



TRAINING GUIDE

GENDER AND CLIMATE CHANGE RESEARCH IN AGRICULTURE AND FOOD SECURITY FOR RURAL DEVELOPMENT



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RURAL DEVELOPMENT



THE CGIAR RESEARCH PROGRAM ON CLIMATE CHANGE, AGRICULTURE AND FOOD SECURITY (CCAFS)

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Abbreviations and acronyms

CBA	Community based adaptation
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CDM	Clean Development Mechanism
CGIAR	Consultative Group on International Agricultural Research
COP	Conference of Parties
CVA	Capacity and Vulnerability Analysis
FAO	Food and Agriculture Organization of the United Nations
GHG	Green house gas
IPCC	Intergovernmental Panel on Climate Change
NGO	Non-Governmental Organization
PAR	Participatory Action Research
PNA	Participant Needs Assessment
PRA	Participatory Rural Appraisal
SEAGA	Socio-economic and Gender Analysis
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
WTA	Willingness to accept payment
WTP	Willingness to pay

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/.
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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

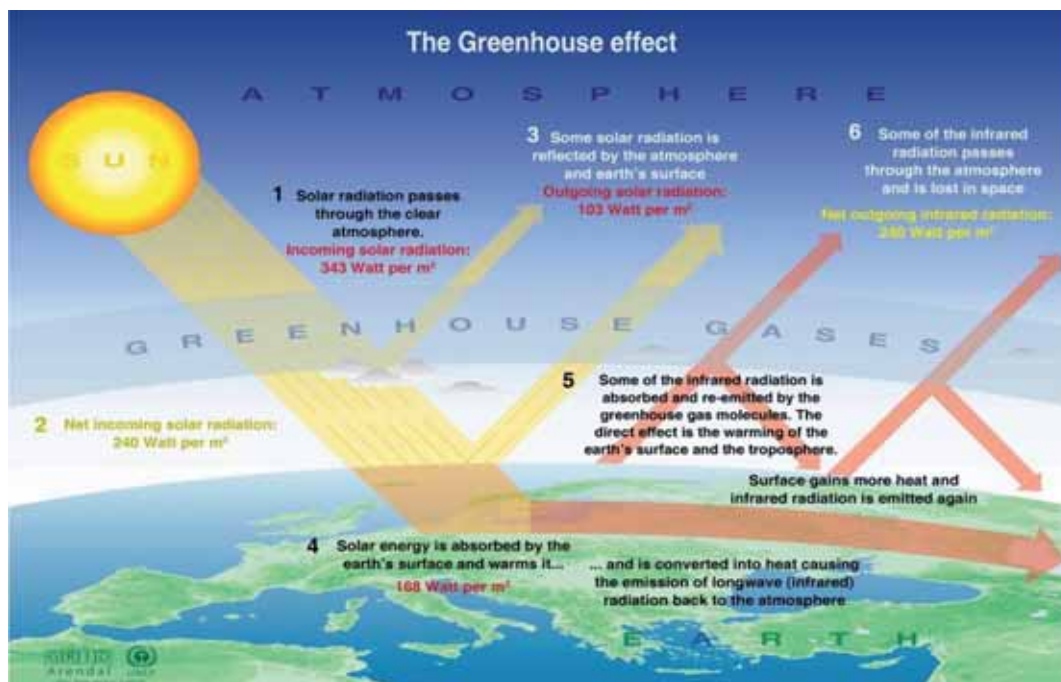
In this module you will:

- 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.

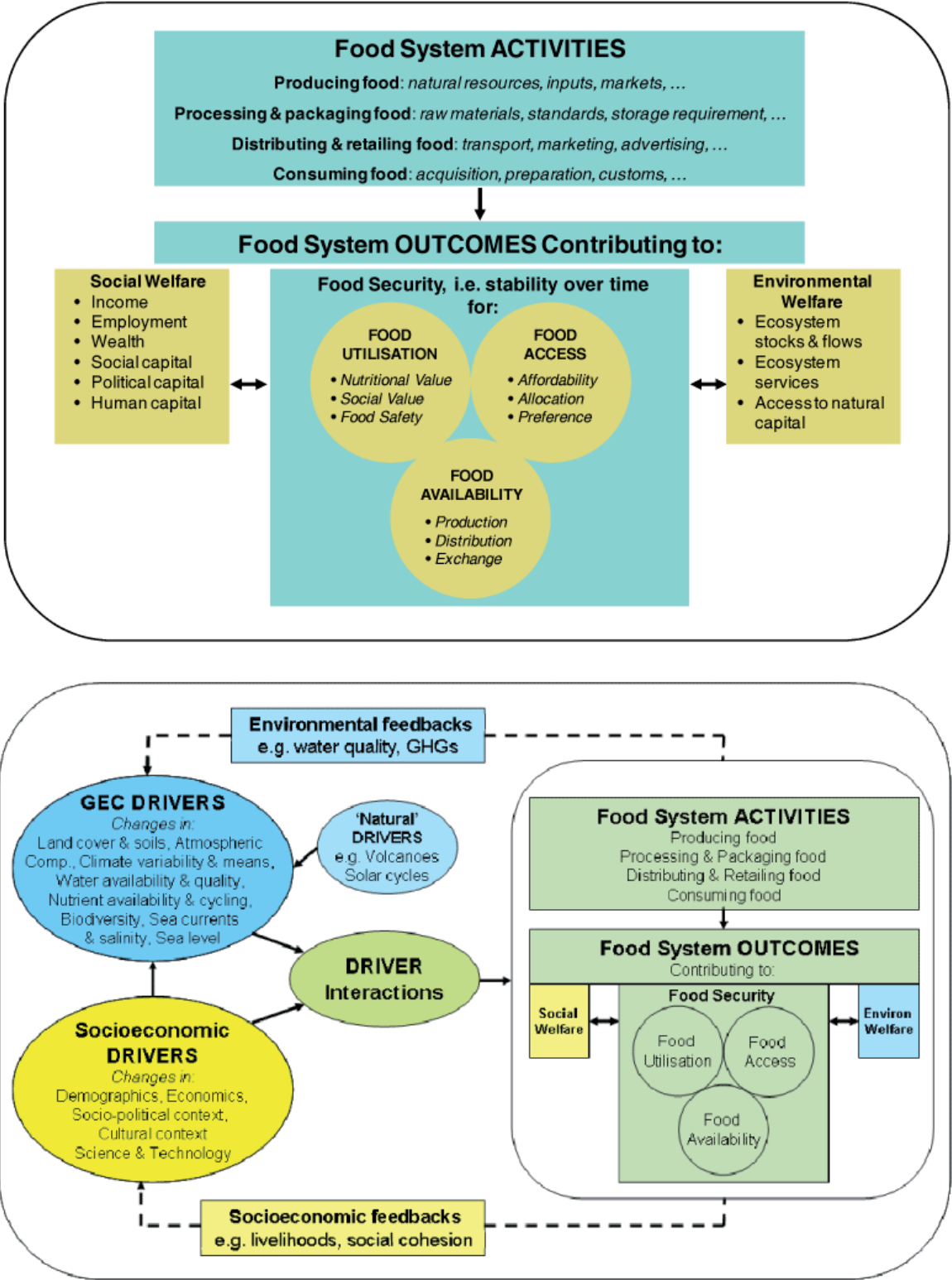
Diversifying income through the integration of activities such as marketable crops, livestock raising, fish production in rice paddies, bee-keeping and non-timber forest products.

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:

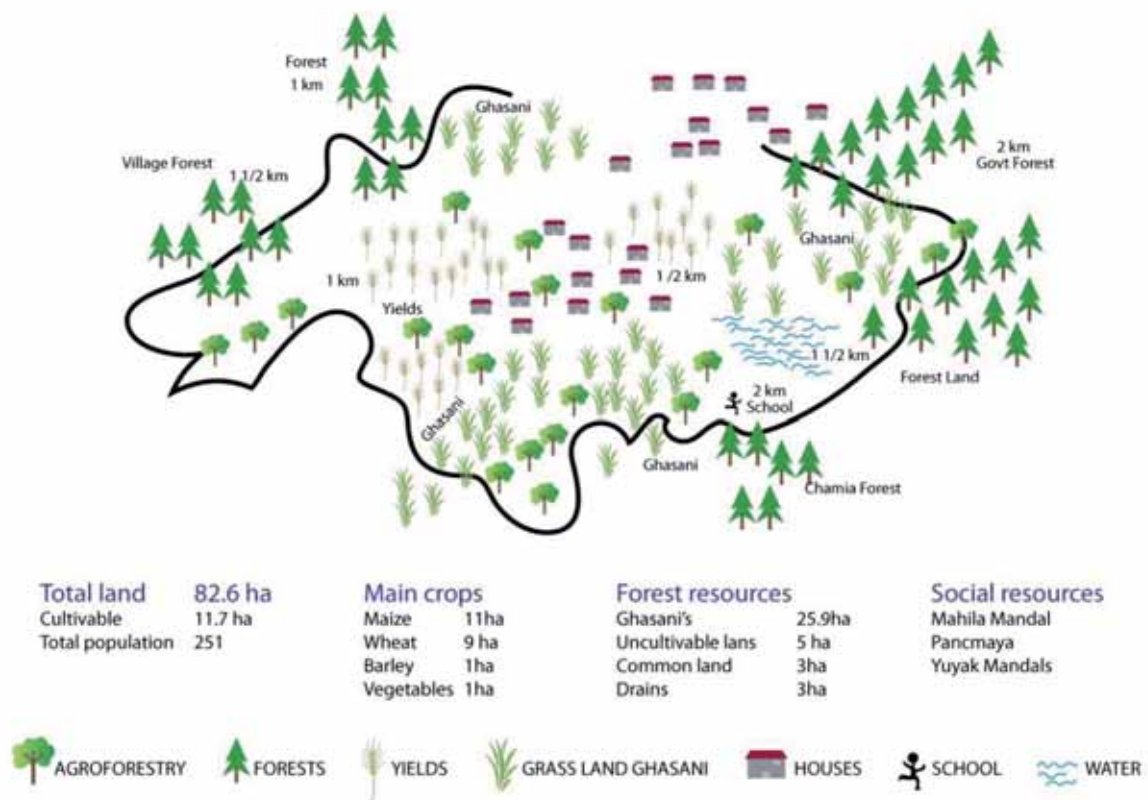
- What resources are in ample supply, which ones are in shortage? Which resources are used by men and women? Which are unused? Which are degrading or improving?
- Who makes decisions about who can use land, water and other important resources, women or men?
- Does the village have land that is held in 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:

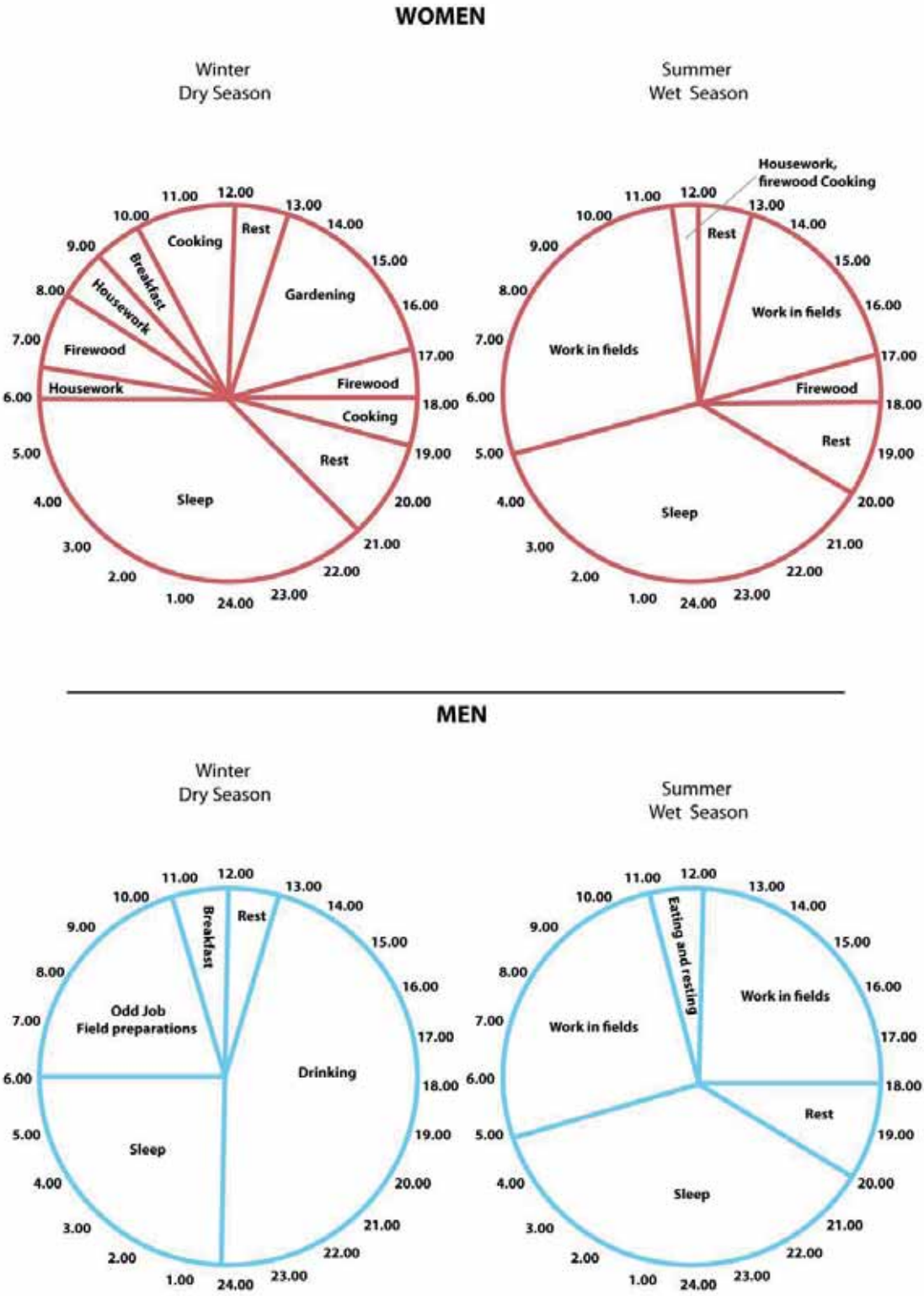
- How is women's and men's time divided? How much time is devoted to productive activities? Domestic activities? Community activities? Leisure? Sleep? How do they vary by season?
- How do the clocks from the different socio-economic groups compare?
- Where could labour time be reduced?
- Which activities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

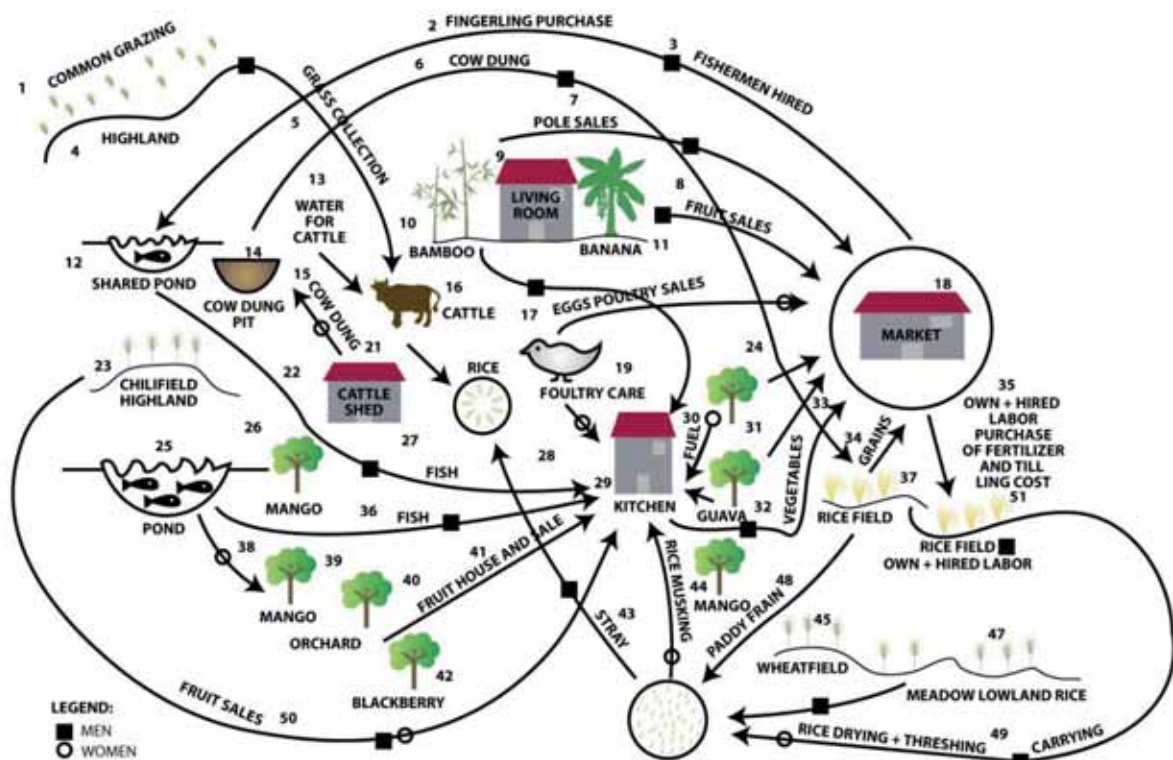
The diagram can show how livelihoods depend on different resources and where they may be vulnerable to changes in climate. The diagram can also illustrate men's and women's specialized knowledge linked to different areas of the farming system; knowledge that can be built upon for adapting to climate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

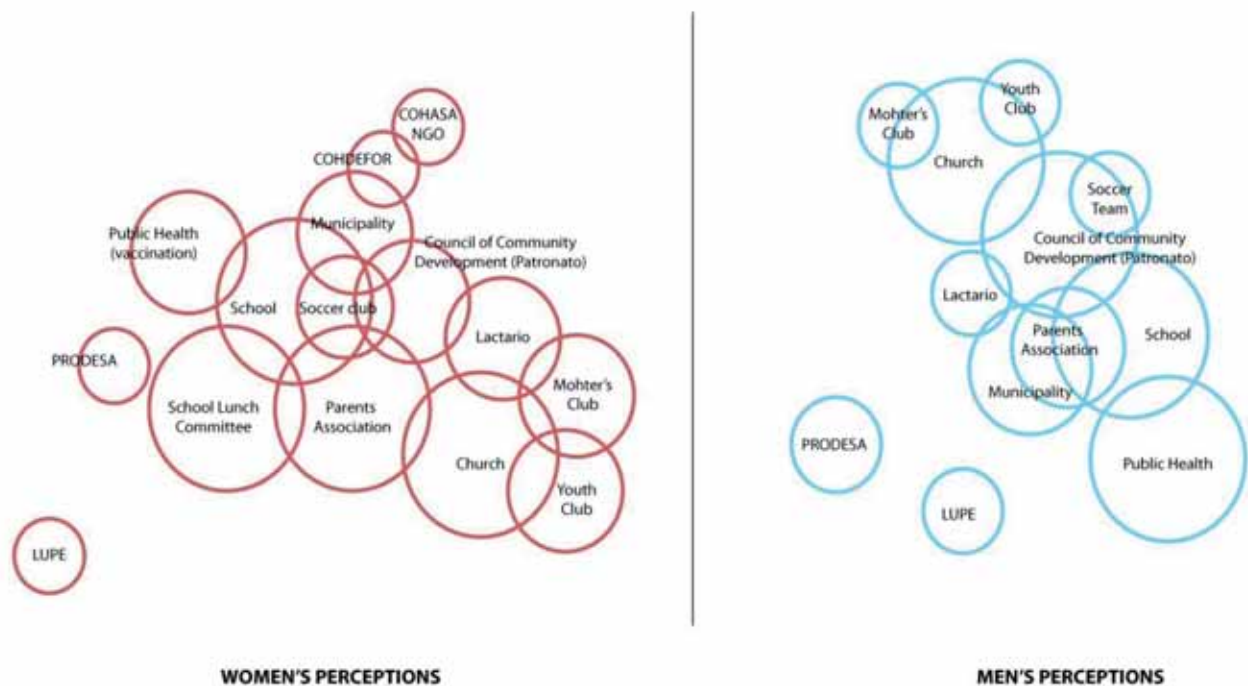
- Do women have decision making roles in the local institutions?
- Do the institutions in the Venn diagram target both men and women?
- Are there programmes specifically for women in agriculture or animal or natural resources management? If yes, what organizations are involved?

