

Engendering Climate Change Policy and Practice in Ethiopia

The Ethiopian Civil Society Network on Climate Change (ECSNCC) was established in January 2009 and consists of more than 60 NGOs and CSOs that are working on various issues of climate change. The major objectives the network are awareness raising, Capacity building, action oriented research on climate change, experience sharing and documentation. The secretariat of the network is Forum for Environment.

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The views presented here are those of the author and are not necessarily shared by DCA or FfE or members of ECSNCC.

Preface

The socio-economic consequences of climate change are intense in Ethiopia due to the structure of the economy and the low mitigation and adaptation capacity of economic agents. Climate change is not gender neutral, and gender is an important determinant in climate change mitigation and adaptation. As climate change tends to magnify existing inequalities, with gender inequality being one of the most pervasive, it has major impacts particularly on women. Women are likely to experience worsening inequalities of different magnitudes as a result of climate change impacts through their socially constructed roles, rights and responsibilities, and because they are often poorer. Gender differences must be considered not just in terms of differential vulnerability, but also as differential adaptive capacity.

Although there is clear evidence of a direct link between gender relations and impacts of climate change, women's voices and participation in decision-making structures and processes are still inadequate. Climate change debates, processes and mechanisms at national level often fail to sufficiently adopt a gender-sensitive strategy, and there is little evidence of specific efforts to target women in adaptation activities funded by bilateral and multilateral programs. Prioritized activities in many climate related policy documents fail to include women as contributors and target groups. Ethiopia is not an exception in this respect.

Therefore, the report enclosed could play an important role in strengthening gender responsiveness in climate change through facilitating the ground for gender mainstreaming into climate related policy documents and programmes of action at different levels. Further, the report will also greatly contribute in enhancing the capacity of the network in the analysis key issues such as gender and climate change and will be another opportunity to engage various stakeholders at different levels, including key policy makers.

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Table of Contents

Abbreviations and Acronyms	i
Glossary of gender-related concepts and definitions.....	ii
Executive summary	iv
1. Introduction	1
1.1 Background.....	1
1.2 Problem statement	2
1.3 Study purpose and objectives	4
1.4 Significance of the study	4
1.5 Methodology.....	5
1.6 Limitations of the study.....	5
1.7 Structure of the paper	6
2. Climate variability and change in Ethiopia	7
2.1 Observed trends and projections.....	7
2.2 Future climate change over Ethiopia	7
2.3 Major Climate change-induced hazards	8
2.4 Impacts on vulnerable sectors and social groups.....	8
2.4.1 Vulnerable sectors	8
2.4.2 Vulnerable social groups	9
2.5 Need for national policy response measures	9
2.6 National policy responses to climate change.....	10
2.7 Why gender and climate change?.....	12
3. Gender differentiated impacts and vulnerabilities in Ethiopia	13
3.1 The vulnerability of women to climate change impacts in Ethiopia	13
3.1.1 Gender, agriculture and climate change	14
3.1.2 Gender, water and climate change.....	15
3.1.3 Gender, biodiversity and climate change.....	15
3.1.4 Gender, health and climate change.....	16
3.1.5 Gender, conflict and climate change	17
3.2 Causes of women’s vulnerability	17
3.3 What is gender mainstreaming?	19
3.4 The National Policy on Ethiopian Women (NPEW).....	21

3.4.1	Climate Change Issues in the Women’s Policy	21
4.	Assessment of climate change related national policies and programs	23
4.1	Environmental Policy of Ethiopia	23
4.1.1	Climate Change Issues in the EPE	24
4.1.2	Gender issues in the EPE.....	25
4.2	Ethiopia’s Program of Adaptation to Climate Change (EPA-CC)	27
4.2.1	Gender issues in the EPA-CC.....	30
4.3	Nationally Appropriate Mitigation Actions (NAMA) of Ethiopia	31
4.3.1	The need for gender-sensitive strategies for NAMAs	33
5.	Tools for engendering climate change related policies and programmes.....	38
5.1	Commonly used Gender analysis frameworks in relation to climate change policy	38
5.1.1	Harvard Analytical Framework	38
5.1.2	Gender Planning framework in relation to climate change policy(Caroline Mosser Framework)	38
5.1.3	Social Relations Framework in relation to climate change policy (Naile Kabeer IDS Framework)	39
5.1.4	Capacity and vulnerabilities Analysis in relation to climate change(CVA).....	40
5.2	Steps for mainstreaming gender in the policy related to climate change	41
5.2.1	Gender mainstreaming in the policy related to climate level should follow the following steps.	41
6.	Engendering climate change policy and practice: Some recommended strategies.....	49
6.1	Beyond a focus on women’s’ vulnerability	49
6.2	Women as environmental managers and leaders.....	50
6.3	Generating and disseminating gender disaggregated data.....	50
6.4	Paying particular attention to women’s special condition.....	50
6.5	Overcoming underlying drivers of women’s vulnerability	51
6.6	Taking into account the concerns and capabilities of men and boys.....	51
6.7	Technology needs assessment and information.....	51
6.8	The need for gender training	52

Abbreviations and Acronyms

CDM	Clean Development Mechanism
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CRGE	Climate Resilient Green Economy
CSA	Central Statistical Authority
CSW	Commission on the Status of Women (of the United Nations)
CVA	Capacity and Vulnerability Analysis
ECOSOC	Economic and Social Council (of the United Nations)
EIA	Environmental Impact assessment
EPA	Environmental Protection Authority
EPACC	Ethiopian Programme of Adaptation for Climate Change
EPE	Environmental Policy of Ethiopia
FAO	Food and Agricultural Organization (UN)
FDRE	Federal Democratic Republic of Ethiopia
GAD	Gender and Development
GHGs	Green House Gases
GM	Gender Mainstreaming
GTP	Growth and Transformation Plan
ICPAC	Climate Prediction and Applications Centre (IGAD)
IPCC	Inter-governmental Panel on Climate Change
MDG	Millennium Development Goal
M & E	Monitoring and Evaluation
MoFED	Ministry of Finance and Economic Development
NAMA	Nationally Appropriate Mitigation Action
NAPA	National Programme of Adaptation to Climate Change
NPEW	National Policy on Ethiopian Women
NMA	National Meteorology Agency
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention for Combating Desertification
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
UN-ISDR	United Nations International Strategy for Disaster Reduction
USAID	US Agency for International Development
WEDO	Women's Environment and Development Organization
WID	Women in Development

Glossary of gender-related concepts and definitions¹

Gender: Refers to roles, responsibilities, rights, relationships and identity/ uniqueness of men and women that are defined or ascribed to them within a given society and context; and how these roles, responsibilities and rights and identities of men and women affect and influence each other. These roles, etc., are changeable over time, between places and within places.

