages between the major activities?

Figure 6: Example of a household agro-ecosystems and rural resource management, Bangladesh



(Adapted from FAO, 2001a.)

Tool 5. Capacity and vulnerability analysis matrix

Purpose:

The Capacity and Vulnerability Analysis (CVA) Matrix is used to understand the resources and needs of men and women. It also supports long-term planning to address underlying population vulnerabilities and it is an approach that can support and maximize local capacities.

Data disaggregated by sex, age, disability, health status (e.g. HIV/AIDS and malaria status), location, ethnicity or other socio-cultural factors are key to CVA; it enables a better understanding of the vulnerabilities and capacities of different socio-economic groups.

Gender analysis is embedded in CVA to make clear women's and men's roles in decision-making, their access to and control of resources and social systems of exchange.

Process:

In a CVA, three components of capacities and vulnerabilities are considered: physical and material resources; social and organizational institutions and relationships; motivational and attitudinal factors.

In using the CVA in the context of climate change adaptation, the goal is to use the matrix to make clear the capacities and vulnerabilities of different groups in the target population to the impacts of climate change. Therefore, before filling out the CVA Matrix with the target population, you must work with the participants to identify what climate conditions, such as less rainfall or a flood or

drought, they find themselves responding to. If the group is aware of longer term climate change, you could also speak about the key projected impact of climate change the participants would be responding to.

The following diagram shows an example matrix. At the top of this matrix, you can see that both capacities (what people can do, who they rely on) and vulnerabilities (what they need or lack) are listed and will thus be assessed according to gender and age. This could be simplified to include only one age group of each gender or to include another variables such as landholding (male landowners, female landowners, landless men and landless women). Listed in the left hand column are the three dimensions of capacities and vulnerabilities that are to be assessed.

Table 3.0: Capacity and vulnerability analysis matrix

	Capacities				Vulnerabilities			
	Men	Women	Boys	Girls	Men	Women	Boys	Girls
Physical and Material Resources								
Social and Organizational Institutions								
Motivation and Attitude								

The following SEAGA Guiding Questions can help you facilitate a discussion that will enable you to fill in this matrix. You do not need to go cell-by-cell in the matrix. The discussion part can be done with the women’s and men’s group together or in separate groups. The note taker should record insights from the discussion in the appropriate place in the matrix. At the end, the women’s group should produce a chart showing their views on men’s and women’s capacities and vulnerabilities, and the men’s group should produce a separate chart showing their views on men’s and women’s capacities and vulnerabilities in responding to specific climate conditions.

SEAGA guiding questions:

- What and who, women, men, girls, boys or all, is affected when there is (insert specific climate condition identified by the group (e.g. less rainfall, flooding, drought, wildfires, storm surges, salt water intrusion)?
- How are you affected? What kinds of adjustments do you make in your daily activities, including household responsibilities and work on the farm or outside the home (e.g. limit schooling, education, less employment opportunities, health status and food security decreases)?
- Do you have access to credit or savings that you rely on during this time?
- Do any of your possessions get affected, can you replace them?
- How are other members of your household affected?
- Is there anyone – a person or an organization – that helps you when you are affected by this?

- What do you not have that would help you?
- Have you ever learned techniques and processes that help you respond to this event from people in another village?
- Do you think you can cope with this change? For how long? To what extent?
- Do you have access to adequate information?
- Has migration taken place? By whom, and to where? What are the implications for agriculture and food security and for your livelihood?

Tool 6. Venn diagram on institutions

Purpose:

The Venn diagram exercise is used to document the key local groups and institutions that are utilized by the target population or that are part of providing a specific service. Moreover, it can be used to clarify linkages between different groups and institutions. It can be used on its own or serve as the foundation or a supplement for the Institutional Profiles Tool (see Tool 7).

Process:

You should organize separate groups of men and women that include a mix of socio-economic groups and ages. Ask the participants to name the various institutions, local and external, that provide services related to your area of focus (e.g. projects and activities that reduce carbon emissions related to agriculture). Encourage participants to mention informal groups too. Ask them to write the names of institutions or draw them on small cards and place them in the centre of the group, or you can write their names on a chalkboard or large piece of paper. Once the institutions are displayed for all to see, ask the participants to decide whether each organization deserves a small, medium, or large circle (to represent its relative importance). The name or symbol of each organization should be indicated on each circle of different sizes.