- 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.

Part 2: Guidance to users

Module 4: Preparing for field work

In this module, you will:

- learn good practices for the process of carrying out participatory research;
- learn how to collect socio-economic, gender and climate sensitive information at the village and household level by using a sampling strategy; and
- understand processes for identifying needs and priorities of different groups in relation to climate-smart agriculture.

Building on the concepts covered in the previous modules, this module explains the specific activities that are requested of you and your colleagues at the conclusion of this training session.

As part of an implementation team for research on gender, climate change, agriculture and food security, you will be organizing and implementing research and analysing findings.

This section provides you with an overview of how work in the field can be carried out. It is followed by step-by-step guidelines on implementing research activities, including instructions on how you can record your findings. Finally, guidance is provided on analysing and reporting on the findings of your field work.

To ensure that study sites can be revisited in the coming years, it is important that a standardized approach is developed and followed, ensuring consistency and quality of implementation across sites, as well as on intensive briefing and training of study teams. Given the emphasis on qualitative methods, much effort will be needed to ensure that the risk of each village process going off in its own direction is minimized.

Implementation teams

We suggest that implementation teams comprise two research facilitators and at least two note takers; one female and one male research facilitator and one female and one male note taker. Between you, you will have some experience in employing participatory research tools in community-based participatory action research, some technical knowledge of gender and social issues as well as climate change and agriculture. You will lead the implementation of the field study, using the participatory research tools in this joint FAO-CCAFS initiative. Keep in mind that you will be responsible for organizing the fieldwork, ensuring that the research protocols are followed, overseeing the recording of data collected in the field; analysing and reporting on that data; and evaluating the entire research process.

Specifically, this requires you to:

- Hire and instruct at least two local note takers (one female, one male) at each site. Instruction should take place prior to any collection of data. See paragraph below, Process of data collection. It may also prove useful to contact a local ‘ambassador’ or gatekeeper who can facilitate your entrance into the village.
- Identify one village in which to implement the research.

- Fulfil all ethical best practice requirements to ensure effective engagement with appropriate institutions and communities.
- Engage with the relevant authorities to ensure that the study can be carried out in selected village.
- Ensure that the logistical arrangements and materials for each visit are in place before departure to the field.
- Ensure the refreshments and lunches are available for the participants for each day.
- Sample focus group participants by following the sample frame protocols laid out in this Module (see the paragraph: Sampling procedure for focus group participants). This is critical in order for the results to be comparable across sites.
- Send out or deliver invitations either in writing or orally to the selected individuals with the help of the village authorities. Invitations must convey the objective information about the first and final public community meeting, the activity schedule and a statement that participants will be provided lunch as a token of appreciation for their time. The invitations should also explain the approximate amount of time participation in the study will require; i.e. participation in the public community meeting on the first day, in at least one focus group discussion and in the meeting on the final day.
- Carry out field activities for information collection in accordance with guidelines, including meticulously checking that records in the debriefing documents are complete and reliable.
- Prepare a brief presentation of major results and present these at the final public meeting in the village.
- Compile an audit trail of all processes, as and when they are underway, highlighting any events that were different from the plan, specific comments about implementing the research and any observations. This is pertinent for the interpretation of the data from the village.
- Deliver final site reports to CCAFS. The village maps and any other visual information should also be included, as per the guidelines in the CCAFS–FAO Analytical Report.
- Leave a copy of all your findings (village maps and other visual information) with the village.

Note takers

As mentioned, the implementation team will include two note takers, one woman and one man, who have some experience in note taking. Note takers will have a critical role to play by taking meticulous notes throughout all activities in the field and transcribing notes to the debriefing document in collaboration with you, the research facilitators.

It is important to include female team members in equal proportion to male colleagues, as the men and women of the target communities may be more comfortable speaking to members of their own sex. This will enable focus group discussions to take place with men and women in separate groups at the same time. They are responsible for completing the debriefing document and play an important role in supporting the research facilitator. The note takers must all be briefed by sharing this training guide. You may want to even hold a mock fieldwork session with them for preparation. Ideally, note takers should have a good understanding of development issues and some experience in fieldwork. If the research facilitators are not from the area of study, it may also be helpful to work with note takers who are from the area to gain access to villagers since a local note taker will know people and will be able to use the local dialect. This will help to develop and gain trust between the implementation team and respondents.

The implementation team will take gender and cultural sensitivities into account and should know the local language and area well. The implementation teams will be responsible for implementation of the activities in the village.

Process of data collection

Prior to visiting the villages, you are advised to carry out preparatory work (see Module 3, A. Preparing for and carrying out participatory field research). This preparatory work will consist of a meeting with your team members, carrying out background research and briefing everyone on the team about the objective of the study. The CCAFS household baseline study may also be used to provide background information to the village. Doing preparatory work will help you develop an entrance strategy into the village where you will conduct fieldwork and develop a work plan.

A preliminary visit should be paid to members of the community (i.e. village leaders, representatives of existing groups) to request their permission for participation, inform them of the process, set meeting times and organize focus groups. You might also ask participants to bring a cushion or chair to the sessions depending on the location.

An outline of steps that can be taken and the tools that can be used to collect the data in the community can be found in the step-by-step guide in Module 5: Work plan on gender and climate change in agriculture and food security. In total it is estimated that you would spend a about four days at a site (this does not include preparatory meetings in advance). **Different groups of community members should be used for different exercises, so as to not overburden individuals.**

Sampling strategy

In order to facilitate your work, we suggest you select villages that fulfil the following criteria:

- The village leaders must be willing and able to provide information related to CCAFS work.
- The village must be relatively easy to access and must not be very small (i.e. less than 50 households).
- A village is defined as:
 1. A place where people act as a 'community' in the sense that there is a level of interaction and dependence among them;
 2. A place where it is possible to define who is or is not part of the village;
 3. A place where it is possible to communicate with inhabitants (e.g. through a chairman or a village meeting).

You can find suggestions and more details on village sampling on CCAFS internet site on Baseline surveys: [HTTP://CCAFS.CGIAR.ORG/RESOURCES/BASELINE-SURVEYS](http://ccafs.cgiar.org/resources/baseline-surveys).

Sampling procedure for focus group participants

A random sampling procedure, using for example the randomizing function in Excel, can be used to limit possible biases in participant selection. This also allows for potential comparison of the results across villages, as the same sampling procedure can thus be followed by research teams across sites. For this you will need to get hold of already existing household listings, such as the household listings prepared for the CCAFS household survey undertaken in early 2011, or you will have to

create them yourself. You should then select at random groups of males and females to participate, **following the procedures described below.**

The target size of each focus group is not more than 20 individuals (as that can get unwieldy quickly) and not less than 8 (since you will want to capture a range of experiences). We would suggest that you deliver 15 invitations, one to each household that was randomly selected. Ideally, participants are to receive written invitation letters (see example letter below), but if written letters cannot be delivered, it is critical that the same procedure described below is followed to find out which households need to receive verbal invitations, if not written ones. For the women’s focus groups, the invitation should specify that an adult woman engaged in agricultural production activities from the household is requested to attend the focus group session (at a particular time and place). For the activity on weather forecasts, we suggest that an additional two groups of youths (one female and one male) within the age range of 18–25 are be targeted, and in this case the invitation should specify this.

Table 4.0: Summary of the activities and the number of focus groups required

Activity	Focus Groups (ideal size: 8–15 participants)
Climate Analogues	1 male focus group and 1 female focus group
Weather Forecasts	1 male focus group; 1 female focus group 1 youth group of females and (ages 18–25) 1 youth group of males (ages 18–25)
Climate-smart agriculture initiatives	1 male focus group and 1 female focus group

Instructions for randomly choosing the households from which the focus group participants will be invited:

1. Use the complete list of households of the village (that was generated earlier or used in the CCAFS household baseline survey);

Your Excel file could look something like this:

	A	B
1	No	Household head
2	1	Samwel Nyangweso
3	2	Joel Auma
4	3	Hellen Atieno Chore
5	4	Esther Akoth Otieno
6	5	Origa Opiyo
7	6	Evaline Odhiambo
8	7	Eunice Opiyo
9	8	Jacob Ouma
10	9	Tobias Odhiambo
11	10	Abigael Opiyo
12	11	Fanis Mbori
13	12	Nora Ombe
14	13	Losi Otieno
15	14	Margaret Agembo
16	15	Peres Agembo
17	16	Mary Lucy
18	17	Millicent Ochieng
19	18	Wilfrida Onada Ovienn

2. In Cell C1 enter the header “Random Function”.
3. In Cell C2 enter the formula **=rand()**.

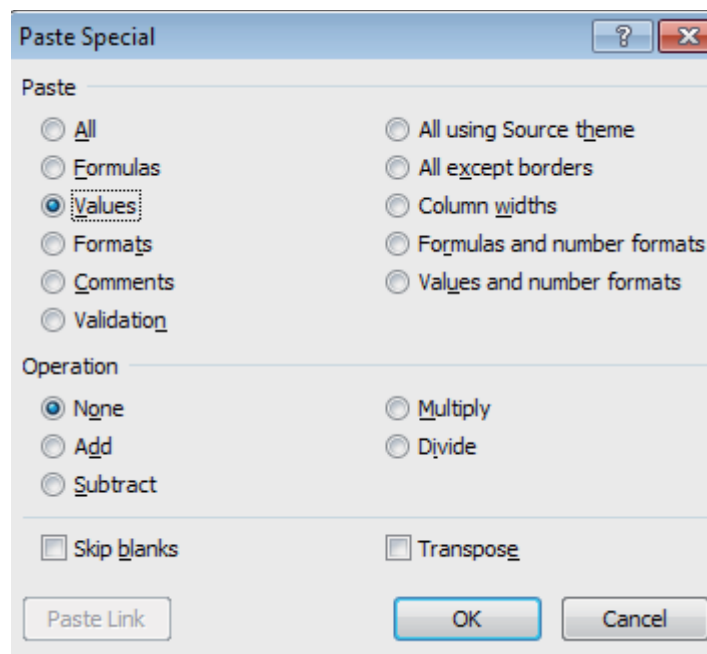
- When you press <enter>, a random number between 0 and 1 will appear as shown here:

	A	B	C
1	No	Household head	Random Function
2	1	Samwel Nyangweso	=rand()
3	2	Joel Auma	
4	3	Hellen Atieno Chore	
5	4	Esther Akoth Otieno	
6	5	Origa Opiyo	
7	6	Evaline Odhiambo	
8	7	Funice Oniva	

AND()

	C	D
	Random Function	
	0.242206437	

- Copy this formula down to the rest of the cells in this column. Note: as you do this the first value will change. This happens because you have a dynamic function in the cells so we need to convert these to static values.
- With the whole of column C selected, right-click and choose **Copy**.
- Move into cell D1; right-click and choose **Paste Special**.
- On the **Paste Special** dialog box select **Values** as shown here:



- Click **OK** and the actual values rather than the formulae will be pasted. Note the values in column C will have changed again – this is expected as they still contain dynamic functions, but the values in column D are now fixed and suitably random.

B	C	D
head	Random Function	Random Function
ingweso	0.744177876	0.058706894
	0.640201683	0.963529815
o Chore	0.395211113	0.627936679
n Otieno	0.11728479	0.163614979
	0.256438018	0.2770732
ambo	0.453193442	0.094103139
o	0.97922997	0.594697083
a	0.811615447	0.461596198
ambo	0.105462689	0.344765124
ro	0.386375295	0.440159737
	0.886159111	0.370800928
	0.446585654	0.612235868

- Cancel any selections you may have in place, then sort the worksheet in descending order by column D ensuring all columns are sorted together.
- For the first group exercise, select the first 15 households from the randomized list as shown here:

	A	B	C	D
1	No	Household head	Random Function	Random Function
2	33	Peter Boyi	0.874077455	0.017730519
3	13	Losi Otieno	0.91832201	0.024524936
4	35	Joash Okoth Olango	0.504202832	0.032677951
5	68	Akeyo Owuor	0.611844209	0.046565199
6	72	Margaret Ajwang	0.036357955	0.049803141
7	1	Samwel Nyangweso	0.761231935	0.058706894
8	6	Evaline Odhiambo	0.257287622	0.094103139
9	57	Lilian Okoth	0.184998841	0.105234312
10	52	Grace Okungu	0.894102602	0.106317496
11	25	Mary Osude	0.572225309	0.108259188
12	16	Mary Lucy	0.951542042	0.114684376
13	46	Herine Onyisi	0.082671843	0.1294482
14	41	Eunice Akoth	0.479688169	0.143003494
15	4	Esther Akoth Otieno	0.58344778	0.163614979
16	32	Judith Onyango	0.300780051	0.16936147

- For the second group session, continue down the list. If you get to the end of the list, go back to the top and continue the selection.
- For female focus groups the invitation should go to an adult female in the household; for male groups it should go to an adult male in the household; and for youth groups to a person aged between 18 and 25 years. If there is nobody in the household fitting the description, then choose the next household from the randomized list.

Although random sampling prevents bias, there is a risk that the random sample will generate a list of participants who are not active farmers, which makes it difficult for them to participate and answer the questions that need to be posed. In such a case, go through the entire list of households with a village authority and keep only the households that are farming, for example. Then generate a random sample of farming households.

Invitation letters for group participants

Send out or deliver written invitation letters to each participant and to the village leader. These letters should be addressed to the selected households. In some countries women's names are often not registered for the household. In such a situation, one may have to visit the household to personally invite women. Specify exactly whether you are inviting a man, woman, female or male youth (age 18–25) for the activity, when the activity is to take place, where, etc. For an example, see the attached sample letter (Box 4.1 Suggested sample invitation letter). It may be useful to take a local official with you when delivering invitations, depending on the local context. This may help to gain access to participants and better local knowledge, as well as gain trust between the implementation team and respondents. Such local officials may act as important ambassadors of the project and gatekeepers to the village.

Box 4.1. Suggested sample invitation letter

Dear Mr/Mrs/Ms.....

CCAFS, the CGIAR Research Program on Climate Change, Agriculture and Food Security intends to conduct a study in your community. The meeting will focus on understanding strategies used to adapt to changing climates within your community and beyond. We would like to work closely together with you over the next days to help develop answers to questions that we as researchers and you as a community member may have – we aim to develop insights that will help to better address the challenges you face in the future.

We would very much appreciate your participation in this study. If you would like to participate in any of our group activities [*provide schedule of activities*] for a maximum of 2 hours, please inform your village authority. In addition to the group activities, we would also like to invite you to a public meeting on... October 2011, at ...a.m. for you to become aware of our objectives. We will also have a final public meeting on... October 2011, at ...am. Lunch (compensation) and refreshments will be provided at all these meetings.

Thank you and I look forward to your collaboration.

Yours faithfully,

Mr/Mrs/Ms.....

Although formal, written invitations are encouraged, in some contexts, informal oral invitations may also be used, especially if those being invited are unable to read or if they are suspicious of formal documentation. Before inviting participants, however, check when there will be major festivals or holidays since those are times when participation will be difficult. One should also check when local schools are in session since it may be difficult for youths to participate when they are in school. It may also be difficult for women and girls to participate during certain hours of the day depending on their daily activity and/or cultural restrictions that prevent attending public meetings.

It is possible that those invited may not want to participate due to participation fatigue since there could be many research institutes and non-governmental organizations in the area that have also been trying to work with the same group of participants. Additionally, those invited may not want to participate because they do not feel that they will receive anything tangible. In such instances, it may be useful to partner with a national institute that has local credibility to gain access to participants. At the same time, you may want to disseminate information packages on agriculture or other related issues that the national institute has produced to provide something tangible to participants.

Communicating with the village

You should communicate the requirements mentioned in the Sampling procedure for group participants section with the village authorities in advance of the actual group discussions, asking them to help with the invitations in the village to form focus group discussions. One innovative suggestion for describing how the particular households are picked is by comparing it to a 'lottery' (and helps explain why a particular village elite may not get invited). Working closely with the village authorities to schedule the work also tends to help facilitate a relatively smooth process. Meetings and activities during your visit should be scheduled at times when both women and men as well as all socio-economic groups are available to attend. You should send out written or oral invitations to the selected individuals in the community with the help of village authorities. These letters must include the objective, information about the first and final public community meeting (providing the suggested work plan is followed), the activity schedule and a statement that participants will be provided with lunch and refreshments as a token of appreciation for their time. This letter should also explain the approximate amount of time participation in the study will require (i.e. participation in the public community meeting on the first day and the time of at least one focus group discussion). All community members should be made aware that on the first and fourth day there will be an open invitation for all community members (participation is voluntary) for the implementation team to introduce the objectives of the study and provide a summary of their findings respectively.

The objective of the research should be described at an open meeting on the first day of the visit to the village. This initial meeting can also serve to meet the selected individuals for the focus group discussions based on the responses to the invitation letter mentioned above (if they also attend the open meeting, they will want to know why they were selected – the lottery analogy may also come in handy here!). The expected outputs and possible benefits of the research should also be shared. You should convey the message that the study will address assumed challenges, needs, and priorities of the village in the future. It is also important that you manage the expectations of villagers at an early stage, thereby avoiding anticipation of things that you are not able to deliver. Those attending on the first day should be notified that there will also be a public meeting on the fourth and final day.