Gender division of labor: Concerns the allocation of the tasks and responsibilities of men and women at home, at work in society according to patterns of work that are felt to be accomplished in a particular place and time.

Gender Roles: Refers to how men and women should act, think and feel according to norms and traditions in a particular place time.

Gender Equality: Refers to equal rights, voice, responsibilities and opportunities for men and women in society, at work and in the home;

Gender equity: Refers to fairness between men and women in access to society's resources, influencing socially valued goods, rewards and opportunities.

Gender Gaps: Refers to societal differences between men and women that are felt to be unwanted.

Gender Mainstreaming: Refers to the consideration/reflection of gender equality concerns in all policy, program, administrative and financial activities, and in organizational procedures, thereby contributing to organization (an extended discussion on gender mainstreaming is included in the main body of the paper).

Gender Roles: Refers to how men and women should act, think and feel according to norms and traditions in a particular place time.

Gender Valuation: Of work refers to the social and economic values attached to different tasks and responsibilities of women and men.

Gendered access: To resources, facilities, services, funds, benefits and decision making: Refers to difference between men's rights and opportunities to make use of these resources and to make part in decision – making, due to norms and values are existing in a particular place and time.

¹ Most of the concepts and definitions used here are adapted from UNDP (2007). Gender Mainstreaming: a key development in environment and energy, USA: UNDP.

Gendered Control: Over resources and decision – making processes refers to differences between men’s and women’s rights and power to decide on the use of resources, gain benefits, and take part in decision – making processes, due to norms and values existing in society

Gender Perspective: Means that:

- A differentiation is made between the needs and priorities of men and women;
- The views and ideas of both men and women are taken seriously;
- The implications of decisions on the situation of women relative to men are considered: Who will gain and who will lose: and
- Action is taken to address inequalities or imbalances between men and women.

Sex:

- Refers to the biological natural of being male or female;
- The biological characteristics of men and women are universal and obvious.

Sex Roles: Are those that are bound to one particular sex due to biological factors, for example, given from birth?

Women’s Empowerment: Refers to the process in which women reflect upon reality and question the reasons for the situation in society.

- It includes developing alternative options and taking opportunities to address existing inequalities;
- It enables them to live their lives in the fullness of their capabilities and their own choices in respect of their rights as human beings;
- In the Beijing Declaration, it was geared that “Women’s empowerment and their full participation. On the bases of equality in all spheres of society, including participation in the decision – making process empowering women, are fundamental for achievement of equality, development and peace.”

Gender Analysis: Gender analysis provides a deeper understanding of the situation for and between men and women, their constraints, needs, priorities, and interests. Gender analytical information (results of gender analysis) is essential in designing good policies because it tells us why the differences exist and their causes. Gender analysis is an important part of policy analysis that identifies how public polices (or programs/projects) affect men and women differently. Conducting gender analysis requires well – developed social and gender analysis skills and is usually carried out by appropriately trained and experienced social researchers or gender experts. Therefore, selecting appropriate frameworks and tools is necessary for identifying issues and strategies that are central to the cause.

Executive summary

Neither the impacts of climate change on people nor the ways in which people respond to climate change are gender-neutral. Gender inequalities and different socially ascribed gender roles, needs and preferences which vary over space and over time influence the specific ways in which climate change affects males and females of all ages and the ways in which they develop strategies to adapt to or mitigate climate change. Gender equality is recognized globally as a high-priority development goal, a fact that is reinforced by the third Millennium Development Goal on gender equality and women's empowerment, the Beijing Platform for Action and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW). At the same time, it is recognized as a condition for the achievement of sustainable development. As such, gender equality is both a goal and condition for successful climate change adaptation and transitions to low-carbon development pathways in developing countries.

Yet, the mainstreaming of gender issues is an issue of great concern in climate change policy making and programming. While some progress has been made over the past few years, the social, and particularly the gender dimensions of climate change and its responses, are insufficiently addressed under the UNFCCC and in developing countries' strategies for climate change adaptation and low-carbon development. The spheres of policymaking and programming on climate change, both at national and the international levels, remain dominated by technical and natural science perspectives and solutions, whether they are implemented at the household, community, national or global level. Amongst known and new sets of stakeholders working on around climate change and development-related issues- including civil society, donor and the more recently established private-sector low-carbon initiatives – government leadership on promoting a much greater focus on the gender dimensions of climate change is, therefore, essential. However, despite the rapid development of new knowledge and awareness on the gender dimensions of climate change, there has been hardly any consideration of how climate change policy makers and institutional leaders could achieve this.

It is by now widely accepted that failure to include women in decision-making processes around climate change adaptation and mitigation at local, national, regional and international levels not only exacerbates gender inequalities, but also undermines the effectiveness of climate change responses. Gender based analysis has the potential to facilitate gender mainstreaming and programme efficiency, thus contributing to capacity building and empowerment especially of poor rural women as producers of knowledge and has clear benefits for the communities that they will serve. This will also assist in achieving the long term development goal of achieving gender equality and ensuring environmental sustainability.

Understanding how different social expectations, roles, status, and economic power of men and women affect and are affected differently by, climate change and incorporating these gender differentials in the climate change policy making process will improve actions taken to reduce vulnerability and combat climate change in poorer countries. In this regard, the study was conducted with the main aim of understanding the gender

dimensions of climate change in Ethiopia thereby contributing towards engendering climate change related policies and programmes of action. This is perhaps the single most important step towards the development and achievement of more equitable and responsive climate change policies and programmes.

The study heavily relied on secondary sources of information (Government climate change related policy documents, action plans, and published and unpublished research reports). In addition, attempts were made to include the viewpoints of relevant experts and policy makers at the Federal Environmental Protection Authority and the Ministry of Women, Children and Youth.