Ask the participants which organizations work together or have overlapping memberships. The circles should be placed as follows:

- separate circle = no contact;
- touching circles = information passes between institutions;
- small overlap = some co-operation in decision making, planning and/or implementation; and
- large overlap = a lot of co-operation in decision making, planning and/or implementation.

Ask participants to discuss and explain why they ranked the institutions the way they did. There may be much negotiation before consensus is reached. You should note down if there are any institutions from which particular groups are excluded. Deepen the discussion with SEAGA guiding questions.

SEAGA guiding questions:

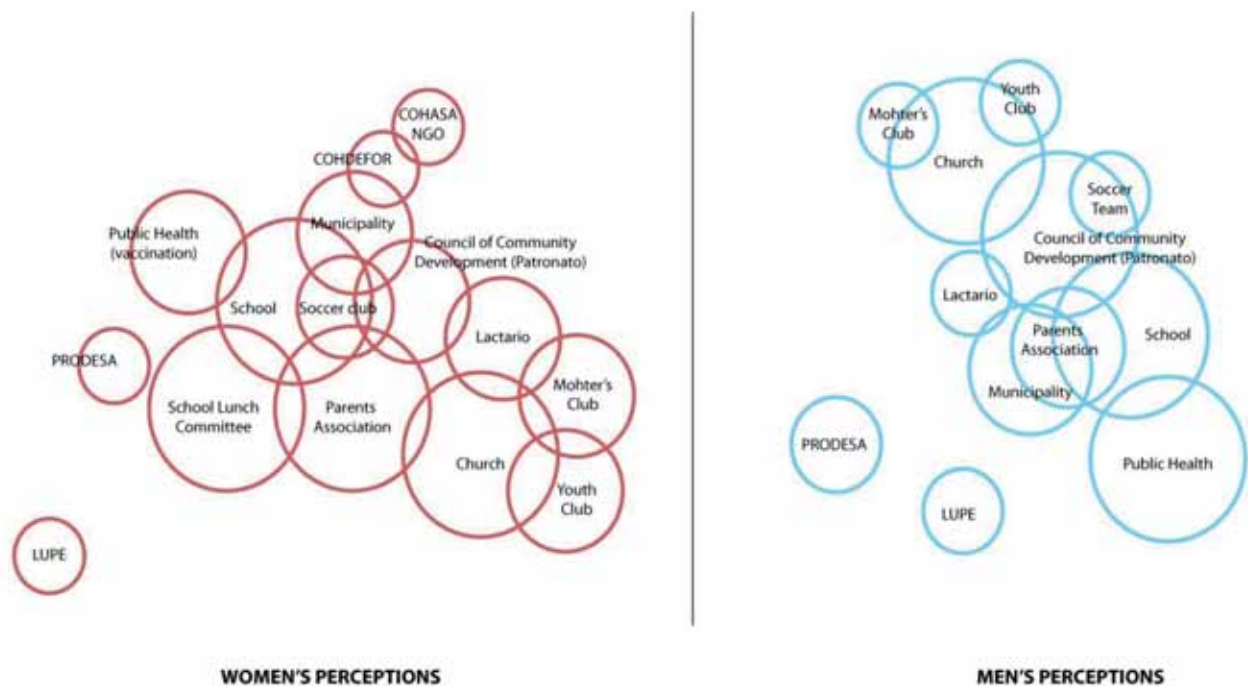
- Do women have decision making roles in the local institutions?
- Do the institutions in the Venn diagram target both men and women?
- Are there programmes specifically for women in agriculture or animal or natural resources management? If yes, what organizations are involved?

- What sources of information exist on farming practices?
- Who provides advice to men and women on taking up farming practices, such as tree planting or improved soil management techniques and cropping patterns?
- Have women provided input in institutions? If so how did the men react to it?
- Are the specific needs of young and elderly people taken into account by local institutions?

See also the SEAGA questions on local institutions and trends included in the field work preparation section in the Module 4: Preparing for field work.

The output of the exercise using a Venn diagram is a visualization of institutions present in the community. The diagram should make it clear to both participants and you as the facilitator, which institutions are central in providing specific services to the community. This can be a key tool in mapping institutions for further research and/or support to the community.

Figure 7: Example of women's and men's perceptions of institutions in El Zapote, Honduras



(Adapted from FAO, 2001a.)

Tool 7. Institutional profiles

Purpose:

The Institutional Profiles tool can help you learn about local organizations, including how they function and for what purpose. It helps clarify decision-making roles and identify any potential areas of conflict. In addition, it can be used to identify the extent to which men and women farmers can access existing institutions and identify areas of improvement.