Research Ethics

- It is essential that permission is gained not only from the village chief, but also from the participants themselves. Participants should be explicitly asked to confirm that they consent to take part, and reassured that they are free to leave the sessions any time if they feel uncomfortable or no longer want to participate.
- Participants should be made aware of the purpose of the research and what they can expect to receive in the way of feedback (e.g. the meetings planned for the fourth day).
- Participants should be notified that the information they put forward will remain anonymous and confidential and will thus not be circulated beyond the research team.

Checklist of materials

- Flip chart pads or other large papers
- Pens
- Notebooks for recording
- Camera

- Stones or twigs etc. (if going for the low tech option)
- Mats, chairs or rugs to sit on?
- Check the various materials lists in the next module (print out matrix sheets in sufficient quantities, etc.)
- Audio recording device (this requires participants' consent)

Module 5: Work plan on gender and climate change in agriculture and food security

In this module, the user will understand:

- how to use the step-by-step guide on how to carry out the field work;
- how to keep track of the field work using a debriefing document; and
- how to analyse the field data and create an analysis report.

Guidelines for implementing the gender and climate change study

Table 5.0: Summary of the village programme

Pre-visit arrangements	Establish contact with village authorities Send invitations to group participants
Day 1	Activity 1: Setting the stage for the study Activity 2: Public community meeting to introduce ourselves and set the agenda
Day 2	Activity 1: Climate analogues sessions (men's and women's focus groups) Activity 2: Weather forecast sessions (men's and women's focus groups)
Day 3	Activity 1: Understanding and catalyzing gender-sensitive, climate-smart agricultural practices Activity 2: Weather forecast session (youth group)
Day 4	Activity : Presentation of the summary to the community

The schedule above is a suggestion. Activities related to climate analogues, weather forecasts, and climate-smart agricultural practices may be sequenced differently, especially if different focus groups are being used. However, activities such as setting the stage, public community meeting, and presentation of the summary to the community should stay in the sequence listed.

Day 1 - activity 1: Setting the stage for the study

You will have interacted with the village authorities in advance to set the time and dates for the village study and to ensure participants have been invited. The process is outlined under sampling strategy in the Module 4: Preparing for field work in this guide.

Managing expectations – Introduction

The community needs to be informed about the plans and motivated to participate. One way to motivate participation is by mentioning that the village chosen is lucky to be selected because of their motivation and commitment. Managing expectations is important throughout the whole time you are in the village. It is important that the expectations are realistic and promises are not made on behalf of CCAFS and FAO. The only promise that can be made is that the researcher can help participants' voice to be heard. It will be particularly important to make clear who CCAFS and FAO are, and what you as research teams intend to do during the introductions to the village authorities and to the community. For instance, you may want to explain that the research will inform

development organizations that may be able to provide support, and that this particular research is not the end all. You may also want to refrain from using the word 'project' when introducing CCAFS and FAO, which may lead participants to believe that a development project will certainly be established. There may, however, be times when it may not be useful to state that this is CCAFS and FAO supported work because that may raise expectations. In such a situation, it may be useful to state the name of the research organization you represent. Ultimately, it is important to be transparent about the purpose of the work.

Introduction to the village authorities

You and your team are to travel to the village and make sure that all arrangements have been made. You should conduct a meeting with the local authorities. If possible, depending on who are considered to be the authorities in the local context, make sure that both men and women leaders are included in this meeting.

Pre-visit arrangements include conducting a meeting with the village authorities. This meeting should be arranged by you. The aim of this meeting is to introduce the study that you are planning during the course of the following days.

Introduce CCAFS and its plans for the future (see previous section on managing expectations) and how findings will be shared with the community. Introduce the agenda and the agreed upon timeline (which have already been negotiated with the group in advance). Follow up on whether the invitations have been shared with the selected households. You will need help in bringing people to the different activities and you need to rely on the authorities to invite and mobilize people to participate. Request the leaders' support in mobilizing the community for focus group discussion. Also ask village leaders to identify any carbon projects in the area and staff that could be interviewed. The community leaders are the experts on their resources, therefore their input will be critical – you should listen to the input they provide and do not forget to take notes.

Involvement of the village leader in the group discussions

How to involve the village leader so that he or she does not dominate or influence the overall outcome in the group discussion? Prior to the group activity, explain to the village leaders that you would like to get equal input from various village members regarding the different topics. During the group activities the village head should be fully involved in the coordination of the group activities. By doing so, the village head will be more involved in the coordination than participating in group discussions. However, you have to keep the village head motivated and get his/her opinion on the group activities. You should make sure the village leaders give their input to the group activities at the end of each day and not during the focus group sessions because focus group participants may not feel comfortable speaking up in the presence of a village leader. Village leaders could be involved in welcoming and cofacilitating participants to the session on Day 1. They can also be asked informally for input and what they think about the process of this study and if they would like to comment on any of the activities being conducted.

Participant Compensation

The big unaccounted cost of this type of study is always the time that community members give so generously to discuss things that you are interested in. The best way to repay community members

is to ensure that the research work has beneficial consequences for the community and other communities with whom you and your organizations work. However, in the short term, this commitment may not be enough, particularly when the research is not fully participatory and cannot guarantee regular interactions with the communities in the near future. Moreover, we cannot guarantee that they will directly participate in the future activities of CCAFS or FAO – although we hope this will be the case.

Before deciding what form the compensation will be in, ask the village authority if providing lunch and refreshments would be appropriate as compensation for the participants. Lunch and refreshments should be provided for the group participants on the second and the third day..

Day 1 - activity 2: Public community meeting

Part 1: Introduction of the study team and the study itself

The first point of interaction with the village members is during the public community meeting that you have organized. You may want to publicize the meeting by placing posters in public areas such as churches or engaging with people in public cafes. If posters are used to announce the public meeting, it is important to have the posters made by local people without using too many official logos to keep things informal. This will help manage expectations. Publicizing the community meeting should, however, target places where both men and women are able to go. The whole team (research facilitators and note takers) should be present. Please introduce all the members of the team and thank the community and the village leader for their hospitality.

Part 2: Set the agenda of the meetings and discuss group formation

Box 5.0. Suggested script for introducing CCAFS

CCAFS is part of a 10-year programme that is bringing together many institutions – government agencies, researchers, development organizations (such as FAO), NGOs and the private sector – to work on improving farm and land (soil, water, crops, livestock) management practices that will enable people to better deal with environmental and other changes, such as rising prices, declining soil fertility, improved communications, more variable rainfall, etc. CCAFS is already working in your country to conduct research to help farmers improve their livelihoods and protect the environment in order to ensure sustainable agricultural production and food security. *[Insert a local example or two]*. This is not a typical short-term project focused on a specific intervention, such as organizing tree nurseries or forming a new group practicing rainwater harvesting. We are interested in providing information to support and test a range of interventions, determined by the community's priority needs. Learning from other communities that are undertaking measures that are helping them deal with variable weather, higher prices, environmental degradation, population changes and other changes will be a big part of what we will be exploring together with you. We will share our findings in a meeting at the end of our stay. We would like to work closely together with you over the next days to help develop answers to questions we may have as researchers and as a community. Together we are hoping to find answers that will help us to better address challenges, needs, and priorities in the future in your country.

Please read the Box 5.0. Suggested script for introducing CCAFS and Box 5.1. Suggested Script for Obtaining Informed Consent (below). Community members should be asked whether they would like to participate or not. The introduction is crucial! At this stage you need to present the study ahead as interesting and valuable to the community. You are also building trust. Motivate the community members to participate actively. In many cases, female participation is difficult. During the public meeting you may want to state why it is important to have women participate. Note that not much prominence is given to the mention of climate change in order to avoid biasing study

responses. Each team should make notes about the first public meeting. This can include observations, concerns or comments you have and may also include your interpretations or qualifications about specific issues or concerns. Make note of anything that went differently to the way planned.

Box 5.1. Suggested script for obtaining informed consent

“Good morning/afternoon. We are representing CCAFS and FAO with permission from the local leader. We are conducting a study on agriculture and land management, and your visions of your community resources in the future. We would like to invite you to participate in our group activities. We are going to be here for four days. Some of you have been invited to participate in the sessions. Invitations were sent to randomly selected households instead of to all of you, as we do not want take too much of everyone’s time. We are planning to carry out separate sessions for men and women.

We will be taking notes for our benefit, so that we remember the discussions. Before we leave, we will present our main findings to the whole group to make sure we got everything right and to answer any questions you may have. We would like to share some of this information widely in order that more people understand what opportunities and constraints you face.

Names will not appear in any data that is made publicly available. The information you provide will be used purely for research purposes. Your answers will not affect any benefits or subsidies you may receive. If you are not comfortable with this, you do not have to participate. You may leave discussions at any time and if there are questions that you would prefer not to answer then we respect your right not to answer them.”

Part 3: Ending the activity

Make sure to thank people for their participation and explain to them that you are excited about the information they provided and the active discussions. Give group participants the opportunity to add anything, make clarifications, or make either specific or general comments on the study issues. Thank them again for their time and invite them to come to the final public meeting, where the results of the different group discussions will be presented to the whole community.

Day 2 - activity 1: Climate analogue session

(Duration: Between 2 and 3 hours)

Part 1: Introducing climate analogues

As described in Module 3 (see Box 2.5 Climate analogue Approach), CCAFS and partners have developed a methodology called ‘Climate analogues’, that can help people visualise what their climate and environment is likely to look like in the future. The analogue tool connects people’s current site or location with places with climates similar (analogous) to what is expected in future in the current locations.

One way in which this tool can be used to help people adapt to their changing climate is to enable farmers to better envision how their site-specific agricultural future might look like. For example, if I am farming in a place that relies heavily on maize, and the climate analogue tool shows that my place will soon look like a range of other locations that are not planting maize at all because there is not enough rainfall, I may want to start thinking about starting to shift from maize to other crops. Thus this tool becomes one way of facilitating farmer-to-farmer exchanges of knowledge. This could happen through visits to analogue sites, or through the use of films or through exchange of information via cell phones, for example. These opportunities need to be explored further, and one key question is ‘how do we ensure that women and disadvantaged groups (e.g. those without education or cell phones) will benefit from this new knowledge?’

Thus the challenge in this particular study (covered in these training materials) is only intended to provide insights as to the potential benefits to (and possible pitfalls of!) a facilitated farmer-to-farmer exchange of knowledge making use of climate analogues as a key piece of information. Scientists are hoping the climate analogue approach will help catalyze uptake of technologies, strategies and approaches that help farming families improve their livelihoods and be better equipped to deal with a changing climate.

Since one of the potential ways of making climate analogues useful and used is to physically move people to areas where people are already dealing with a climate that they should expect, one focus of the dialogue with different focus groups (men's and women's) in this exercise will be placed on understanding the level and extent of mobility of different types of farmers. This will allow researchers and development workers to develop approaches that help facilitate movement of farmers and efficient exchange of information and learning that will help people adapt to a changing climate.

Part 2: Objectives of the session

As you carry out this activity, keep in mind the following objectives of the session. These objectives should not be read to the participants as this could bias their answers.

- Understand the extent to which different types of farmers are mobile (or not) and generate insights as to if, what and how they wish to learn from visiting climate analogue sites.
- Better understand how the use of other information and communication technologies (e.g. films (e.g. short YouTube videos), cell phones) may be ways in which to effectively share knowledge about what people are doing now in places with similar future climates for these different groups.
- Test the usefulness of gender-differentiated participatory resource maps (in this case, already available) in helping to enhance understanding of the potential of using the climate analogues tool in potential action research.
- Better understand the factors helping and hindering male and female farmers in learning from others about adaptive strategies for dealing with climatic uncertainties.

Part 3: Outputs of the Climate analogues session

- Development of Village Resource Maps that focus more on tracking farmers' mobility and noting factors that help and/or hinder mobility and knowledge exchange regarding adaptation strategies.
- Seasonal calendars will help to understand when mobility is possible.
- Notes on responses, from the men's focus group and from the woman's focus group, to a set of guiding questions aimed at the objectives described above.

Outputs of the analysis of the results of this session:

- Better understanding of who may benefit from farmer to farmer exchanges based upon climate analogues, and why. Recommendations regarding gender-sensitive strategies to incorporate in the design of action research based upon climate-analogue informed farmer to farmer exchanges and other possible approaches (e.g. use of films, cell phones) aimed at

making linking climate analogue information with actions that help improve livelihoods of the poor in a sustainable manner;

- Help in determining if using gender-disaggregated participatory village-level resource maps will help to inform all of the above objectives.

Part 4: Materials required

Focus group discussion forms and tables (see Module 6: Reporting formats);
Paper and markers for drawing and/or expanding on existing gender-disaggregated Village Resource Maps;
Existing Village Resource Maps (if they have been done in previous sessions);
Paper and markers for drawing seasonal calendars.

Part 5: Data collection

The following steps should be carried out with **a group of men and a group of women in separate areas** so they do not influence each other's responses. Each group should have between 8–15 individuals chosen through the random sampling procedures described in Module 4: Preparing for field work. Once the group has gathered, you should welcome the participants to the session and introduce the activity by stating, "Thank you for joining us. Today we would like to speak with you about the weather and your farming practices. Our discussion will last approximately two hours, until...." When explaining your objectives, it is best to use non-technical terms.

Step 1: Discussion on potential of farmer to farmer exchanges and level of farmer mobility with use of the (previously generated) gender-disaggregated village resource maps⁴.

The starting point is a gender-disaggregated **Village Resource Map** that should note key landmarks, such as infrastructure (markets, schools, etc.), roads, location of rivers, mountains, forests and paths used to commute to neighbouring villages, and distances between their village and another village that they may visit. If Village Resource maps already exist these can be used instead of creating a new one, though the actual drawing up of the maps often serves as a good starting point. The aim is to enhance the information on linkages to outside locations where information and services may be sought; in particular, to expand upon the distances and access to sources of information that the villages typically seek (e.g. market prices, agricultural inputs or services, etc.).

You can also ask the villagers to note socio-economic aspects of their village compared to other nearby villages and market centres, for example approximately how many people live there, whether there are schools or services, such as government organizations, and what alternative farming systems, ethnic groups or religions are represented in the neighbouring villages.

The goal is to include information on some other villages or market centres that the villagers currently visit and exchange information with. The conversation could start with places participants travel to, why they go there and what kind of information or services they are seeking

⁴ For others using this approach, first generate a village resource map according to the approach/tool described in Module 3: Field research tool box.

that they don't get at home? What are the barriers to travelling to learn what others are doing? What helps them to travel and get more information? To what extent are cell phones and other new modes of communication helping them learn more about what farmers elsewhere are doing without travelling? What are the main constraints hindering this kind of flow of information?

If village members travel, ask them where they go, how far they travel and the types of information that is exchanged, particularly noting information that is exchanged on adaptation strategies. If villagers learn adaptation techniques from other villages, discuss the conditions under which information exchange occurs in another village and what is learned and applied. The following questions can be used as a guide for discussion:

- Where do you in this group travel to most frequently (e.g. neighbouring villages or market centres)? For what purpose? How often do such visits occur? Who typically makes these visits?
- How do you usually get to neighbouring villages? How easy is it to travel? What enables some and prevents others from such visits or travelling?
- For this group, what time of the year are such visits commonly made?
- Do you think your village is different in any way from the villages that people from your village tend to visit? How?
- What is the weather like in those villages that people in this group tend to visit or know about (e.g. is it wetter, drier, hotter, does it have more or less trees)?
- What kinds of farming practices (crops, livestock) do those other villages undertake? Are they much different from what your village members are doing? How do farming practices differ?
- So if village 'X' that you've been telling me about is wetter (drier, hotter, whatever...) and we've heard that your weather is changing (e.g. in the earlier surveys done), is it possible your village may become more like this neighbouring village?
- If so, how can you cope? Do you think you have something to learn from villages that have different weather and environments than your village?
- What kind of questions do you ask when you visit other places? What information is the most useful to you when you return home?
- Do the villagers you visit have ideas on farming that you think may be useful to you to protect your family's ability to produce and eat enough food?
- If some of you have learned about different ways of farming - different crops, varieties, livestock, soil or water management practices - what kinds of things did you learn? Did you try some of these things on your farm? What helped you to try new things?
- Information on improved farming practices can come from many different sources (e.g. extension officers, radio, NGO's or projects, government, etc.). What are the major constraints that you see in terms of being able to access the kinds of information you need in order to improve your farms?

Step 2: Discussion on mobility of farmers based on seasonal calendars

In order to complement findings from the village resource map, the **seasonal calendar** tools may help to understand farmers' perception of typical seasonal conditions, such as rainfall, dimensions of food security and livelihoods that may or may not encourage visiting neighbouring villages. To

begin, explain that you want to learn about what people do over a year. A calendar may be drawn on a large piece of paper or on the ground. You may want to start discussions by asking about rainfall or droughts, which usually impacts movement. The following questions can be used as a guide for discussion:

- How do women's calendars compare with men's? What are the busiest periods and how does this affect mobility?
- How does food availability vary over the year? Are there periods of hunger? Does this lead to travel?
- How does income vary over the year? Are there periods of no income which forces farmers to travel and search for work?
- How do expenditures vary over the year? Are there periods of great expense (e.g. school fees, food purchases)? Does the need for money encourage farmers to travel?

It is important to note that several variables can be used within a seasonal calendar, such as rainfall, labour, food availability, disease occurrence, income and water sources and availability. Therefore, one must carefully choose which variable to use because not all may relate to climate change or help meet the objective of understanding mobility. The questions above are only suggestions. The researcher must have a good understanding of the objective of this exercise in order to select variables for the seasonal calendar that help determine who might benefit from farmer to farmer exchanges based upon climate analogues, as well as when and why.

When asking your particular focus group, pay particular attention to any differences in responses that may arise from respondents based on their wealth, age, ethnicity, or any other social differentiation (other than gender).

Step 3: Ending the activity

This was the last activity with this group. Make sure to thank people for their participation and explain to them that you are excited about the information they provided and the active discussions. Give group participants the opportunity to add anything, make clarifications or make either specific or general comments on the study issues. Thank them again for their time and invite them to come to the final public meeting, where the results of this and similar group discussion will be presented to the whole community.

Each team is asked to take a few minutes to make notes about the focus group discussion. This can include any observations, concerns or comments you have and may also include your interpretations or qualifications about specific issues or concerns. Make note of anything that went differently than planned. Include group characteristics or dynamics between participants (e.g. disagreements on certain issues) that you would like to highlight, paying particular attention to dynamics based on social differentiation. Notes should also be taken highlighting the relationship between men and women and how this affects whether or not respondents are able to visit other villages to learn about adaptation strategies. You (and the note takers) should make sure to record as much information as possible during each day. If possible, it might be useful to start completing the debriefing document immediately. The results of the activity from the men's and women's groups should be recorded separately and compared at a later time.

Day 2 - activity 2: Weather forecast session

(Duration: Between 2 and 3 hours). Note that this part is identical to the youths group discussion on the Day 3.