The followings are the major findings of the review:

- ***Need for national policy response measures:*** There are a number of reasons why Ethiopia should be concerned about climate change. Our main natural resources namely water, forest, rangeland, agricultural land, biodiversity, energy, etc are very much the reflection of the climate we have. Socio-economic activities such as agriculture (both crop cultivation and livestock herding) and agro-forestry which are the main source of livelihoods and backbone of the country's economy, as well as vital socioeconomic sectors including energy and water supply, human health, etc are also very sensitive to climate variations. Well-intentioned climate change policy response measures are vital if Ethiopia is to break the poverty trap and achieve its national ambition of becoming a middle income carbon-neutral economy by 2025.
- ***National policy responses to climate change:*** Ethiopia is determined to flip challenges of climate change into genuine opportunities. The country has ratified the UNFCCC (1994) and the KP (2005). A national adaptation document is in place, and climate change is being integrated into sectoral development plans. The NAPA (2007) document (now replaced by EPACC) was prepared (2007); NAMA (in 2010); and currently a CRGE strategy is being developed. The five-year national Growth and Transformation Plan (GTP) stipulates the country's ambition to build a climate resilient green economy by 2025. Other than the GTP, the various national policies and sectoral programs now in place also address climate change, albeit indirectly.
- ***Why engendering climate change policy and practice:*** Including both men and women in decision-making on climate change adaptation, mitigation, financing, technology development and transfer, and understanding the reasons for and implications of their different roles, responsibilities and capabilities is clearly essential for gender equality, poverty reduction and low-carbon development. Moreover, when addressing climate change, not taking both women and men, and girls and boys into account would mean neglecting a large part of the people whose well-being we seek to improve. Gender insensitive policies and perspectives tend to exacerbate existing inequalities and vulnerabilities. It is only through gender-sensitive climate change policy making and programming that the vulnerabilities of women and their unique environmental knowledge and life experiences in environmental adaptation be taken care of. This is why engendering climate change

related policies and practices become key to the reduction of poverty and attainment of the MDGs.

- ***Gender differentiated impacts and vulnerabilities in Ethiopia:*** In Ethiopia, the majority of the poorest groups are composed of women, the disabled, and those living with HIV/AIDS. Women constitute nearly half of the country's population, and most of them are living in dire economic condition with endemic poverty and poor working and living conditions. Not surprisingly, these social and demographic groups are also the most vulnerable, least prepared and likely worst affected by climate change. It follows that any response to climate change should be sensitive to their needs and priorities, and thus aim at building their resilience and adaptive capacities. Women's limited access to resources and decision-making processes increases their vulnerability to climate change.
- ***Women as agents of environmental adaptation:*** Despite their vulnerability to climate change and environmental degradation, Ethiopian women are also the unsung heroines. Rural women in particular strategize to prevail amid deteriorating environmental conditions. They generally have developed a sense of how to cope with disasters and have found ways to adapt with climatic and non-climatic stressors. They have developed important knowledge and skills for orienting the adaptation processes, a product of their roles in society. In this regard, involving both women and men and their respective viewpoints in the climate adaptation process of planning and implementation is critical to ensure that the end solutions will actually benefit all members of the community.
- ***Environmental Policy of Ethiopia:*** Ethiopia did not have a comprehensive environmental policy until 1997. Realizing that natural resources are the foundation of an economy, the Government of Ethiopia (GoE) issued the country's first ever Environmental Policy in 1997. The aim was to rectify the economic and social costs of environmental damage from widespread mismanagement of environmental resources, and to provide overall guidance in the conservation and sustainable utilization of the country's environmental resources. From the perspective of climate change, the policy has considered in its sectoral environmental policy components atmospheric pollution and climate change as important environmental, social and development challenges that need to be tackled. The Policy fully considers sectoral and cross-sectoral issues, and ensures the full participation of women in environmental decision making, resource ownership and management. However, during implementation of the various policy measures stipulated in the EPE, the issue of gender and the role of women in environmental adaptation and sustainable development were not taken seriously.
- ***Ethiopia's Program of Adaptation to Climate Change (EPA-CC):*** EPA-CC is a programme of action to build a climate resilient economy through adaptation at sectoral, regional and local community levels. EPA-CC updated and replaced the NAPA which was formulated and submitted to the UNFCCC Secretariat in 2007. The EPA-CC interlinks climate change adaptation strongly with the economic and

physical survival of the country and identifies key climate change adaptation measures, and strategic priorities and intervention areas to address the adverse effects of climate change. In the project based NAPA that Ethiopia prepared in 2007, there were important concerns about the participation of relevant stakeholders in the plan preparation process. Most importantly, there were no representatives from the Women's Affairs Office and the Ministry of Health in the steering committee (responsible for the preparation of the NAPA document). Social and gender issues were also not given sufficient attention. The EPA-CC, on the other hand, considers gender and social issues as two important components of the adaptation process. Among the objectives listed for EPA-CC relate directly to gender and social issues: ensuring that gender equity is achieved and ensuring that the physically handicapped are enabled to fend for themselves.

- ***Nationally Appropriate Mitigation Actions (NAMA) of Ethiopia:*** In accordance with the requirements of the Copenhagen Accord, Ethiopia prepared and submitted its NAMAs in January 2010. The Ethiopian NAMA is comprised of various sectors and concrete projects in the energy, transport, forestry, agriculture and urban waste management sectors. However, there are two important concerns. First, the limited experience in the country so far in the production of bio-fuels show that there is real danger of energy crops displacing food crops and forest resources. If care is not taken, land use change from forests and woodlands to energy crops will rather lead to more carbon emissions than sequestration. Second, as compared to NAMAs prepared by other countries, the Ethiopian NAMA has failed to include important mitigation actions in land use planning, energy efficiency, fiscal incentives and traffic management regulatory policy measures. Over all, mitigation responses should avoid a narrow criterion that leads to environmentally and socially harmful consequences. These responses should have broad goals that aim to reduce climate change, protect natural resources, improve social wellbeing, promote equality, and recognize that women are key agents in climate change processes.
- ***Engendering climate change policy and practice:*** There are gender mainstreaming frameworks and tools to facilitate and/or guide the mainstreaming of gender issues and the engenderment of climate change related policies and programmes of action. The most commonly used frameworks include the Harvard Analytical Framework, Gender Planning framework (Caroline Mosser Framework), Social Relations Framework (Naile Kabeer IDS Framework), and Capacity and vulnerabilities Analysis (CVA). The main steps for successful gender mainstreaming are Gender Auditing, Gender Analysis, Idea formulation, Strategy and Action. Engendering climate change related policies and practices also requires the following considerations:
 - Beyond a focus on vulnerability (women as environmental managers and leaders)
 - Generating and disseminating gender disaggregated data
 - Paying particular attention to women's special condition
 - Overcoming underlying drivers of women's vulnerability
 - Taking into account the concerns and capabilities of men and boys
 - Gender based technology needs assessment and information dissemination

- Gender training.