Process:

Prepare a chart of key institutions involved in the adaptation and mitigation projects you are investigating. For each institution discuss and list at least four kinds of information: foundation date and goals, management, achievements and needs. To deepen the discussion you can ask about leadership, membership, activities, decision-making processes and interactions or conflicts with other groups or institutions.

SEAGA guiding questions:

- Who participates in the institution? What are their roles within the institution?
- Are leadership positions dominated by a particular social group?
- Do women occupy leadership positions? If so, which women?
- Who has access to the services provided by the institution? Do young and elderly people have access to the services?
- Does one group rely more on the organization than others?
- Are there areas of conflict between this organization and another?
- Which institutions have achievements related to climate change mitigation and/or adaptation?
- Which institutions have links with outside institutions? For what purpose?

Table 3.1: Example of institutional profiles of Jeded Village, Somalia

Group	Foundation and Goals	Management	Achievements	Needs
Council of Elders	<p>Founded in 1954</p> <p>Goals:..to solve community problems</p> <p>..to manage water and other community affairs</p> <p>..to develop a water schedule for nomads</p> <p>..to adjudicate disputes</p>	<p>The Council elects a Chair for a flexible term; Criteria for membership on the council include age, wisdom, and significant experience</p>	<p>..Maintaining peace in the village</p> <p>..Borehole water management</p> <p>..Sanitation</p> <p>..Education</p>	<p>..Office equipment and stationary</p> <p>..Training</p> <p>..Transport</p> <p>..Petty Cash</p>

(FAO, 2001a.)

Tool 8. Changing farming practices

Purpose:

The purpose of the Changing Farming Practices tool is to document how a change in farming practices, such as planting trees or modifying soil management and changes in external inputs,

impacts the activities of men and women. It can also foster discussion of how the change in farming practice came about, roles in decision making and access to any benefits created by the change.

Process:

Explain that you now want to understand how a change in farming practice has altered the average day of a woman or a man in their village. With the group, choose an important change in a farming practice. If there is no dominant practice, you can carry out this exercise for multiple changes. Drawing on the daily activity clock, make a list of the activities that appear on the clock. Ask the participants to describe the change that was undertaken, including how the decision was made to make the change and how the change was carried out. Then, ask the participants whether the change in farming practice led to additional activities that should be added to the list. Next, ask if the change in farming practice affected any of the activities that were already on the list. Finally, ask about how the change has affected them overall in terms of well-being, income and food security.

SEAGA guiding questions:

- What was the change that was made? Who decided to make the change, women or men?
- How did you learn about this new practice? Who provided you with information, women or men?
- Who implemented the change, women or men? What was needed to make the change? Did you need new technology? How did you go about getting what you needed to make the change? And/or was the change based on a revival of traditional knowledge systems?
- If the change required new technology, who owns the technology, women or men? Who uses it, women or men?
- Because of this new practice, did your responsibilities change at all? Did members of your household have new responsibilities?
- How did this affect the responsibilities you already had?
- Did you have more free time because of this change?
- Did you see any financial benefits or burdens from making this change? Was there an increase in income, for example? If there was income from this change, who decided what to do with it, women or men?
- Did this change impact what you ate or how much you had to eat? Did members of your household have more or less food after this change, or better or worse food?
- Did the change create any problems? For whom, women or men?
- Did you keep the change in place or return to previous practices?
- Cost-benefit analysis of the change(s).

Table 3.2: Example of categories for changing farming practices

CSA practices being pursued	Who participates? (% men, %women)	How do men and women participate?	How are benefits shared?	Constraints to participation	Strategies for empowering marginalized groups
(for example:) Tree nurseries or agroforestry initiatives					
Water management initiatives					
Soil fertility enhancement activities					
Crop or livestock productivity enhancement activities					

(CSA = Climate-smart agriculture)

Tool 9. Seasonal food security calendar

Purpose:

The purpose of the Seasonal Food Security calendar is to document connections between seasonal climate conditions and food security over the course of the year. Creating two Seasonal food security calendars, one with normal climate conditions and one with abnormal climate conditions enables you to document how food security shifts under different climate conditions. It can also be used to document coping strategies. This tool can also be used to assess whether food security has changed over time.