Part 1: Introducing weather forecast session

As described in module 3, managing risks associated with climate variability is integral to a comprehensive strategy for adapting agriculture and food systems to a changing climate. If farmers have access to climate-related information, they are likely to manage such risks better. This could help lower and prevent poverty and vulnerability. Therefore, assessing the type of information farmers receive, differentiated by gender and age, through mediums (such as cell phones) and the extent to which farmers use this information, will be valuable to understanding information gaps and how to address them. This will allow farmers to manage risks and make climate-sensitive decisions.

Climate information is a key resource in farming. Men's, women's and youths' differential access to this resource could play a role in their ability to adapt, so it is important to document and address any gender-based differences in access to and use of climate information, as well as to understand different needs for information.

Part 2: Objectives of the weather forecast session

As you carry out this activity, keep in mind the following objectives of the session (these objectives should not be read to the participants as this could bias their answers):

- to better understand how we make weather information more useful and equitable to rural women and men including youths;
- to better understand which types of weather information is available to women, men and youths;
- to understand how and from where women, men and youths get information on weather.
- to better understand men's, women's and youths' abilities to use this information, including the opportunities and constraints in accessing and using both daily and seasonal weather forecasts;
- to inform the design of action research to reach women, men and youths with weather and climate-related information that they can use it in making climate-smart agricultural decisions.

Part 3: Outputs of the weather forecast session

- An overview of the kind of weather information women, men and youths have access to, the source of this information and how they use it; and an understanding of the kind of weather information participants would like to receive and how they would like to receive it.
- A seasonal calendar that demonstrates farming activities based on weather information.

Outputs of the analysis of the results of this session:

- A summary of the ways women, men and youths receive information, including from where and from who, as well as their reliance on local and received knowledge.

- Identification of ways to deliver climate information to both men, women and youths, i.e. strategies and approaches for efficiently and effectively reaching the different groups.
- Identification of the extent to which information is used in the household and by whom.
- Recommendations regarding the type of information that would benefit women, men and youths to manage risks, as well as the appropriate methods for delivery of climate information.

Part 4: Materials required

- daily weather forecasts & copies of seasonal forecasts;
- paper and markers for drawing seasonal calendar; and
- focus group discussion forms.

Part 5: Data collection

The following steps should be carried out with **a group of men, a group of women and a group of male youths and a group of female youths in separate areas** so they do not influence each other's responses. When collecting data, you should pay particular attention to any differences in responses that may arise from respondents based on their wealth, age, ethnicity, or any other social differentiation. You should also make note of the relationship between men and women and how this affects their use and need for climate information.

Step 1: Discussion on daily weather forecasts

Once the group has been gathered, welcome participants to the session and introduce the activity by stating: "Thank you for joining us today. In the next two hours, until..., we would like to discuss with you how you learn about the weather in order to make decisions in your farming practices."

Start by asking participants in general about the weather. Talk about what the weather is like today by using the Table .

Now ask participants about longer term weather patterns, for example: Are the rains coming earlier or later? Are the more or less heavy and are they predictable? How about droughts? Then ask the group to compare current weather patterns to patterns in the past. Once you have documented important seasonal climate factors, ask the participants how they know what the conditions will be like. You may want to focus first on the growing season, and if time allows, you can also speak about other periods of the year.

Table 5.1: Help for discussing the daily weather forecast

Do you know what the weather is going to be like tomorrow?	
<p>If yes, how do you know?</p> <p>What kind of weather information do you receive? And from where? Through what medium do you receive such information (e.g. radio, TV, cell phone, newspaper etc.)?</p> <p>Do you have traditional ways of anticipating what the weather will be like, for example, did your parents or grandparents teach you to look for certain signs? If yes, what do you look for and when?</p> <p>Do you receive forecasts of what the weather will be like? (As you ask this question you could present a daily weather forecast taken from a newspaper, TV, cell phone or radio to the group. <u>Translation into local language may be required</u>).</p> <p>How often do you get a weather forecast?</p>	<p>If no</p> <p>Would you like to know, would it be useful to you?</p>
<p>If daily forecasts are used:</p> <p>Do you understand this type of information? If not try to assess why not.</p> <p>Is this forecast in a format that is useful to you?</p> <p>Do you use this type of forecast? Do you find the information conveyed by this source to be reliable?</p> <p>Does someone other than you in your household use this type of information? Do you share this source of information?</p> <p>Do most other households use this type of forecast too?</p> <p>Are the channels by which you receive forecasts reliable or effective?</p>	<p>If daily forecasts are not used:</p> <p>Would you like to receive daily weather forecasts? Why/why not?</p> <p>If you would like to receive daily forecasts, how would you like to get this information?</p> <p>When (what time of year) would you like to receive it?</p>

Step 2: Discussion on seasons through the seasonal calendars

As a way to begin discussions about seasons, the **seasonal calendar** tools may help to understand farmers' perception of typical seasonal conditions, such as rainfall, and how that may impact food security. To begin, explain that you want to learn about what people do over a year and how seasonal weather patterns participants are aware of impact their activities. A calendar may be drawn on a large piece of paper or on the ground. You may want to start discussions by asking about rainfall or droughts. The following questions can be used as a guide for discussion:

- When does it rain or when is the dry season? How does this impact your activities?
- When is the coolest and hottest times of the year? How does this impact your activities?
- How do seasonal changes in precipitation and temperature affect food availability and income?

It is important to note that several variables can be used within a seasonal calendar. In this exercise, the two most important variables are rainfall and temperature. The researcher must have a good understanding of the objective of this exercise in order to correctly determine which additional variables, if any, to add to further develop the seasonal calendar with the aim of addressing how seasonal forecasts can be made useful.

When asking your particular focus group, pay particular attention to any differences in responses that may arise from respondents based on their wealth, age, ethnicity, or any other social differentiation (other than gender).

Step 3: Discussion on seasonal forecasts

Present an example⁵ of a seasonal forecast (translation into local language may be required).

This bulletin contains information on the overall forecast for a three-month period for Uganda. It also includes a short review of weather conditions from the previous three-month period. In summary, the example from Uganda for September to December 2011 contains the following information:

- The first section relates rainfall performances for the previous three months in the different regions.
- The second section of the bulletin contains first an overview of the seasonal climate outlook for the upcoming period. In this case the seasonal forecast for September-December in Uganda is an increased likelihood of near normal rainfall over most parts of the country with a slight tendency to above normal (enhanced) rainfall over southern and eastern Uganda, while the North Eastern Region and Central Northern Region are expected to experience normal to below normal rains. This is followed by a more detailed regional forecasts with onset and cessation dates of the rains over the coming period.
- The third section discusses the potential implications of the current forecast in terms of agricultural production and the likelihood of extreme weather events such as floods. This is coupled with advice on actions to be taken according to the seasonal forecast, such as switching to shorter-cycle crop varieties, harvesting water and taking health precautions.

This information is meant to help farmers make better-informed decisions that improve their productivity and lower their vulnerability. Since different people in the household make different agricultural and natural resource management decisions, however, it is critical that this information reaches all of them. So the issue of 'who is receiving this kind of information, and if and how they are able to use it' is very important. With a copy of a seasonal forecast at hand ask participants the questions from the Table 5.2.

⁵ An example from Uganda is available at WWW.NECJOGHA.ORG/NEWS/2011-03-10/UGANDA-MARCH-MAY-2011-SEASONAL-CLIMATE-FORECAST. If you are using this example, inform participants that this is a past forecast.

Table 5.2: Questions for discussing the seasonal forecasts

Are you familiar with this kind of seasonal forecast? Did you know it existed?			
<p>If yes:</p> <p>Do you receive it?</p> <p>Does someone in your household get this kind of seasonal forecast?</p> <p>Do any of your neighbours use seasonal forecasts?</p> <p>Do you trust this kind of seasonal forecast?</p>		<p>If no:</p> <p>Would you like to receive this kind of seasonal forecast?</p> <p>Would you trust this kind of seasonal forecast? Why or why not?</p> <p>If not, do you trust and use daily weather forecasts? If yes, why would you trust one, but not the other.</p>	
<p>If you trust this information, do/could you use the information?</p> <p>When do you use it?</p> <p>If yes, what action do/ would you take to protect your crops and family?</p>	<p>If you do not trust this information, what source of information would you rely on for seasonal forecasts?</p>	<p>If you trust this information, would or could you use the information?</p> <p>When would you use it?</p> <p>If yes, what action would you take to protect your crops and family?</p>	<p>If you do not trust this information, what source of information would you rely on for seasonal forecasts?</p>
<p>Do you depend more on daily weather forecasts or seasonal forecasts? Why?</p> <p>Do you share seasonal forecasts with anyone in your household? If so, with whom do you share this information and why?</p>		<p>If you had a seasonal weather forecast would you share it with anyone in your household? If so, with whom do you share this information and why?</p>	
<p>Would it make a difference if you were to receive a seasonal forecast by radio, TV, mobile phone and/or newspaper? Why or why not?</p>			

Note if the medium in which the seasonal forecast is transmitted makes any difference to the answers. Ensure that socio-economic characteristics of the group, such as education, age, wealth and gender, are indicated in the notes.

Step 4: Ending the activity

This was the last activity of day 2. Make sure to thank people for their participation and explain to them that you are excited about the information they provided and the active discussions. Give group participants the opportunity to add anything, make clarifications, or make either specific or general comments on the study issues. Thank participants again for their time and invite them to come to the final public meeting, where the results of this and similar group discussion will be presented to the whole community.

Each team is asked to take a few minutes to make notes about the focus group discussion. This can include any observations, concerns or comments you have and may also include your interpretations or qualifications about specific issues or concerns. Make note of anything that went differently than planned. Include group characteristics or dynamics between participants (e.g. disagreements on certain issues) that you would like to highlight, paying particular attention to dynamics based on social differentiation. Notes should also be taken highlighting the relationship between men and women and how this affects use and need for climate information. You (and the note takers) should make sure to record as much information as possible during each day. If possible, start completing the debriefing document. The results of the activity from the men’s, women’s and youths’ groups should be recorded separately and compared at a later time.

Day 3 - activity 1: Understanding and catalysing gender-sensitive climate-smart agriculture initiatives

Part 1: Introducing the session on understanding and catalysing gender-sensitive climate-smart agriculture initiatives

Climate-smart agricultural practices are described in more detail in Module 2. These include both adaptation and mitigation measures to ensure food security. Agricultural practices that sustainably increase productivity and resilience are termed adaptation, whereas agricultural practices that are mitigation measures are those that reduce greenhouse gas emissions, avoid or displace emissions, or remove emissions and create 'sinks'.

This research aims to support more widespread uptake of climate-smart agricultural practices by both women and men. It also seeks to enhance the likelihood that the benefits of initiatives, projects and programmes aimed at supporting improvements in farming practices are efficient and equitable.

The issue here is how to enhance the likelihood that these initiatives are gender-sensitive and benefit marginalized groups and not just men and wealthier farming households.

Part 2: Objectives of the climate-smart agriculture session

- To explore how institutional arrangements can be strengthened to improve access to benefits of climate change-related interventions (e.g. how are benefits/payments shared; how are project activities implemented to promote adaptation (e.g. by individuals or groups); and
- To understand gender differences in access to climate-smart agricultural interventions and opportunities.

Part 3: Outputs

- Information regarding the kinds of institutions (broadly defined as the 'rules of the game'), strategies and approaches that can support shifts to climate-smart agricultural practices by both men and women;
- Better understanding of the kinds of climate-smart agricultural practices that have been taken up by men and women, how and why these changes have come about, including challenges and opportunities.

Part 4: Materials required

- focus group discussion forms (see CCAFS – FAO debriefing document in the Module 6: Reporting formats);
- paper and markers for creating institutional profiles and drawing the Venn diagrams

Part 5: Data collection

Before starting the first focus group discussion, you should make sure you have a good overview of organizations and institutions working with natural resources, food security and, if possible, climate change.

This session includes two parts. The first focuses on getting information on the institutional arrangement in which the participants act, and the second focuses more directly on farming practices. The first part consists of focus group discussions only, whereas the second contains both key informant interviews as well as focus group discussions.

The following steps should be carried out with **a group of men and a group of women in separate areas** so they do not influence each other's responses. When collecting data, you should pay particular attention to any differences in responses that may arise from respondents based on their wealth, age, ethnicity, or any other social differentiation. You should also make note of the relationship between men and women and how this affects their use and knowledge of different institutions and organizations. You can use the forms in Module 6: Reporting formats to help structure your findings.

This session will use the Venn diagram tool to identify names of local and external organizations and institutions, and more importantly, their importance to the participants and their interrelations. However, if you require more detailed information on the organizations and institutions, the Institutional Profiles tool may help you learn more about local organizations, including how they function and for what purpose. This tool can also be used to identify the extent to which men and women farmers can access existing institutions and identify areas of improvement. Welcome the participants to the session. You could introduce the activity by saying: "Thank you for participating in this activity. We would like to find out more about the institutions and organizations that you are involved with. We would also like to know about organizations that might be further away, but which you perceive as being potentially interesting to work with".

Step 1: Venn diagram - focus group discussions with a randomly chosen group of men, and a randomly chosen group of women

Follow the established sampling procedure and use the guiding questions below.

- Could you name the institutions or organizations both local and external that provide you with services related to agricultural practices? If the participants are unclear about what you mean, you could give an example, such as extension services, the place you get your seeds from, the place you get information on farming practices and management.
- What is the objective of the organization?
- Which institutions have achievements related to climate-smart agriculture practices? Give examples, such as improved soil, water, land, agroforestry or livestock practices?
- Which institutions have links with outside institutions? For what purpose?
- Are there areas of conflict between this organization and another?
- Who has access to the services provided by the organization? Do young and elderly people have access to the services?
- Do women face certain constraints in accessing the organization compared to men? If so, what are the constraints?
- Does one group (social and/or gender) rely more on the organization than others?

As you are recording the answers to the above questions, ask the participants to map with you the different institutions they are involved with. Also ask them to map external organizations that they could potentially get involved with. Ask the participant to place the institutions and organizations in

relation to each other thus creating a Venn diagram. Remember to keep in mind that we are focussing on activities related to agricultural practices, ultimately we are interested in potential climate-smart agriculture practices.

Step 2: Changing farming practices tool - focus group discussions with the same group as for the activity above

To familiarize yourself with existing farming practices, the CCAFS baseline household survey data and report provides information on what kinds of changes in farming practices have been occurring over the last 10 years in this area.

We would like to document how a change in a farming practice, such as planting trees or modifying soil management, impacts the activities of men and women. We want to foster discussion of how the change in the farming practice came about, roles in decision making and access to any benefits created by the change. We want to identify opportunities for catalysing more widespread adoption of climate-smart agriculture practices, particularly by women.

Explain that you want to understand what kinds of changes in farming practices have been occurring, what kinds of things have been driving these changes, and what kinds of things may have been supporting them (what may have hindered them and who might have resisted or been opposed to the change). Ask the group to please describe some of the changes in farming practices that they themselves have made, or may have seen their neighbours adopt (e.g. changes to crops or varieties, types of livestock and livestock feeding and management practices, planting trees, soil management, home gardens, and water storage or management). List the changes they mention and ask them which they feel are the most important three to five changes. These will be used for further discussion (e.g. the most widespread changes, or the most recent ones).

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 about how the change has affected them overall in terms of well-being, income and food security.

Guiding questions:

- What was the change that was made? Why was this change 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 or information? How did you go about getting what you needed to make the change?
- If the change required new technology, who owns the technology, women or men? Who uses it, women or men?
- What were the supportive factors that have helped to make changes? Did the change create any problems? For whom, women or men?
- Did you experience hindrances to implementing the change? What were the hindrances? Institutional, organizational, cultural or personal hindrances?
- Did you keep the change in place or return to previous practices?

- What is hindering you from making more changes to your farming practices to deal with the challenges you are facing?

Step 3: Key informant interviews with staff and/or participants of projects or interventions promoting climate-smart agricultural practices

Use the guiding questions indicated below. Identify one or two people involved in one of the activities (preferably from different organizations and one man and one woman). The purpose of the interview is to understand the institutional aspects of these interventions with a focus on strategies and approaches they are using for including marginalized groups, such as poor men and women and minorities in the activities and benefits of the project.

Welcome the project staff member to the session. You could introduce the activity by saying: “Thank you for participating in this interview. We are interested in learning more about the kinds of new agricultural practices that have been taken up by men and women, how and why these changes have come about. We would like to hear about your project or the activity in which you are involved. And we would like to ask you some questions that focus on the approaches, strategies and institutional arrangements for sharing the benefits of the interventions that you are pursuing within your initiative.”

We are not trying to get all the details of their projects, but to focus on the issues of particular interest to us – how do men and women access information about new practices and technologies that enable them to deal with their changing climate? There are usually many different projects and government programmes going on in any given village as well as informal groups and networks; we would like to ‘tease out’ lessons from a sampling of these regarding strategies, approaches, rules, etc. that are being employed (or not) to enhance poor men and women’s participation in, and benefits from, such initiatives.

Guiding questions:

- What types of improved agricultural practices are being implemented?
- Who is participating in the project? Approximate percentage of men and approximate percentage women?
- How do they participate? (e.g. as individuals, within groups)?
- How are benefits shared?
- In what roles do women farmers participate? Are women involved in the leadership structure or decision making?
- Do women face certain constraints to joining the project compared to men? If so, what were they?
- What project benefits have flowed to women compared to men? Have you pursued any approaches aimed at ensuring equitable benefit sharing?
- What kinds of strategies and approaches have you used to address issues around inclusive participation? (e.g. of poor men and women, and other marginalized groups)
- Any strategies employed for empowering marginalized groups to take up improved agricultural and natural resource management practices?

Step 4: Ending the activity

This was the last activity with this group. Make sure to thank people for their participation and explain to them that you are excited about the information they provided and the active discussions. Give group participants the opportunity to add anything, make clarifications, or make either specific or general comments on the study issues. Thank participants again for their time and invite them to come to the final public meeting, where the results of this and similar group discussion will be presented to the whole community.

Each team is asked to take a few minutes to make notes about the focus group discussion. This can include any observations, concerns or comments you have and may also include your interpretations or qualifications about specific issues or concerns. Make note of anything that went differently than planned. Include group characteristics or dynamics between participants (e.g. disagreements on certain issues) that you would like to highlight, paying particular attention to dynamics based on social differentiation. Notes should also be taken highlighting the relationship between men and women and how these affects whether or not respondents are able to visit other villages to learn about adaptation strategies. You (and the note takers) should make sure to record as much information as possible during each day. If possible, start completing the debriefing document. The results of the activity from the men's and women's groups should be recorded separately and compared at a later time.

Day 3 - activity 2: Weather forecast session (youths)

See Day 2 - activity 2: Weather forecast session for a description of how to lead the session.

Day 4 - activity 1: Presentation of the summary to community (final community meeting)

(Duration: Approximately one hour)

Part 1: Introduction

The final meeting aims to wrap up the study in the village and to share major findings with the community.