There are some steps that should guide the process of mainstreaming gender in national and regional adaptation plans and programmes, including the EPA-CC and NAMAs. These include:

- Analyzing the effects of climate change from both a male and female perspective;
 - Incorporate a female perspective when designing and implementing projects;
 - Developing and applying gender-sensitive criteria and indicators;
 - When collecting and presenting data include women's statistics as well as men's;
 - Capitalizing on the talents and contributions of both women and men;
 - Setting targets for female participation in activities;
 - Ensuring that women are represented in 50% of all decision-making processes;
 - Making women's equality, access to information, economic resources and education a priority;
 - Focusing on gender differences in capabilities to cope with climate change adaptation and mitigation actions;
 - Undertaking a gender analysis of all budget lines and financial instruments.
- Given the gender dimensions of climate change and the need for engendering national and regional climate change related and environmentally-oriented policies, programmes and plans and the need for strong and consistent advocacy and lobbying work required for this, it is high time for the ENCNCC to establish a separate Gender and Climate Change Working Group. This working group will facilitate and coordinate research and advocacy works for the engenderment of climate change related and other development policies and programmes and their effective implementation.

1. Introduction

1.1 Background

Neither the impacts of climate change on people nor the ways in which people respond to climate change are gender-neutral. Gender inequalities and different socially ascribed gender roles, needs and preferences which vary over space and over time influence the specific ways in which climate change affects males and females of all ages and the ways in which they develop strategies to adapt to or mitigate climate change. Gender equality is recognized globally as a high-priority development goal, a fact that is reinforced by the third Millennium Development Goal on gender equality and women's empowerment, the Beijing Platform for Action and the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), Agenda 21 of the 1992 United Nations conference on environment and Development, the World conference on Human Rights (1993), the Johannesburg Plan of implementation World summit on sustainable Development, the Convention on Biological Diversity, the United Nations Convention to Combat Desertification, and Hyogo Framework for Action. At the same time, it is recognized as a condition for the achievement of sustainable development. As such, gender equality is both a goal and condition for successful climate change adaptation and transitions to low-carbon development pathways in developing countries.

There are also international mandates within UN that call for the mainstreaming gender. These include resolutions from the Economic and Social Council ECOSOC as well as from the Commission on the Status of Women (CSW). Human Rights instruments and environmental laws and policies of regional organizations such as the Organization of American States, the European Council, the African Union and national laws in individual states may also serve as "...means to call upon governments to fulfill their obligations in terms of gender equality" (Garcia, 199).

A provision of Much relevance to regulation of climate change matters, Convention on the Elimination of All Forms of Discrimination Against Women(CEDAW) obliges State Parties to take "all appropriate measures to eliminate discrimination against women in rural areas in order to ensure, on a basis of equality of men and women, that they participate in and benefit from rural development " and Participate in elaboration and implementation of development planning at all levels" and " in community activities". CEDAW also recognizes that women should have equal rights to "obtain all types of training and education and extension, formal and non formal, including...benefit of all community and extension services, in order to increase their technical proficiency" (CEDAW article 12 sub article 14.2).

CEDAW also states that State Parties "shall take all obligations on countries to ensure that women are granted equal opportunities and the conditions necessary to enable their: participation in decision – making; negotiation of climate change agreements; and equitable participation in access to financial mechanisms and technologies. They may also be interpreted as requiring states to ensure the fullest possible participation of women in law and policy making at the international level, where such laws and policies are necessary to prevent discrimination.

Yet, the mainstreaming of gender issues is an issue of great concern in climate change policy making and programming. While some progress has been made over the past few years, the social, and particularly the gender dimensions of climate change and its responses, are insufficiently addressed under the UNFCCC and in developing countries' strategies for climate change adaptation and low-carbon development. The spheres of policymaking and programming on climate change, both at national and the international levels, remain dominated by technical and natural science perspectives and solutions, whether they are implemented at the household, community, national or global level. Amongst known and new sets of stakeholders working on around climate change and development-related issues- including civil society, donor and the more recently established private-sector low-carbon initiatives – government leadership on promoting a much greater focus on the gender dimensions of climate change is, therefore, essential. However, despite the rapid development of new knowledge and awareness on the gender dimensions of climate change, there has been hardly any consideration of how climate change policy makers and institutional leaders could achieve this.

In Ethiopia, climate change adds a new and largely uncertain dimension to the development problem by compounding the risks of natural hazards and complicating the gender imbalance (Bitseat, 2011; Alebachew, 2011). This is evident already in many parts of the country, and those women living in poverty stricken and disaster prone areas will be worst victim. The multifaceted risks posed by climate change should be understood and factored into national and regional adaptation programmes and migration actions. It is also essential for all development actors to better understand the gender dimensions of climate change and engender climate change policy and actions so that plans and interventions will be gender sensitive, participatory and responsive to the needs and aspirations of women. In keeping with this focus, the present review work has been made to assess the gender sensitiveness of the climate change policy making and program implementation process in Ethiopia and indicate some gender mainstreaming tools to facilitate the development of engendered climate change policies and practices. The work fits well with current interest and engagement of the Ethiopian government, the civil society and donor agencies on the local manifestations and the gender dimensions of climate change policy making and programming in Ethiopia.

1.2 Problem statement

Ethiopia faces the greatest challenges associated with climate change. Current evidences strongly suggest that the key drivers of economic growth and transformation are adversely affected by climate change. (Woldeamlak and Alebachew, 2011). Poverty reducing and agricultural production boosting development activities are particularly vulnerable because they are usually long term and aimed at helping people that are already exposed to greater relative risks because of their geographical locations (most poor people live and work in inaccessible and disaster prone areas), existing socio-economic conditions (extreme poverty, food and water insecurity) and unfavorable socio-cultural practices (gender and age discrimination and marginalization). It is widely recognized that failure to respond to this challenge would impede national and global efforts aimed at reducing poverty, inequality, and insecurity.