Process:

You can use the same calendar created in the Seasonal calendar tool. However, if the current focus group participants did not create that map, you are advised to create a new map with this group. Explain that you want to learn what people eat in a year. See example for this calendar from 52Find two large open spaces, one for a group of men and one for a group of women. Calendars can be drawn on a large paper or on the ground or floor. Draw a line all the way across the top of the cleared space (or paper) and explain that the line represents a year. Ask the participants to mark the seasonal divisions along the top of the line.

- It is usually easiest to start the calendar by asking about rainfall patterns. Ask the participants to put stones or draw circles under each month (or other division) of the calendar to represent typical amounts of rainfall (where more stones equal more rain).
- Below the rainfall, draw a line and ask the participants to fill in stones or circles indicating the amount of food available to their household in the different seasons.
- Use the SEAGA guiding questions to expand the discussion on seasonal food security. Note differences in household and individual food security.

SEAGA guiding questions, focus on food security:

- What climate conditions are necessary for you to plant your crops?
- What range of temperature or rainfall prevents you from planting what you normally plant?
- Who decides to store food or necessary assets, such as seeds? Who decides what food to buy?
- Who prepares the food?
- How does food availability vary over the year? Are there periods of hunger? Does this differ for men and women? Does this differ for boys and girls?
- Is enough fuel and water available to cook (and drink)?
- If your crops fail, where does your food come from?
- What do you do if there is not enough food to eat? What do you do if you do not have enough money to buy food? Can/do cash transfers smooth over difficult periods?
- How would you characterize the amount of food **your family** had to eat during this period? How would you characterize the amount of food **you** had to eat during this period? (Repeat these questions for different seasons.)
- How would you characterize the quality of food you had to eat during this period? Was this the same for all household members? (repeat for different seasons)
- What are your different sources of food?
- Has the amount of food available during the year changed over the past five or ten years?

Tool 10. Climate-related risk management practices

Purpose:

The aim of this tool is to capture the farmers' perceptions of cause and effect of a major past climate related events, as well as the impacts and responses, particularly with regard to food security. This tool helps to understand various risk managements strategies.

Process:

Drawing on the seasonal calendar tool results, identify a previous major climate change event with the participants, such as a severe drought or flooding. This can also be done by using a village history approach, in which older members of the community are asked to produce a timeline of major weather related events that have affected the village. Focus on the selected event and ask the participants to describe it in more detail. Ask them to describe why it was unique, the problems they faced and what kind of help was available. Discuss and list the problems/vulnerabilities and coping strategies that were employed. Have the participants draw a circle representing the major event. Have them draw lines coming off of the circle as effects of that event. Also have them note what the loss was due to these effects.

SEAGA guiding questions:

Questions related specifically to the major climate change event discussed.

- What was the effect of the event on your harvest? (This is particularly important given the difference between drought as a creeping hazard, and flood as a rapid onset.)

- When a family receives food to eat from outside, how is it distributed amongst women and men and is it sufficient for each person? Does this change during a drought?
- If food was not available, what was the alternative, what do you eat?
- Was there any change in the crops they cultivated during the major climate event (e.g. drought)?
- What happened to women during this event? What happened to men? Who was responsible for getting food, and how?
- Who was impacted the hardest, women, men, boys or girls?
- Did anyone seek alternative livelihood activities? If so, what did women do? What did men do?
- Did you change your farming activities? Did the women or men in your household change their farming activities?

Questions related to climate change events in general:

- To what extent do you think you are at risk of facing a drought or a flood (low, medium, high levels of risk perception)?
- How do you minimize risks in your family to ensure that you have food after a drought or a flood when there is a lack of food? What risk management strategies have you been using in the last five years?
- Do you have access to services such as agricultural extension, financial and/or services that you may receive from being a member of a community organization? If so, how have these services helped you manage risk and ensure access to food.
- Do you have secure land tenure? If yes, has this helped you recover from after a flood or drought? If so, how?
- How many months after a natural disaster does it take for you to feel you have enough food for yourself and your family?
- How do these risk management techniques you use maintain your food security during droughts and floods? How do they affect your income?
- In a time of weather related disaster, who is responsible for what activities in your household to cope with the disaster? Who makes decisions on what?
- What future actions do you plan to take to ensure food security?
- What is needed (differentiate male/female households and family members)?

Note: The results of the CVA Matrix can be brought in here in order to pinpoint particular areas of capacity and vulnerability which can inform adaptation and mitigation planning and interventions and help you to target key groups within the population.