Part 2: Participants

All community members and village authorities are invited to attend the final meeting. The session will be attended by trainees and note takers and facilitated by one of the trainees in the team.

Part 3: Intended outputs

Notes on the discussion

Part 4: Materials required

Major outputs compiled for reporting back. – The views of the male and the female participants will both be presented orally. Report back on at least 3 research findings on each of the topics covered (i.e. analogue method, climate information, climate-smart agriculture). The presentation should not last more than 30 minutes, leaving an additional 30 minutes for feedback from the audience.

Part 5: Exit Strategy – sharing back major findings and wrapping up

The team will present a snapshot of the major outputs from day 2 and 3. You may be supported by group representatives in their explanations. After the presentation a short interactive question and answer session may be held.

As a way to wrap up, thank the community for their hospitality and their participation. Talk about a way forward in terms possible of future engagement. CCAFS is planning to engage in the area over the next years to come and will possibly return in the near future. The outcome of the study will contribute to guiding future engagements between CCAFS partners and the community. Take care not to create any false expectation or make commitments that you cannot honour. As discussed in the beginning of this module, managing expectation is key and promises are not made on behalf of CCAFS and FAO. The only promise that can be made is that the researcher can help participants' voice to be heard. You may want reiterate that the research will inform development organizations that may be able to provide support and that this particular research is not simply and end in itself.

Module 6: Reporting formats

Audit trail - log

You should keep an audit trail of all your activities. It should include information ranging from discussions on the applicability of the tools in the respective countries, training sessions, the quality control process, oddities found in the data compared with actions taken, steps taken when analysing the data and writing the report. The audit trail is part of the debriefing document.

Transcribing discussions and analysing findings – the debriefing document and the site analysis document

All the discussions should be recorded as they take place in the notebooks of the note takers. The outputs of the group work (maps, diagrams, etc.) will need to be copied or saved to keep complete the record of the activities. You must ensure that you complete your notes and collect outputs at the end of each activity. Furthermore, you must ensure that the relevant sections of the Debriefing Document are fully completed at the end of each day in the village. The debriefing documents and all other outputs from the field work should be submitted to CCAFS together with the analysis report.

Electronic files and hard copies

The templates for the debriefing document and analysis report will be distributed in both electronic form and hardcopy. A copy of the files, saved with village identifications should be sent to the CCAFS team along with the sampling frames as appropriate.

CCAFS - FAO debriefing document

Dates in village (from/to):

Names of research facilitators:

Names of note takers:

Name of block or village:

CCAFS country and village ID:

Check list:

Upon leaving the village, you should check that the team:

- Has compiled notes of the qualitative topics in this debriefing document
- Check that all documents have the site name on every page
- Check that all sections of this debriefing document have been completed

Signature of the research facilitator

Signature of the note taker

Auditing

In the audit trail detail the dates and activities carried out, based on the step-by-step guide and the implementation guide. The audit trail should also include comments on the pre-visit arrangements, sampling procedures, invitations, etc. Add rows as needed.

Date	Activity	Changes made	Comments

Meeting with village authorities

Role in the village (administrator, traditional leader, etc.)	Age group (tick appropriate boxes)			Sex	
	Young person	Adult	Elderly	Male	Female

Notes

Discussions during the meeting revolving around the topics of this study and any other relevant information should be captured.

Day 1 - Public community meeting

Venue: _____

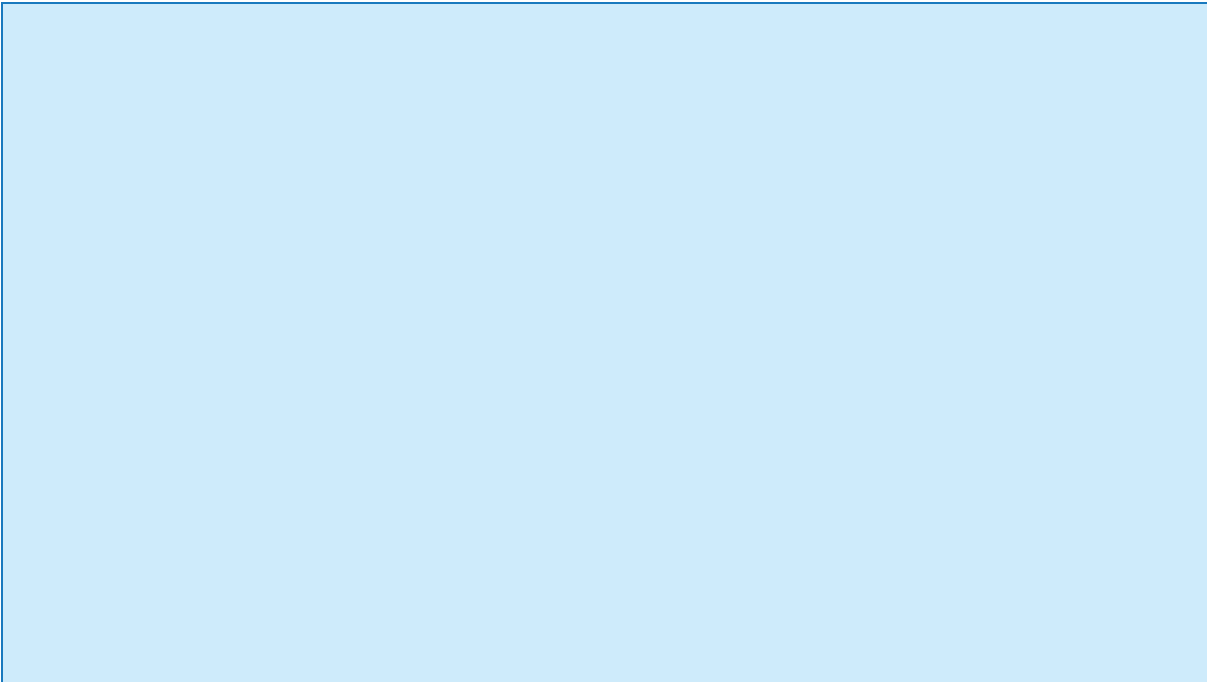
Time taken: _____

(Estimated) total number of males: _____

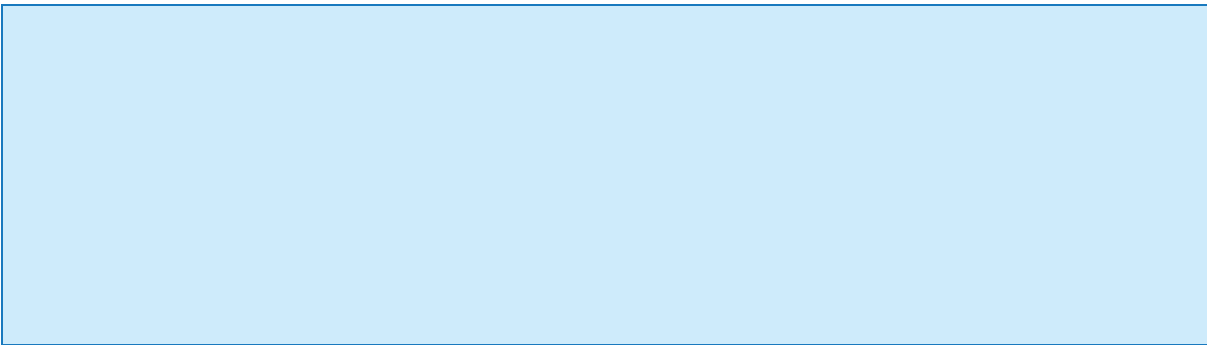
(Estimated) total number of females: _____

Was informed consent obtained? (Y/N) _____

Was there any discussions or disagreements? Elaborate.



Observations or comments about other discussions during the public meeting.



Day 2 - topic 1: Climate analogues session for women's group
Group 1 (women)

Venue: _____

Time taken: _____

Focus group discussion members (insert number of participants)

Age group	Female
Young people	
Adults	
Elderly people	

Climate Analogues Recording Table (please expand boxes as needed to capture what group participants are saying with respect to these factors!)

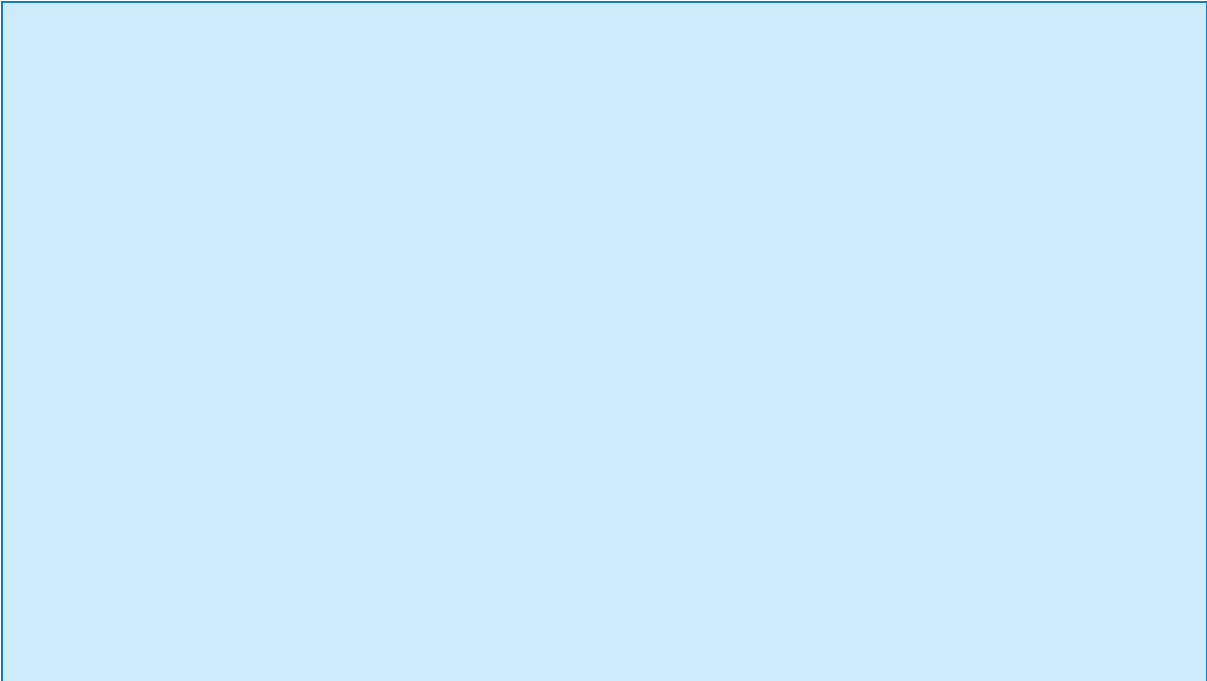
Contextual Factors	Enabling Factors of Mobility	Preventing Factors of Mobility
Reasons for visiting other villages	Methods of travel	Constraints to travel
Types of information sought	Frequency and time of visits	Who doesn't travel?
Types of information shared	Who travels?	Why?
Examples of information you would like to receive	Trigger or driver (Who or what triggered/triggers travel)?	
Examples of ways in which you've been able to use information from visits to other villages		

Scan and insert the extended **Village resource maps**.

Provide any additional issues, comments or observations that were raised in the session by participants that could not be captured in the table above.

Scan and insert the **seasonal calendar** if used.

Provide any additional issues, comments or observations that were raised in the session by participants that could not be captured in the table above.



Day 2 - topic 1: Climate analogues session for men's group

Group 2 (men) _____

Venue: _____

Time taken: _____

Focus group discussion members (if there are not enough lines in this box, continue overleaf. **Do not write names**, but insert number of participants).

Age group	Male
Young people	
Adults	
Elderly people	

Climate Analogues Recording Table (please expand boxes as needed to capture what group participants are saying with respect to these factors!)

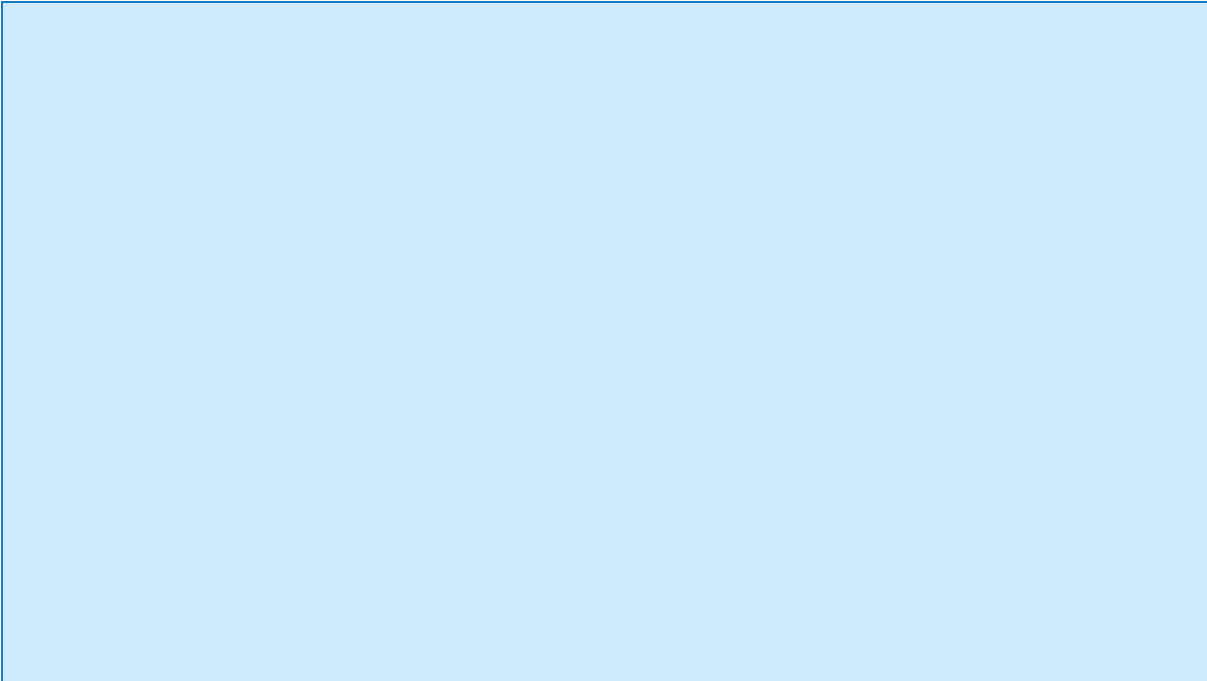
Contextual factors	Enabling factors of mobility	Preventing factors of mobility
Reasons for visiting other villages	Methods of travel	Constraints to travel
Types of information sought	Frequency and time of visits	Who doesn't travel?
Types of information shared	Who travels?	Why?
Examples of information you would like to receive	Trigger or driver (Who or what triggered/triggers travel)?	
Examples of ways in which you've been able to use information from visits to other villages		

Scan and insert the extended **Village resource maps**.

Provide any additional issues, comments or observations that were raised in the session by participants that could not be captured in the table above

Scan and insert the **seasonal calendar** if used.

Provide any additional issues, comments or observations that were raised in the session by participants that could not be captured in the table above.



Day 2 - topic 2: Weather forecast sessions for women's group

Group 1 (women) _____

Venue: _____

Time taken: _____

Focus group discussion members (insert number of participants)

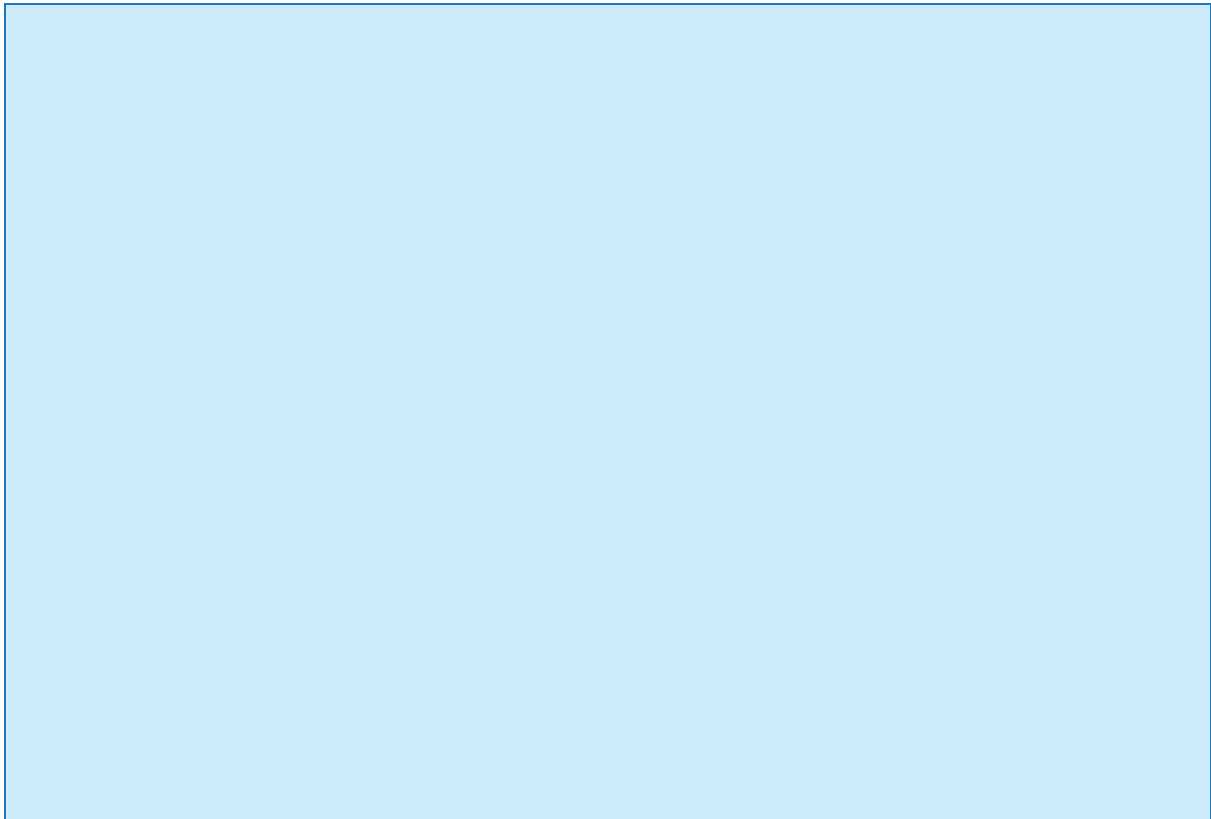
Age group	Female
Young people	
Adults	
Elderly people	

Please capture the information shared by participants in the tables below (expand boxes where necessary).