In Ethiopia, women constitute nearly half (49.6%) of the total 74 million populations (CSA 2007). Among the total heads of households, 26% are females with 23% of them in rural and 39% in urban areas. For 84% of the population, their livelihood depends on agriculture and out of this nearly half are women. About half of the country's population, most of them women, lives below a threshold level in basic dimensions of human development. Five to six million people are chronically food insecure on a permanent basis (MoFED 2006). In the recent (2011) drought, about 3.5 million people were affected, most of them women. However, the role of Ethiopian women and their contribution to climate change adaptation and sustainable development (mitigation) is critical (Alebachew, 2002). As producers and environmental managers, women play a vital role in economic and social development and environmental resource management. However, like many of their counterparts in poor developing countries, Ethiopian women face a set of multiple, crosscutting and interrelated problems.

Not surprisingly, they are also the most vulnerable, least prepared and worst affected by climate change (see, for instance, Aklilu and Alebachew, 2009). It follows that any response to climate change should be gender-sensitive.

The Ethiopian government has taken measure actions to create enabling environment for mainstreaming gender and equality issues in development programs. The government promulgated Federal Democratic Republic of Ethiopia (FDRE) constitution and the national policy on Ethiopian Women that are the basic in the national initiative towards gender mainstreaming and gender equality. International and Regional conventions ratified, signed and made part of the national laws of the land in order to mainstream gender issues and bring gender equality in development programs.

The 1995 FDRE constitution among others an article 25, 34, 35, 36 enable equality in all spheres of life and protects fundamental rights of women. Article 35 of the constitution grants equal rights with men in political, social, economic and cultural fields and provide them with affirmative action to redress the legacy of inequality they suffered from. Several policies highlight the critical roles of gender concern. The National population policy (1993), the Developmental social Welfare policy (1996), the Education and Training policy (1996), the health policy (1993), the Agricultural Development-Led Industrialization Strategy (2001), the National policy on Ethiopian Women (1993), the Cultural Policy (1997), the Natural Resource and Environmental Policy (1997), and others.

Climate change is already affecting the lives and livelihoods of Ethiopian women. However, Ethiopian women are working to counter the effects of climate change, and adapt to a changing climate despite limited information and resources (Alebachew, 2011). Women, like men, will have practical needs associated with climate change. But perhaps more than anything, women need to be systematically considered and taken into account. Gender needs to be integrated into all mitigation and adaptation policies, so that gender analysis of commitments and mechanisms is embedded at a process level. Further research on the gendered impacts of climate change is essential if policy interventions are

to be effective. If we proactively identify and promote new technologies that are accessible and acceptable to women, and enable women to lead in provision and support, then bringing about the structural changes in our economies required to address climate change will also progress gender equality. The policy decisions we make and the approaches taken in addressing climate change have the potential to contribute to a dual transformation – of productive processes and gender inequality if they enable women to be part of the decision-making, and to access and control new environmentally sound technologies and technical knowledge.

In support of a gendered approach, the Canadian International Agency (2004), states that understanding how different social expectations, roles, status, and economic power of men and women affect and are affected differently by, climate change and incorporating these gender differentials in the climate change policy making process will improve actions taken to reduce vulnerability and combat climate change in poorer countries. In this regard, the study was conducted with the main aim of understanding the gender dimensions of climate change in Ethiopia thereby contributing towards engendering climate change related policies and programmes of action. This is perhaps the single most important step towards the development and achievement of more equitable and responsive climate change policies and programmes.

1.3 Study purpose and objectives

The purpose of this review is to enhance the understanding and appreciation of the gaps in the gender sensitiveness of climate change related policies and programmes in Ethiopia and introduce appropriate tools for mainstreaming gender in such policies and programmes. More specifically, the review is conducted to:

- Undertake gender analysis of national climate change policies and programmes in Ethiopia;
- Identify gaps in the gender sensitiveness of national climate change related policies and programmes of action;
- Develop gender-sensitive climate change indicators and practical tools for use by stakeholders' at different levels of decision making and program development;
- Facilitate discussions among various stakeholders on the role of the gender variable in climate change and the need for engendering climate change related policies and practices in Ethiopia.

1.4 Significance of the study

Climate variability is not a new challenge, but climate change as a key development concern and its integration into pro-poor planning is a fairly recent departure. Even more recent is the integration of a gender-sensitive perspective in climate change policy making and programming. In this regard, there is very limited research based knowledge and very little appreciation of the linkage between gender and climate change. Similarly, there are few explicit references to gender and climate change in national adaptation and mitigation action plans of developing countries. This research reviews climate change related policies and programmes of Ethiopia from a gender perspective. It provides a gender based analysis of the climate change policies and programmes of action in

Ethiopia and presents gender-sensitive climate change indicators and practical tools for testing and use by concerned stakeholders. In finding evidences, the review work relies on secondary sources (some of which give only a proxy picture). While the paper is constrained by lack of previous study and sufficient information on the subject, it serves as a broad point of departure on the subject and indicates some practical and policy issues that need to be addressed.

In Ethiopia, women make up a large number of the poor who are highly dependent on local natural resources for their livelihoods and are disproportionately vulnerable to and affected by the variability and change in the climate system. A review of climate change policies and programmes of action from a gender perspective has the potential to enhance awareness and facilitate the development of climate change policy measures which are inclusive and responsive to the needs and priorities of women and girls. Furthermore, a gender analysis is beneficial in its examination of the differences in possible solutions and consequences for both men and women based on social, economic, environmental and political factors. In addition, a gendered analysis of climate change allows for an analysis that takes account of the different forms of and reasons for vulnerability of men and women, including the inequalities in the level of vulnerability between them. It also incorporates other social related and compounding factors and stressors.

1.5 Methodology

The study is exploratory attempting to explore the gender-sensitiveness of climate change policy making in Ethiopia with a view to facilitating gender-sensitive climate change policy making and program implementation. The study heavily relied on secondary sources of information (Government climate change related policy documents, action plans, and published and unpublished research reports). In addition, attempts were made to include the viewpoints of relevant experts and policy makers at the Federal Environmental Protection Authority and the Ministry of Women, Children and Youth.