Daily weather forecasts – women's session

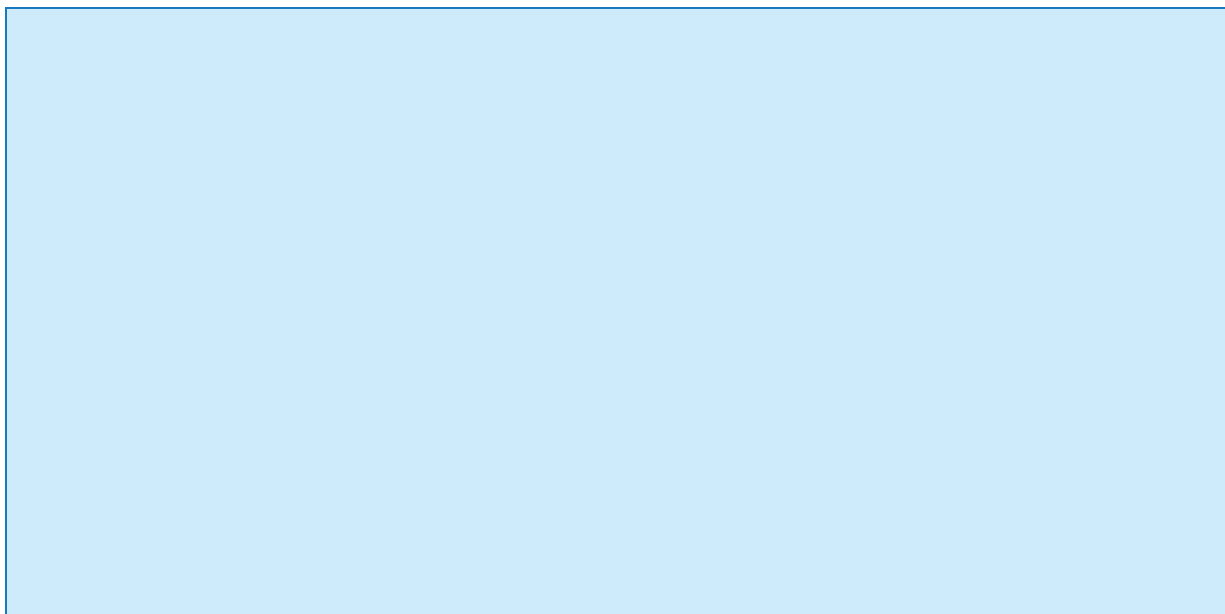
Participants that use daily weather forecasts	Participant that do not use daily forecasts
Who uses forecasts?	Who does not?
Number or part of the households that use daily weather forecasts	Why not?
	Would they like to? Why?
Weather information channels	Which channels would they prefer to use?
Format – is it useful?	Format preferred
Frequency of use	How often would you use your preferred format and how would you use it?
	When would you use it (time of year)
Is it trusted/ reliable?	
How is it used? Examples of actions	If daily forecasts are not trusted: are other sources relied on? Which?

Insert the **daily weather forecast** presented and note down any additional information provided by participants regarding the weather forecast session not captured in the table above.



Scan and insert the **seasonal calendar** if used.

Provide any additional issues, comments or observations that were raised in the session.



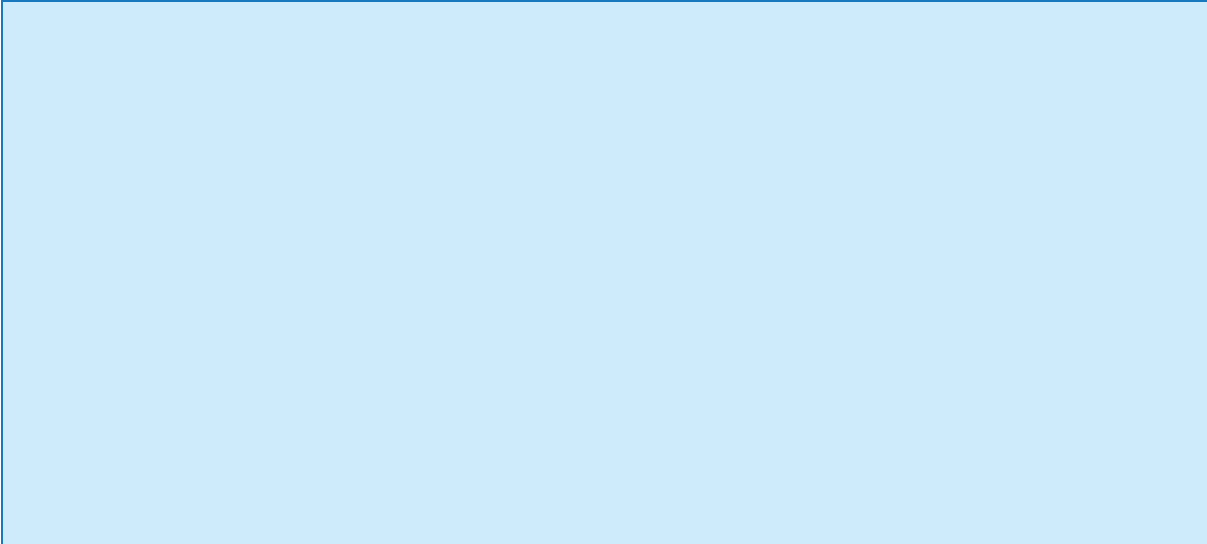
Seasonal forecasts – women’s session

Participants that use seasonal forecasts		Participant that do not use seasonal forecasts	
Who uses forecasts?		Who does not?	
From where or whom do you get the forecasts?		Why not?	
		Would they like to? Why?	
When are the seasonal forecasts used?		When would they use them (time of year)	
Format or channel?		Preferred format or channel?	
Is it trusted or reliable? Why/Why not?			
If yes: How is it used? Examples of actions	If not: are other sources relied on? Which?	How could seasonal information be used? Examples of actions	If seasonal forecasts are not trusted – which sources are relied on instead?
Would the format and channel make a difference? Why/why not?		Would the format and channel make a difference? Why/why not?	
Is the information shared? With whom?			

Insert the **seasonal weather forecast** presented and note down any additional information provided by participants regarding this session not captured in the table



Any additional overall thoughts shared regarding the use of daily weather forecasts and seasonal forecasts?



Day 2 - topic 2: Weather forecast sessions for men

Group 2: (men)

Venue: _____

Time taken: _____

Focus group discussion members (insert number of participants)

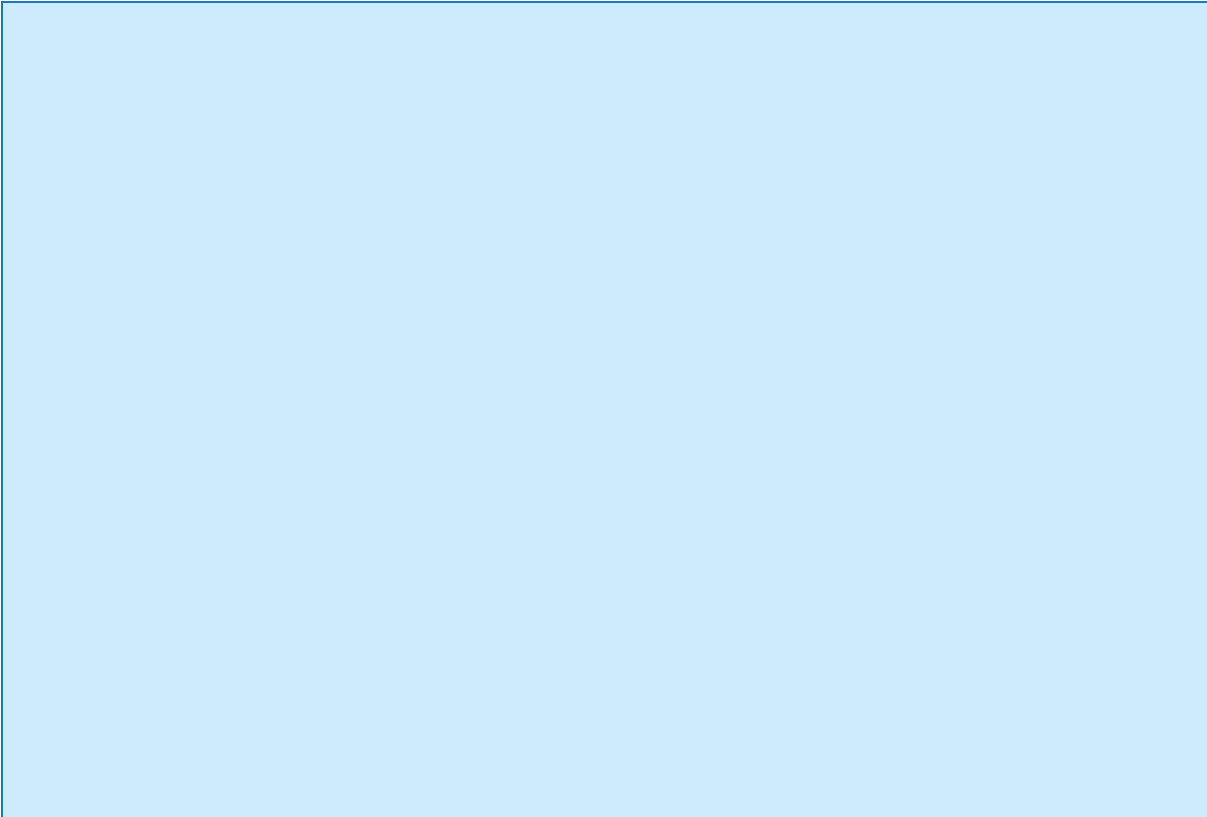
Age group	Male
Young people	
Adults	
Elderly people	

Please capture the information shared by participants in the tables below (expand boxes where necessary).

Daily weather forecasts – men's session

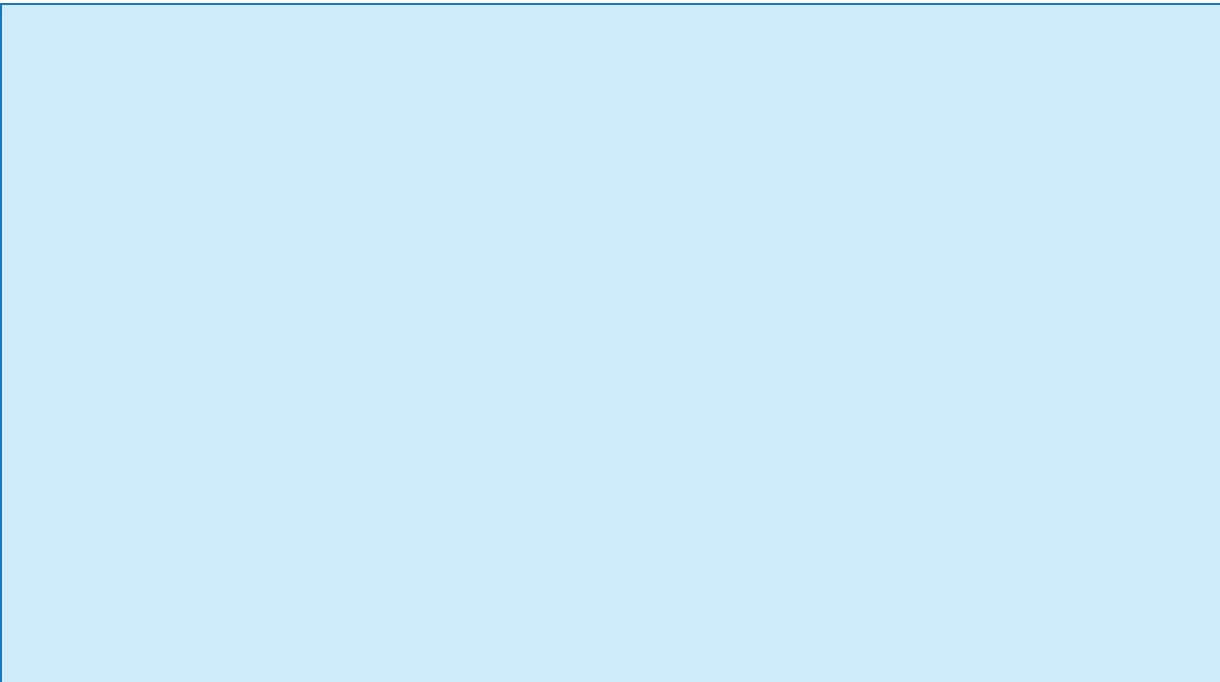
Participants that use daily weather forecasts	Participant that do not use daily forecasts
Who uses forecasts?	Who does not?
Number or part of the households that use daily weather forecasts	Why not?
	Would they like to? Why?
Weather information channels	Which channels would they prefer to use?
Format – is it useful?	Format preferred
Frequency of use	How often would you use your preferred format and how would you use it?
	When would you use it (time of year)
Is it trusted/ reliable?	
How is it used? Examples of actions	If daily forecasts are not trusted: are other sources relied on? Which?

Insert the **daily weather forecast** presented and note down any additional information provided by participants regarding the weather forecast session not captured in the table above.



Scan and insert the **seasonal calendar** if used.

Provide any additional issues, comments or observations that were raised in the session.



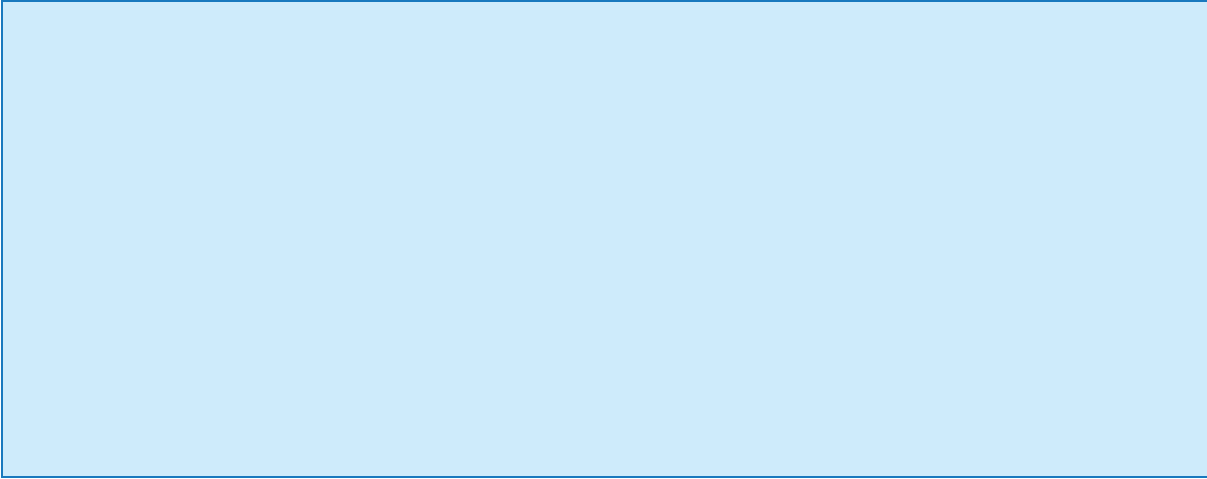
Seasonal forecasts – men’s session

Participants that use seasonal forecasts		Participant that do not use seasonal forecasts	
Who uses forecasts?		Who does not?	
From where or whom do you get the forecasts?		Why not?	
		Would they like to? Why?	
When are the seasonal forecasts used?		When would they use them (season/time of year)	
Format or channel?		Preferred format or channel?	
Is it trusted or reliable? Why/Why not?			
If yes: How is it used? Examples of actions	If not: are other sources relied on? Which?	How could seasonal information be used? Examples of actions	If seasonal forecasts are not trusted – which sources are relied on instead?
Would the format and channel make a difference? Why/why not?		Would the format and channel make a difference? Why/why not?	
Is the information shared? With whom?			

Insert the **seasonal weather forecast** presented and note down any additional information provided by participants regarding this session not captured in the table



Any additional overall thoughts shared by the group regarding the use of daily weather forecasts and seasonal forecasts?



Day 2 - topic 2: Weather forecast sessions for female youths

Group 3: (female youths)

Venue: _____

Time taken: _____

Focus group discussion members (insert number of participants)

Age range	
Females	

Please capture the information shared by participants in the tables below (expand boxes where necessary).

Daily weather forecasts – female youths’ session

Participants that use daily weather forecasts	Participant that do not use daily forecasts
Who uses forecasts?	Who does not?
Number or part of the households that use daily weather forecasts	Why not?
	Would they like to? Why?
Weather information channels	Which channels would they prefer to use?
Format – is it useful?	Format preferred
Frequency of use	How often would you use your preferred format and how would you use it?
	When would you use it (time of year)
Is it trusted/ reliable?	
How is it used? Examples of actions	If daily forecasts are not trusted: are other sources relied on? Which?

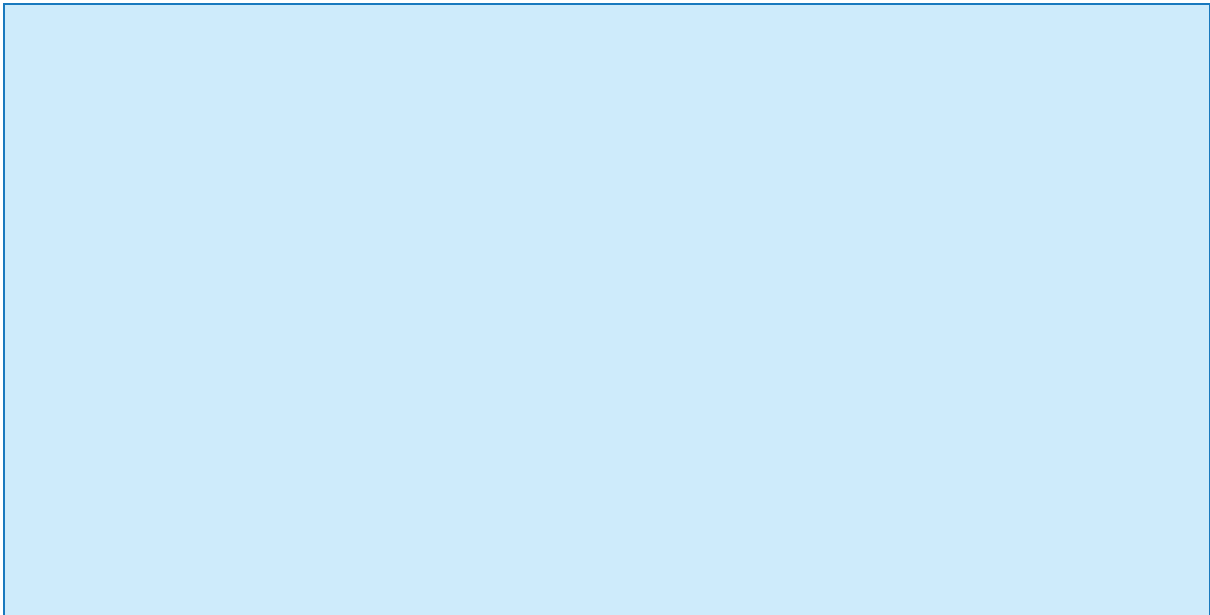
Insert the **daily weather forecast** presented and note down any additional information provided by participants regarding the weather forecast session not captured in the table above.

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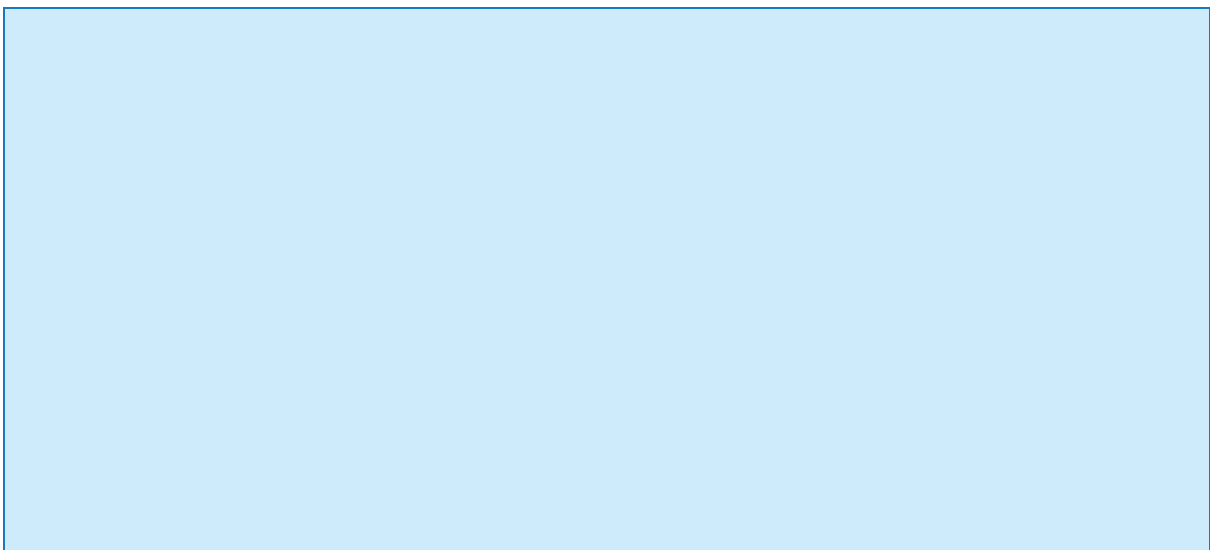
Seasonal forecasts – Female youths’ session

Participants that use seasonal forecasts		Participant that do not use seasonal forecasts	
Who uses forecasts?		Who does not?	
From where or whom do you get the forecasts?		Why not?	
		Would they like to? Why?	
When are the seasonal forecasts used?		When would they use them (time of year)	
Format or channel?		Preferred format or channel?	
Is it trusted or reliable? Why/Why not?			
If yes: How is it used? Examples of actions	If not: are other sources relied on? Which?	How could seasonal information be used? Examples of actions	If seasonal forecasts are not trusted – which sources are relied on instead?
Would the format and channel make a difference? Why/why not?		Would the format and channel make a difference? Why/why not?	
Is the information shared? With whom?			

Insert the **seasonal weather forecast** presented and note down any additional information provided by participants regarding this session not captured in the table



Any additional overall thoughts shared by the group regarding the use of daily weather forecasts and seasonal forecasts?



Day 2 - topic 2: Weather forecast sessions for male youths

Group 4: (male youths)

Venue: _____

Time taken: _____

Focus group discussion members (insert number of participants)

Age range	
Males	

Please capture the information shared by participants in the tables below (expand boxes where necessary).

Daily Weather Forecasts – Youths' session

Participants that use daily weather forecasts	Participant that do not use daily forecasts
Who uses forecasts?	Who does not?
Number or part of the households that use daily weather forecasts	Why not?
	Would they like to? Why?
Weather information channels	Which channels would they prefer to use?
Format – is it useful?	Format preferred
Frequency of use	How often would you use your preferred format and how would you use it?
Is it trusted/ reliable?	When would you use it (time of year)
How is it used? Examples of actions	If daily forecasts are not trusted: are other sources relied on? Which?

Insert the **daily weather forecast** presented and note down any additional information provided by participants regarding the weather forecast session not captured in the table above.

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Seasonal forecasts – male youths’ session

Participants that use seasonal forecasts		Participant that do not use seasonal forecasts	
Who uses forecasts?		Who does not?	
From where or whom do you get the forecasts?		Why not?	
		Would they like to? Why?	
When are the seasonal forecasts used?		When would they use them (time of year)	
Format or channel?		Preferred format or channel?	
Is it trusted or reliable? Why/Why not?			
If yes: How is it used? Examples of actions	If not: are other sources relied on? Which?	How could seasonal information be used? Examples of actions	If seasonal forecasts are not trusted – which sources are relied on instead?
Would the format and channel make a difference? Why/why not?		Would the format and channel make a difference? Why/why not?	
Is the information shared? With whom?			

Insert the **seasonal weather forecast** presented and note down any additional information provided by participants regarding this session not captured in the table



Any additional overall thoughts shared by the group regarding the use of daily weather forecasts and seasonal forecasts?



Day 3 - topic 3: Understanding and catalysing gender-sensitive, climate-smart agriculture initiatives - women's group

Group 1 (women)

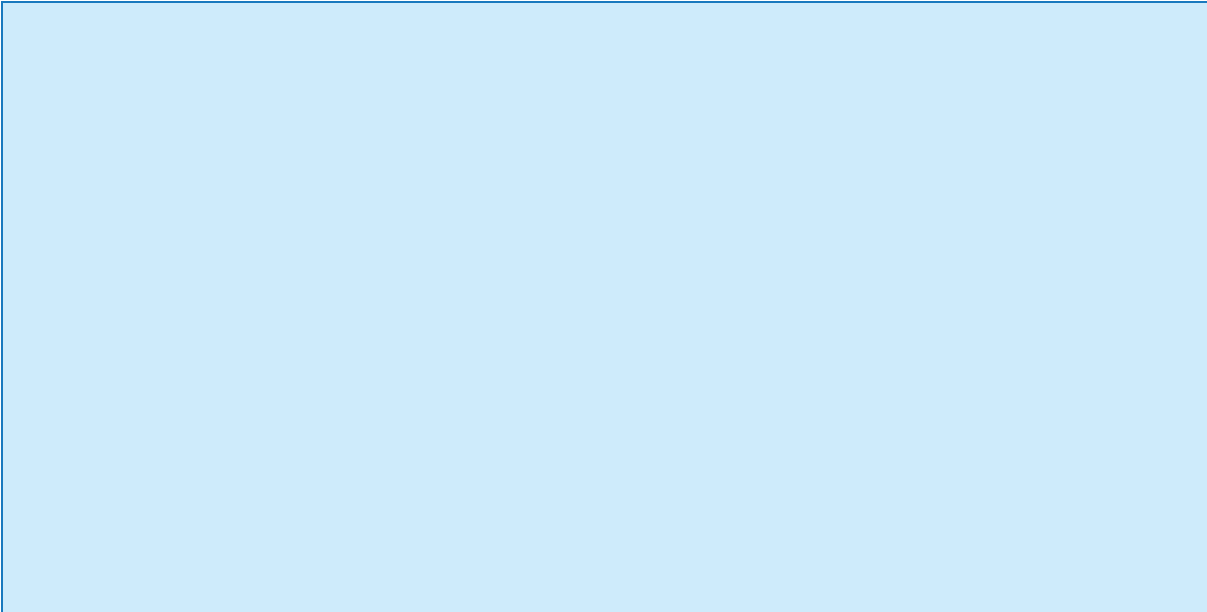
Venue: _____

Time taken: _____

Focus group discussion members (if there are not enough lines in this box, continue overleaf. **Do not write names**, but insert number of participants).

Age group	Female
Young people	
Adults	
Elderly people	

Insert the Venn diagram – women's session



Reporting on Institutional Issues - women's session

Reporting on the institutions and organizations based on the Venn diagram

Name	Objective	Achievements related to climate-smart agriculture	Links to other institutions	Any conflicts? If yes which?	Who has access?	Constraints faced by women?	Who relies most on the institution?

The following tables relate to relevant examples of climate-smart agricultural that are being pursued (or they'd like to pursue). They could include, but are not limited to: tree nurseries or other tree planting initiatives, water management-related, soil fertility or management-related; crop-related; livestock-related (production, marketing, information-related). Please list in the following table the 3-5 most important agricultural practices that this group wants to discuss, because they are very important for their livelihoods, they have been experiencing change with respect to these practices, or other reasons that the group feels they are important.

Reporting on climate-smart agriculture practices - women's session

Climate-smart agriculture practices being pursued	Who participates? (% men, %women)	How do men and women participate?	How are benefits shared?	Women's constraints to participation	Women's access to benefits	Strategies for inclusive participation	Strategies for equitable benefit sharing	Strategies for empowering marginalized groups
Practice 1								
Practice 2								
Practice 3								
Practice 4								
Practice 5								

Reporting on changing farming practices – women’s session

List 3–5 farming practice changes

Practice change	Who has changed their behaviour?	What was the change and why the new practice?	Driver (needs what drove this (is behind this)?)	Who helped this change come about?	Who decided to make the change?	How did you learn about the new practice?	Who provided the info?	Supportive factors or change and/or problems created by the change	Who was affected?
Change 1									
Change 2									
Change 3									
Change 4									
Change 5									

Day 3 - topic 3: Understanding and catalysing gender-sensitive, climate-smart agriculture initiatives - men's group

Group 2 (men)

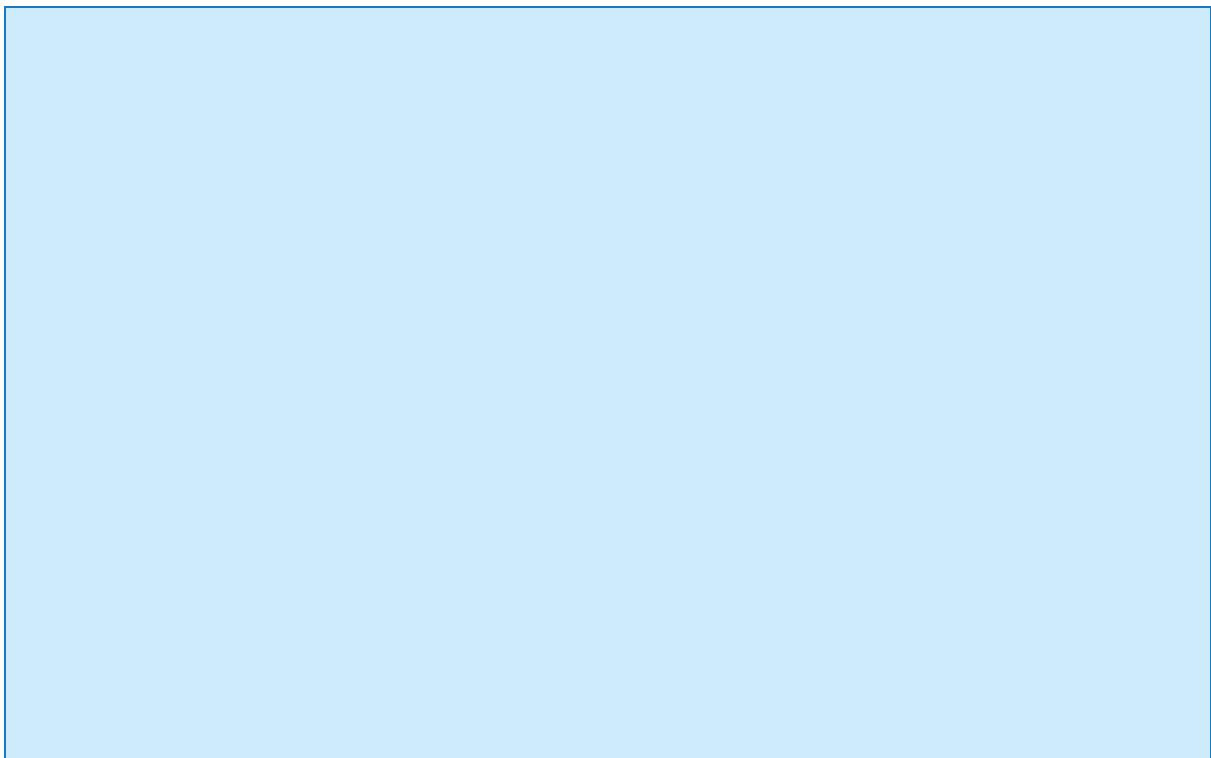
Venue: _____

Time taken: _____

Focus group discussion members (if there are not enough lines in this box, continue overleaf. **Do not write names**, but insert number of participants).

Age group	Male
Young people	
Adults	
Elderly people	

Insert the Venn diagram – men's session



Reporting on the institutions or organizations: Men's session based on the Venn diagram

Name	Objective	Achievements related to climate-smart agriculture	Links to other institutions	Any conflicts? If yes which?	Who has access?	Constraints?	Who relies most on the institution?

The following tables relate to relevant examples of climate-smart agricultural that are being pursued (or they'd like to pursue). They could include, but are not limited to: tree nurseries or other tree planting initiatives, water management-related, soil fertility or soil management-related; crop-related; livestock-related (production, marketing, information-related). Please list in the following table the 3-5 most important agricultural practices that this group wants to discuss, because they are very important for their livelihoods, they have been experiencing change with respect to these practices, or other reasons that the group feels they are important.

Reporting on climate-smart agriculture practices - men's session

Climate-smart agriculture practices being pursued	Who participates? (% men, %women)	How do men and women participate?	How are benefits shared?	Women's constraints to participation	Women's access to benefits	Strategies for inclusive participation	Strategies for equitable benefit sharing	Strategies for empowering marginalized groups
Practice 1								
Practice 2								
Practice 3								
Practice 4								
Change 5								

Reporting on changing farming practices- men's group

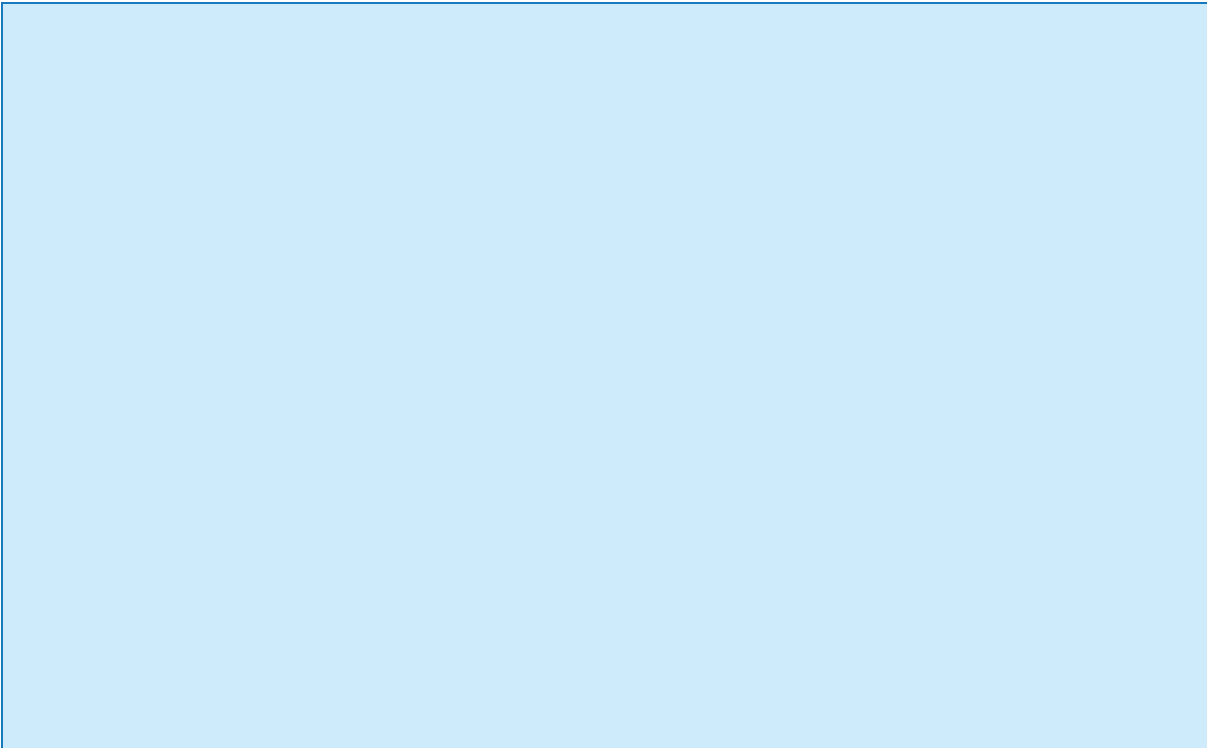
List 3–5 farming practice changes

Practice change	Who has changed their behaviour?	What was the change and why the new practice?	Driver (needs what drove this (is behind this)?	Who helped this change come about?	Who decided to make the change?	How did you learn about the new practice?	Who provided the info?	Supportive factors or change and/or problems created by the change	Who was affected?
Change 1									
Change 2									
Change 3									
Change 4									
Change 5									

Note down any additional information related to the activities on institutional issues or approaches and changing farming practices.



Overall comments on the use of the changing farming practices tool and discussions.



Day 4 - Presentation of the summary in the public meeting

Public meeting attendance (tick appropriate boxes; insert number of participants)

Age group		
	Male	Female
Young people		
Adults		
Elderly people		

Notes

Capture any discussion in the meeting revolving around the topics of this study and any other relevant information.

Module 7: Reporting

You will want your report to synthesize the wealth of information that you gathered in the field. The ‘analytical tools’ you will be using to write this report are basically synthesis, comparison, looking at similarities versus differences across groups and figuring out how the information gathered has (or has not) addressed the objectives and outputs of each of the activities carried out. The section on Topics is divided into research component and methods component, both of which this study addresses. The overview below shows a suggested annotated table of contents for an analysis Report. For CCAFS users the final report should not exceed 30 pages. The audience of your report may include both researchers and development practitioners who may want to use the results for the development of action research, so be careful to include all the findings that might be of use to others.

Components of the final report:

Executive summary of main findings

One-half- to one-page summary of the key lessons and findings of the study. Since we are tested the tools, this should include a brief overview of the strengths versus weaknesses/ limitations of the approach and training materials.

Introduction

- Brief description of the village and site in terms of geography, climate conditions and recent trends, farming practices, socio-economic issues and roles of men and women in agriculture and food security. This may be based on a literature review as well as your own observations and studies. (In this case, since an earlier village baseline survey was undertaken, this will be provided by CCAFS, with any additions you would like to make.)
- Brief description of the use of research tools used to retrieve information on climate analogues, climate information, institutions and mitigation, adaptation strategies and risks.

Receptiveness of the study

Brief description of how well the pre-study process went, including the sampling procedure for selection of participants, the process of speaking to and getting cooperation of village authorities, managing expectations, compensation issues and the first public meeting.

Topics

This section will analyse the research findings from days 2 and 3.