1.6 Limitations of the study

The policies and programmes reviewed in the present work are the Environmental Policy of Ethiopia (EPE), the Ethiopian Programme of Adaptation for Climate Change (EPA-CC) and the Nationally Appropriate Mitigation Action (NAMA) plan of Ethiopia. The work heavily relied on documentary reviews and limited number of expert opinions. Hence, the scope of the review is limited to assessing gender sensitiveness of the aforementioned policy documents. The study should have been comprehensive had it been possible to include other environmentally-oriented policies and sectoral development strategies of Ethiopia. This however, does not limit the relevance of the findings to other environmental and development-oriented policies and programmes of action in Ethiopia. In view of this, attempt was made to make a much more comprehensive review of the relevant literature on the gender dimensions of climate change and the need for gender-sensitive planning in Ethiopia.

It is important to note that this paper does not intend to provide a one fit-for-all solution or a short cut for the integration of a gender-responsive approach in climate change adaptation and mitigation, but rather presents some specific suggestions, based on a map of existing knowledge and practice, of gaps and of potential solutions to some key questions. Further, as climate change is a threat to human development that needs to be taken into consideration across all areas of development work, it is, like gender, a 'mainstreaming item'. Thus, climate change also needs to be mainstreamed in work on gender, but this aspect is beyond the scope of the paper.

1.7 Structure of the paper

For ease of understanding and convenience, the paper is sub-divided into six brief chapters. The first chapter is the introductory section. The second chapter provides a quick review of climate variability and change in Ethiopia. The third chapter discusses the gender dimension of climate change in Ethiopia. The fourth chapter reviews the Environmental Policy of Ethiopia (EPE), the Ethiopian Programme of Adaptation for Climate Change (EPA-CC) and the Nationally Appropriate Mitigation Action (NAMA) plan from a gender perspective. The fifth chapter presents major gender mainstreaming tools to facilitate and/or guide the mainstreaming of gender issues and the engenderment of climate change related policies and programmes of action. It presents major steps, analytical tools and checklist items that help mainstream gender issues in climate change policy making and programming. The last chapter presents some recommended strategies to facilitate the effective mainstreaming of gender into climate change policy and practice.

2. Climate variability and change in Ethiopia

“In wealthy countries, the looming climate crisis is a matter of concern, as it will affect both the wellbeing of economies and people’s lives. In Africa, however, a region that has hardly contributed to climate change-its greenhouse gas emissions are negligible when compared with the industrialized world’s-it will be a matter of life and death” (Wangari Maathai, 2008).

Introduction

Throughout its long history, Ethiopia has struggled considerably with vulnerability. The country has historically suffered from climatic variability and extremes. Rain failures have contributed to crop failures, deaths of livestock, hunger and even famines in the past. Even relatively small events during the growing season, like too much or too little rain at the wrong times, can spell disasters. Small farmers and cattle herders, who are already struggling to cope with the impacts of current climatic variability and poverty, face daunting tasks to adapt to future climate change.

However, drought, famine and Ethiopia have become irrevocably linked in the public mind since Bob Geldof’s Live Aid Concert in the 1980s. Repeated famines and chronic food crisis resulting from frequent droughts; environmental degradation and decline in food production hounded the country many times and still remained as the hallmark of the country. Furthermore, the potential for natural environmental hazards and current climate change to undermine the country’s economic and social development is great and growing (EPA, 2011a; NMA, 2006). Most of the regions and the people throughout the country are living through a period of rapid and dramatic changes in ecological conditions, land use patterns, and socio-economic conditions. The pace of change in the pattern of climate and different forms of environmental hazards in the country often exceeds the capacity of national and local institutions to cope with or mitigate the effects of such changes.

2.1 Observed trends and projections

Behavior of the Current Climate

Both instrumental and proxy records have shown significant variations in the spatial and temporal patterns of climate. According to NMA (2006) the country experienced 10 wet years and 11 dry years over the last 55 years, demonstrating the strong inter-annual variability. Between 1951 and 2006, the annual minimum temperature in Ethiopia increased by about 0.37°C every decade. The UNDP Climate Change Profile for Ethiopia (UNDP 2007/08) also shows that the mean annual temperature has increased by 1.3°C between 1960 and 2006, at an average rate of 0.28°C per decade. The temperature increase has been most rapid from July to September (0.32°C per decade). It is reported that the average number of hot days per year has increased by 73 (an additional 20% of days) and the number of hot nights has increased by 137 (an additional 37.5% of nights) between 1960 and 2006. The rate of increase is seen most strongly in June, July and August. Over the same period, the average number of cold days and nights decreased by 21 (5.8% of days) and 41 (11.2% of nights), respectively. These reductions have mainly occurred in the months of September to November (McSweeney et al., 2008).

2.2 Future climate change over Ethiopia

The results of the IPCC mid-range emission scenario show that compared to the 1961-1990 average, the mean annual temperature across the country will increase by between 0.9 and 1.1 °C by the year 2030 and from 1.7 to 2.1 °C by the year 2050. The temperature across the country could rise by between 0.5 and 3.6 °C by 2080, whereas precipitation is expected to show some increase (NMA, 2006).

Unlike the temperature trends, it is very difficult to detect long-term rainfall trends in Ethiopia, due to the high inter-annual and inter-decadal rainfall variability. According to NMA (2006), between 1951 and 2006, no statistically significant trend in mean rainfall was observed in any season. The results of the IPCC mid-range emission scenario show that compared to the 1961-1990, annual precipitation show a change of between 0.6 and 4.9 % and 1.1 to 18.2% for 2030 and 2050 respectively (NMA, 2006). The percentage change in seasonal rainfall is expected to be up to about 12% over most parts of the country (ICPAC, 2007).

2.3 Major Climate change-induced hazards

Droughts and floods are very common climate change-induced hazards in Ethiopia, with significant events occurring every 3 to 5 years (World Bank, 2006). According to World Bank (2006), the country has experienced at least five major national droughts since the 1980s, along with dozens of local droughts (World Bank, 2009). Over the years, the frequency of droughts and floods has increased in many areas, resulting in loss of lives and livelihoods (Mesfin, 1984; 1986). In particular, reports point to the increased incidence of meteorological drought episodes, famines and climate-sensitive human and crop diseases in the northern highland and southern lowland regions of the country (World Bank, 2009; Oxfam International, 2010; Aklilu and Alebachew, 2009; UN-ISDR 2010). Climate change is expected to exacerbate the problem of rainfall variability, and associated drought and flood disasters (NMA, 2006).