Topic 1: Climate analogues

Research component

Reminder of the objectives:

- to understand the extent to which different types of farmers are mobile (or not) and generate insights as to if, what and how they wish to learn from visiting climate analogue sites;
- to better understand how the use of other information and communication technologies (e.g. films such as short YouTube Videos or cell phones) may be ways in which to effectively share knowledge about what people are doing now in places with similar future climates for these different groups;
- to test the usefulness of gender-differentiated participatory resource maps (in this case, already available) in helping to enhance understanding of the potential of using the climate analogues tool in potential action research;
- to better understand the factors helping and hindering male and female farmers in learning from others about adaptive strategies for dealing with climatic uncertainties.

For **those who visit other villages** provide a summary of the answers to the following guiding questions:

- Where do they travel to? For what purpose? How often do they go there? How do they get there?
- Do other members of their households travel to these villages? Who? How often and for what purpose? How do they get to neighbouring villages? How easy is it to travel? What enables them and prevents them from travelling?
- What time of the year do they and their family travel the most?
- Are the nearby villages similar or different to theirs? If yes, in what ways?
- Are the villages they visit becoming drier or wetter or hotter or cooler?
- Do they think their village will become drier or wetter or hotter or cooler in the future? If so, then how will they make changes to make sure that they have enough food in the future?
- Do the villagers they visit have ideas on farming that they think may be useful to them to protect their family's ability to produce and eat enough food in the future?
- If they learned an adaptation technique or a new technique or idea from a neighbouring villager, what did they learn and how have they applied it if at all?

For **those who do not visit other** villages provide a summary of the answers to the following guiding questions:

- What is preventing them from travelling? (Note that women and men may have different restrictions on their mobility and the extent to which they interact with people outside of their own village. It is important to document any social restrictions on travel, in addition to any physical restrictions, such as poor roads).
- If they were to visit another village, what would they like to learn from other farmers?
- Would such visits help them? Why or why not?

The following broader questions may be used to facilitate analysis of information gathered in the climate analogue section of the report:

- Who would benefit from farmer to farmer exchanges and why? What the preventing and enabling factors to be mobile?
- How will or could farmer to farmer exchanges be beneficial?
- How can farmer to farmer exchanges be more inclusive of different types of farmers based on their gender, age, wealth, and/or ethnicity? Was there a difference between men's and women's ability to or interest in travelling to and interacting with other villages that could affect their participation in the analogue approach?
- What types of villages are conducive to information exchange?

Methods component

- Reflect on the effectiveness of using a Village resource map (if you have a good digital version/picture please insert it here). Did it help you communicate the concept of climate analogues?
- Reflect on the effectiveness of using a seasonal calendar (if you have a good digital version/picture please insert it here) if this was used. Did it help you communicate the concept of climate analogues?
- Did it help, for example, to discuss the potential of farmer-to-farmer exchanges, capture issues of mobility, and help you address the other objectives of this session?
- How effective was the use of focus group discussions for achieving the objectives of this session?
- Address how easy or difficult it was to use these tools. What should be changed about the methods to gather information on the possibility of farmer to farmer exchanges?
- How helpful, efficient and/or effective have the reporting guidelines been?

Topic 2: Weather forecast session

Reminder of the objectives:

- to better understand how we make weather information most useful and equitable to rural women and men including youths;
- to better understand which types of weather information is available to women, men and youths;
- to understand how and from where women, men and youths get information on weather;
- to better understand men's, women's and youths' abilities to use this information. This includes understanding the opportunities and constraints in accessing and using both daily and seasonal weather forecasts;
- to inform the design of action research to reach women, men and youths with weather and climate-related information that they can use it in making climate-smart agricultural decisions.

Research component

- Synthesize what the different groups said regarding local means of interpreting the weather and whether participants trust this more than other sources.

- Explain which groups found the daily versus seasonal forecasts of relevance, whether they were using, or would like to use them, and whether and what weather forecast information is shared within their households, and how this varies by women, men and youths.
- Provide a summary of the “Daily weather forecasts table” (see debriefing document) and describe the type of information men, women and youths receive and the channels through which they receive them. Did you see, or did they mention, any social differentiations in who received and used such information (e.g. poor versus wealthy households)?
- Explain whether and which respondents trust seasonal forecasts, whether these longer run forecasts are relevant to them, whether they would use them and whether information is shared in the household.
- How is the weather information they are receiving used by women, men and youths? Were you hearing similar or different things from these groups? What were the major similarities? The differences?
- Did the different groups trust traditional sources of information more than weather and seasonal forecasts? Why or why not?

Reminder of which results should be used in your analysis:

Use the sequence of questions in Module 5: Work plan on gender and climate change in agriculture and food security to help structure the synthesis of the three focus group discussions (men, women and youths).

Advice on what to consider when analysing results in order to meet the outputs of the Climate Information Session:

- Recommend the type of information that would benefit men, women and youths to manage risks, as well as the appropriate methods for delivery of climate information.
- Are there particular needs of any or the three groups that are not being met? Which communication mechanisms are preferred by men, by women and by youths?
- Identify the extent to which information is used in the household and by whom: Draw upon the answers to the questions regarding which household members access which information, as well as decision making about the information.
- Summarize ways women, men and youths receive information, including from where and from whom, as well as their reliance on local and received knowledge, in order to identify ways to deliver climate information to men, women and youths. In addition, research teams that may have gathered information during their background research on literacy rates and education may find it useful to interpret the villagers’ responses on accessing and using information based on their educational levels. This may, to some extent, explain why villagers use certain sources over others.

Methods component

- Share your experience in using the daily weather forecast and the seasonal forecast as a research tool to understanding the value of climate information.
- Reflect on the effectiveness of using a seasonal calendar (if you have a good digital version/picture please insert it here). Did it help initiate discussions on seasonal forecasts?

- How effective was the use of focus group discussions for achieving the objectives of this session?
- How did the gender-specific approach work out practically?
- How helpful, efficient and/or effective have the reporting guidelines been?

Topic 3: Understanding and catalysing gender-sensitive climate-smart agriculture initiatives

Reminder of the objectives:

- to explore how institutional arrangements (e.g. How are benefits or payments shared? How are project activities implemented promote adaptation, e.g. by individuals or groups?) can be strengthened to improve access to benefits of climate change-related interventions;
- to understand gender differences in access to climate-smart agricultural interventions and opportunities.

Research component

Please compare and contrast the different group session findings, and synthesise your findings with respect to these objectives. For example:

- What were the major kinds of agricultural practice changes discussed/being made by the women? By men? What were the main reasons the different groups were making such changes, and did they differ by gender or other social differentiation factors?
- Who and what did the different groups mention as assisting in making these changes?
- In terms of who provided them information on climate-smart agriculture practices, are there differences between what the men's group was saying compared to the women's group?
- Which were the main organizations/institutions with which participants (men and women respectively) were involved? Was there a difference? If yes, what was the difference – were men and women mainly interested in different organizations, if yes why?
- Were there any constraints for women (or men) in accessing or participating in activities and information provided by the most important organizations/institutions? If yes, what were they?
- What kinds of supporting factors did the different groups talk about? Were they mostly the same, or different?
- With respect to access to different types of projects or opportunities, what similarities and differences arose in terms of constraints to participation in projects/programmes, etc. between men's and women's groups?
- What kinds of strategies or approaches did the women discuss that they have seen with respect to equitable access to, and benefits from, participating in projects or collective action efforts helping them improve their agricultural practices? The men?
- What kinds of efforts did the two focus groups mention in terms of empowering marginalized groups to participate in any efforts to improve agricultural practices?

Methods component

- How effective were the facilitated focus group discussions in terms of addressing the objectives of this exercise?
- How effective was the Venn diagram tool in gaining an understanding of the institutional arrangements and 'rules of the game' related to support for changing farming practices?
- How effective was the changing farming practice tool in understanding change among men versus women?
- How helpful, efficient and/or effective have the reporting guidelines been?

Conclusion and recommendations

- Pull the major findings together from all of the above topics.
- Comment on the final public meeting and receptiveness of the findings.
- Highlight location specific concerns.
- Make recommendations for major opportunities for the target areas, and identify gaps in knowledge or other current constraints that could provide opportunities or niches for:
 - research (by CCAFS);
 - action research (by CCAFS partners such as the institutions of the implementation teams, other NGOs and local academia); and
 - development interventions (development partners such as FAO).

Part 3: Annexes

Annex 1: Glossary for development, gender and climate change terms

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: 5). In other words, addressing the impacts of climate change.

Other definitions: Outside of the climate change discourse, natural science disciplines use the term *adaptation* 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 *adaptation* in reference to human systems; according to Denevan, “cultural practices that allow societies to survive (and beyond that, flourish) are considered adaptations” (Adapted from Source: 10).

Climate

Climate in a narrow sense is usually defined as the “average weather” or more rigorously as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The classical period is 30 years, as defined by the World Meteorological Organization (WMO). These relevant quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system (Source: 7).

Climate change

Climate change refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the United Nations Framework Convention on Climate Change (UNFCCC), in its Article 1, defines “climate change” as: “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.” The UNFCCC thus makes a distinction between “climate change” attributable to human activities altering the atmospheric composition, and “climate variability” attributable to natural causes. See also climate variability (Source: 7).

Climate-smart agriculture

Climate-smart agriculture (CSA) is agriculture that sustainably increases productivity, resilience (adaptation), reduces/removes green house gases (mitigation), and enhances achievement of national food security and development goals (Source: 4).

Climate system

The climate system is the highly complex system consisting of five major components: the atmosphere, the hydrosphere, the cryosphere, the land surface and the biosphere, and the interactions between them. The climate system evolves in time under the influence of its own internal dynamics and because of external forcings such as volcanic eruptions, solar variations, and human-induced forcings such as the changing composition of the atmosphere and land-use change (Source: 7).

Climate variability

Climate variability refers to variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all temporal and spatial scales beyond that of individual weather events. Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability). See also climate change (Source: 7).

Co-benefits

IPCC definition: Co-benefits are the benefits of policies that are implemented for various reasons at the same time – including climate change mitigation – acknowledging that most policies designed to address greenhouse gas mitigation also have other, often at least equally important, rationales (e.g. related to objectives of development, sustainability, and equity). The term co-impact is also used in a more generic sense to cover both the positive and negatives sides of the benefits (Source: 5).

Community based adaptation (CBA)

Builds the resilience of communities and the ecosystems upon which they rely in the face of climate change impacts. CBA actions need to: (1) be community-driven; (2) be strategically-aligned with country programme strategies on climate change adaptation; (3) integrate livelihoods and natural resource management perspectives; in ways that take care of the natural resource base, while enhancing the resilience of resource-based livelihoods and contributing to global environmental benefits; (4) leverage lessons learned from community actions to inform national policy dialogues (Source: 6).

Development

Planned socio-cultural and economic change for the improvement of quality of living. The goal is to encourage change that is sustainable, equal and efficient (Source: 17).

Extreme weather event

An extreme weather event is an event that is rare within its statistical reference distribution at a particular place. Definitions of 'rare' vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th percentile. By definition, the characteristics of what is called extreme weather may vary from place to place. An extreme climate event is an average of a number of weather events over a certain period of time, an average which is itself extreme (e.g., rainfall over a season) (Source: 7).

Food insecurity

A situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level. Food insecurity may be chronic, seasonal, or transitory (Source: 7).

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: 14).

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 (Source: 2).

Gender shapes the opportunities and constraints that women and men face in securing their livelihoods across all cultural, political, economic and environmental settings. Gender influences the roles and relationships of people throughout all their activities, including their labour and decision-making roles (Source: 1).

Gender analysis

The study of the different roles of women and men in order to understand what they do, what resources they have, and what their needs and priorities are (Source: 2).

Gender balance

The equal and active participation of women and men in all areas of decision-making, and in access to and control over resources and services. The United Nations considers gender balance fundamental to the achievement of equality, development and peace (Source: 2).

Gender equality

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 (Source: 2).

Gender equity

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 (Source: 2).

Gender mainstreaming

The UN lead and globally recognized strategy for achieving gender equality. Gender mainstreaming is defined by the United Nations as the process of assessing the implications for women and men of any planned action in all areas and at all levels. That means making both the concerns and experiences of women and men an integral dimension of all agriculture and rural development efforts (Source: 2).

Gender relations

The ways in which a society defines rights, responsibilities and the identities of men and women in relation to one another (Source: 2).

Gender roles

Those behaviours, tasks and responsibilities that a society considers appropriate for men, women, boys and girls (Source: 2). Gender roles are: socially constructed; learned; dynamic (they change over time); multi-faceted (they differ within and between cultures) and influenced by class, age, caste, ethnicity and religion (Source: 1).

Greenhouse effect

Greenhouse gases effectively absorb infrared radiation, emitted by the Earth's surface, by the atmosphere itself due to the same gases, and by clouds. Atmospheric radiation is emitted to all sides, including downward to the Earth's surface. Thus greenhouse gases trap heat within the surface-troposphere system. This is called the 'natural greenhouse effect'. Atmospheric radiation is strongly coupled to the temperature of the level at which it is emitted. In the troposphere, the temperature generally decreases with height. Effectively, infrared radiation emitted to space originates from an altitude with a temperature of, on average, -19°C , in balance with the net incoming solar radiation, whereas the Earth's surface is kept at a much higher temperature of, on average, $+14^{\circ}\text{C}$. An increase in the concentration of greenhouse gases leads to an increased infrared opacity of the atmosphere, and therefore to an effective radiation into space from a higher altitude at a lower temperature. This causes a radiative forcing, an imbalance that can only be compensated for by an increase of the temperature of the surface-troposphere system. This is the 'enhanced greenhouse effect' (Source: 7).

Greenhouse gas

Greenhouse gases are those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. This property causes the greenhouse effect. Water vapour (H_2O), carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), and ozone (O_3) are the primary greenhouse gases in the Earth's atmosphere. Moreover there are a number of entirely human-made greenhouse gases in the atmosphere, such as the halocarbons and other chlorine- and bromine-containing substances, dealt with under the Montreal Protocol. Besides CO_2 , N_2O , and CH_4 , the Kyoto Protocol deals with the greenhouse gases sulphur-hexafluoride (SF_6), hydro-fluorocarbons (HFCs) and per-fluorocarbons (PFCs) (Source: 7).

Climate Impacts

Climate impacts are consequences of climate change on natural and human systems. Depending on the consideration of adaptation, one can distinguish between potential impacts and residual impacts. Potential impacts are all impacts that may occur given a projected change in climate, without considering adaptation. Residual impacts are the impacts of climate change that would occur after adaptation. (Source: 7).

Indigenous peoples

People whose ancestors inhabited a place or a country when persons from another culture or ethnic background arrived on the scene and dominated them through conquest, settlement, or other means and who today live more in conformity with their own social, economic, and cultural

customs and traditions than those of the country of which they now form a part (also referred to as 'native' 'aboriginal' or 'tribal' peoples) (Source: 7).

Intergovernmental Panel on Climate Change (IPCC)

The IPCC is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts (Source: 12).

Kyoto Protocol

The Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) was adopted at the Third Session of the Conference of the Parties to the UNFCCC in 1997 in Kyoto, Japan. It contains legally binding commitments, in addition to those included in the UNFCCC. Countries included in Annex B of the Protocol (most countries in the Organization for Economic Cooperation and Development, and countries with economies in transition) agreed to reduce their anthropogenic greenhouse gas emissions (carbon dioxide, methane, nitrous oxide, hydro-fluorocarbons, per-fluorocarbons, and sulphur-hexafluoride) by at least 5 percent below 1990 levels in the commitment period 2008 to 2012 (Source: 7). The Kyoto Protocol has been in force since February 2005.

Mitigation

IPCC definition: Mitigation is an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases (Source: 5). In other words, reducing the causes of climate change.

Other definitions: Note that outside the climate change discourse, *mitigation* often has a different, almost opposite, meaning. In the context of disasters, *mitigation* 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: 8).

In other words, in the context of climate change, the word *mitigation* refers to reducing the causes of climate change, while in other contexts, the word *mitigation* refers to reducing or lessening a negative outcome.

Participatory Rural Appraisal (PRA)

A process of gathering information about a community's situation with an emphasis on building up the process of discussion, analysis and planning in the community. In addition to fact-finding, the goal is to facilitate learning and analysis by local women and men (Source: 1).

Resilience

IPCC definition: Resilience is the amount of change a system can undergo without changing state (Source: 5)

Other definitions: Many disciplines use the term *resilience*, 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 11). Please consult this source for additional definitions.

Risk

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: 15).

United Nations Framework Convention on Climate Change (UNFCCC)

The Convention was adopted on 9 May 1992 in New York and signed at the 1992 Earth Summit in Rio de Janeiro by more than 150 countries and the European Community. Its ultimate objective is the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.” It contains commitments for all Parties. Under the Convention, Parties included in Annex I aim to return greenhouse gas emissions not controlled by the Montreal Protocol to 1990 levels by the year 2000. The Convention entered into force in March 1994. See also Kyoto Protocol and Conference of the Parties (COP) (Source: 7).

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: 5).

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: 9).

Sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Source: 7).

Technology transfer

The broad set of processes that cover the exchange of knowledge, money, and goods among different stakeholders that leads to the spreading of technology for adapting to or mitigating climate change. As a generic concept, the term is used to encompass both diffusion of technologies and technological cooperation across and within countries (Source: 7).

Uncertainty

An expression of the degree to which a value (e.g., the future state of the climate system) is unknown. Uncertainty can result from lack of information or from disagreement about what is known or even knowable. It may have many types of sources, from quantifiable errors in the data to ambiguously defined concepts or terminology, or uncertain projections of human behaviour. Uncertainty can therefore be represented by quantitative measures (e.g., a range of values calculated by various models) or by qualitative statements (e.g., reflecting the judgment of a team of experts). See Moss and Schneider (2000) (Source: 7).

Values

Worth, desirability, or utility based on individual preferences. The total value of any resource is the sum of the values of the different individuals involved in the use of the resource. The values, which are the foundation of the estimation of costs, are measured in terms of the willingness to pay (WTP) by individuals to receive the resource or by the willingness of individuals to accept payment (WTA) to part with the resource (Source: 7).

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 is exposed, its sensitivity, and its adaptive capacity (Source: 7).

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: 9).

Vulnerability of a food system to environmental change

The vulnerability of a food system to environmental change is 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: 16).

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Both women and men play a significant role in safeguarding food security, and their respective roles and responsibilities need to be well understood to ensure that men and women benefit equally from climate-smart agriculture practices. Little research, however, has been undertaken to understand how men and women are adapting to climate change, mitigating emissions and maintaining food security.

As one of many steps toward addressing this gap, the Food and Agriculture Organization of the United Nations (FAO) and CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) have developed this training guide “Gender and Climate Change Issues in Agriculture and Food Security Research and Rural Development”.

The Training Guide provides a clear understanding of the concepts related to gender and climate-smart agriculture; describes participatory methods for conducting gender-sensitive research on the impacts of climate change; and offers guidance on different ways of reporting research findings so that they can be properly analysed. Using the guide will ensure that critical information on gender and climate change is collected, allowing researchers and development workers to formulate appropriate gender-sensitive policies and programmes for rural development.



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