2.4 Impacts on vulnerable sectors and social groups

2.4.1 Vulnerable sectors

Climate change is fundamentally a sustainable development issue. Key natural resources and ecological systems in Ethiopia (e.g., land resources, water, biodiversity, wetlands and natural habitats), all of which are vital to sustainable development, are sensitive to changes in climate-including both the magnitude and rate of climate change- as well as to changes in climate variability. Economic activities such as crop farming, livestock herding, energy production and water supply that depend on these natural resources are, therefore, also sensitive to climate variations. Social sectors like health and education, and transport infrastructures are highly vulnerable to climate change-induced shifts in rainfall regimes and temperature patterns leading to flood, drought, high temperature and related weather extremes. Thus climate change represents an important additional stress on the natural resource base of the country which is already affected by increasing resource demands, unsustainable management practices and environmental degradation.

2.4.2 Vulnerable social groups

Since climate change has strong linkages to poverty and social inequality, its impacts will be felt in many ways, by different communities and social groups in Ethiopia. It is well recognized that the most vulnerable and marginalized communities and groups are those who will experience the greatest impacts (IPCC 2007), and are in the greatest need of support and adaptation strategies. At the same time, it is the vulnerable and marginalized who lack or have the least access to information, technology or opportunity to adapt to current climate variability and sufficiently prepare for future changes in the climate system. Particularly, climate change poses a significant challenge to the reduction of poverty and social inequality for the rural poor, especially women, the marginalized, the disabled and those living with HIV/AIDS, who will suffer disproportionately from its growing and multifaceted impacts.

The Millennium Development Goals recognize the need to eradicate poverty and promote gender equality and empower women to participate in all facets of economic and social life with the aim of reducing inequality, insecurity and achieving sustainable development. In Ethiopia, the poorest and marginalized have the least resources and capacity to adapt, and hence are the most vulnerable. Projected changes in frequency, intensity and duration of extremes, for example heat waves, low precipitation, and drought and more gradual changes in average climate, will notably threaten poor people's livelihoods and increase further existing inequities between the rich and the poor, those having access to good health and those living with HIV/AIDS, and between women and men.

Ethiopia is a poor developing country with the majority of the poor composed of women, the disabled, and those living with HIV/AIDS. Although women constitute nearly half of the country's population, most of them are living in dire economic condition with endemic poverty and poor working and living condition. Ethiopia is also among those countries highly affected by the HIV/AIDS epidemic. However, the role of poor people in Ethiopia (the majority are women) and their contribution to climate change adaptation and sustainable development (mitigation) is critical. As producers and environmental managers, the poor, particularly women, play a vital role in economic and social development and environmental resource management. However, poor people face a set of multiple, crosscutting and interrelated problems. Not surprisingly, they are also the most vulnerable, least prepared and worst affected by climate change (Aklilu and Alebachew, 2009). It follows that any response to climate change should be sensitive to their needs and priorities.

2.5 Need for national policy response measures

There are a number of reasons why Ethiopia should be concerned about climate change. Our main natural resources namely water, forest, rangeland, agricultural land, biodiversity, energy, etc are very much the reflection of the climate we have. Socio-economic activities such as agriculture (both crop cultivation and livestock herding) and agro-forestry which are the main source of livelihoods and backbone of the country's economy, as well as vital socioeconomic sectors including energy and water supply, human health, etc are also very sensitive to climate variations. Recurrent drought, floods,

bush encroachment/biodiversity loss and livestock and crop diseases are also the main challenge of the country. Evidences that could be associated with climate change have already started appearing in Ethiopia in the last 50 years (NMA, 2006). The available studies clearly indicated that the projected changes in current climate and its variability would have serious implications on our natural resources, economy and welfare. Recent vulnerability mapping reports also confirmed Ethiopia’s high vulnerability to climate change with the least capacity to respond (McSweeney and Lizcano, 2008). They also confirmed climate change as one of the major challenge which threatens the country’s efforts towards achieving growth and transformation thus justifying the need for and urgency of climate change policy response measures. Well-intentioned climate change policy response measures are vital if Ethiopia is to break the poverty trap and achieve its national ambition of becoming a middle income carbon-neutral economy by 2025.

2.6 National policy responses to climate change

Ethiopia is determined to flip challenges of climate change into genuine opportunities. The country has ratified the UNFCCC (1994) and the KP (2005). A national adaptation document is in place and Sectoral Climate Programmes and Action Plans are being developed (See EPA, 2011b). The NAPA (2007) document (now replaced by EPACC) was prepared (2007); NAMA (in 2010); and currently a CRGE strategy is being developed. The five-year national Growth and Transformation Plan (GTP) stipulates the country’s ambition to build a climate resilient green economy by 2025. Other than the GTP, the various national policies and sectoral programs now in place also address climate change, albeit indirectly. Such policy and program initiatives include the Environmental Policy, Energy Policy and the Biofuels Strategy, Agriculture and Rural Development Strategy, Water Sector Policy, Strategy and Program, Health Policy, Disaster Risk Management and Food Security Strategy, National Policy on Biodiversity Conservation, the Pastoral Policy, and the National Policy on Ethiopian Women. Some of the policies have been amended subsequently while others are still in their original forms despite new realities on the ground (Table 1 presents a summary of the relevant national policy and strategy documents).

Table 1. Climate change related policies and programs of Ethiopia

Policies /strategies	Climate change relevant components in the policy/strategy
Environmental Policy	<ul style="list-style-type: none"> • Provide overall guidance in the conservation and sustainable utilization of Ethiopia’s environmental resources • Promote environment monitoring programs • Foster use of hydro, geothermal, solar and wind energy so as to minimize emission of greenhouse gases • Provide coordination and leadership support in the conservation and management of environmental resources • Consider climate change as a cross-cutting and important environmental, social and development challenges that needs to be tackled
EPA-CC	<ul style="list-style-type: none"> • Adequately captured the growing threat of climate change in Ethiopia and clearly spells out the need to mainstream climate change in all spheres of development policy making and planning at all phases and stages of the planning and implementation process

	<ul style="list-style-type: none"> • The program clearly states the urgency of taking practical adaptation and mitigation actions in the various social and economic sectors • However, the role of non-state actors in the planning, design and implementation of activities mentioned in the work program is not clearly spelled out
Ethiopian NAMAs	<ul style="list-style-type: none"> • Paid special attention to unleashing the huge potential of the country's water, land, wind and geothermal energy resources for the purpose of generating electricity for road and rail transport and household consumption, and managing urban wastes • Failed to include important mitigation actions in land use planning, energy efficiency, fiscal incentives and traffic management regulatory policy measures
CRGE	<ul style="list-style-type: none"> • Recommend the use of low carbon solutions to leapfrog other economies while realizing the ambitions set out in the country's Growth and Transformation Plan • Present an overarching framework to marshal a coherent response to climate change, to generate both innovative thinking and a course of actions to meet the challenges associated with the transfer of climate-friendly technologies and finance for the construction of a climate resilient green economy in Ethiopia
GTP	<ul style="list-style-type: none"> • Climate change is recognized as a huge threat and opportunity for Ethiopia • Both climate change adaptation and mitigation issues considered • Stipulates the country's ambition to build a climate resilient green economy by 2030.
Agricultural and Rural Development Policy and Strategies	<ul style="list-style-type: none"> • Sustainable Land Management Program (SLMP) as a tool for reduce rural vulnerabilities and building ecosystem resilience • Environmental rehabilitation • Watershed development for environmental adaptation • Harnessing the multiple benefits of water resources • Integrated disaster risk monitoring and early warning • Use of improved agricultural inputs and modern technologies
Energy Policy & Biofuels Strategy	<ul style="list-style-type: none"> • Support energy diversification and the development of modern (renewable) energy sources • Hydro-power generation • Recommend biofuel development as important strategy for energy security and climate change mitigation • However, the focus is on hydro- and bio-energy sources
Water Policy	<ul style="list-style-type: none"> • The water sector policy instruments do not factor climate change as a major variable affecting the amount, distribution and quality of water resources. But, they suggest • Water harvesting and management measures • Flood management • Promotion of equitable water for multiple uses
Women's Policy (1993)	<ul style="list-style-type: none"> • Recognize the critical role and contribution of Ethiopian women to poverty reduction and sustainable development • Fail to address the gender dimensions of climate change
Health Policy (1994)	<ul style="list-style-type: none"> • Focus on health promotion and disease prevention, curative and rehabilitative services, public health emergency preparedness • Prioritize the prevention of environmental pollution with hazardous

	<p>chemical wastes and the development of environmental health</p> <ul style="list-style-type: none">• Focus containing and controlling malaria• Climate change not factors as a public health threat
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Source: Adapted from Woldeamlak and Alebachew (2011)

These and other national policy instruments are geared towards accelerating growth and transformation so as to lift the country out of the cycle of poverty and meeting the national vision of seeing a middle income Ethiopia. In light of this national interest, climate change provides both an obligation and an opportunity to reconfigure the country's development strategies so as to realize sustainable development.

2.7 Why gender and climate change?

With an increasing understanding of climate change as a development issue not only requiring scientific but also social, political, economic and behavioral solutions, the need to ensure these solutions are gender-responsive should be self-evident. As a scientifically proven, global phenomenon (IPCC, 2007), the impacts and perceptions of climate change vary at the local level, and they also vary between women and men, girls and boys. Including both men and women in decision-making on climate change adaptation, mitigation, financing, technology development and transfer, and understanding the reasons for and implications of their different roles, responsibilities and capabilities is, therefore, clearly essential for gender equality, poverty reduction and low-carbon development. Moreover, when addressing climate change, not taking both women and men, and girls and boys into account would mean neglecting a large part of the people whose well-being we seek to improve (Brody et al., 2008).

Gender insensitive policies and perspectives tend to exacerbate existing inequalities and vulnerabilities. It is only through gender-sensitive climate change policy making and programming that the vulnerabilities of women and their unique environmental knowledge and life experiences in environmental adaptation be taken care of. This is why engendering climate change related policies and practices become key to the reduction of poverty and attainment of the MDGs.

Premised on the understanding that gender equality is a condition for good development and a development goal in itself, and that neither climate change nor its responses are gender-neutral, the rationale for integrating gender in climate change policy and programmes has three pillars:

- Promoting gender equality and women's rights as an end in itself;
- Gender equality as a condition for poverty reduction and social change; and
- Gender equality as a condition for successful adaptation and mitigation.

Engendering climate change related policies and programmes of action is important, in particular, because the impacts encountered by men and women are different. However, women's role does not only crystallize as greater vulnerability owing to climate risks. While emphasizing gender equality, women should be seen as active players who for their own part can promote both the mitigation of climate change and adaptation to it. Climate change targets can only be met if the competences of both men and women are considered and both genders are committed to achieving climate targets.

3. Gender differentiated impacts and vulnerabilities in Ethiopia

Introduction

As predicted by the Intergovernmental Panel on Climate Change (IPCC), “climate change impacts will be differently distributed among different regions, generations, age classes, income groups, occupations and genders” (IPCC, 2001). The IPCC also notes that the impacts of climate change will hamper development and harm human living conditions and lifestyles. The effects will fall disproportionately upon developing countries and the poor within all countries, and thereby exacerbate inequities in health status and access to adequate food, clean water, and other resources. Today, women represent about 70 per cent of the poor throughout the world.

Most of the key areas of the negative consequences of climate change are strongly connected to gender equality issues. “Women in developing (and developed) countries are generally considered part of the vulnerable groups. High dependence from agriculture, forest resources, fisheries and biofuels can increase the vulnerability and the risk of environmental depletion. Moreover, the problems relating to the management of the environmental common assets can become worse under the pressure of global warming.” (Lambrou and Piana 2005:20) These problems include food security, freshwater supply, rural and urban settlements and their infrastructures. The impact on women’s lives varies between regions and cultures, thus planning for adaptation to climate change need to take a close look at each individual and concrete situation.

Climate change affects men and women in different ways. Gender inequality is reflected in vulnerability and responsibilities and in the ability to respond to climate change. Unless the gender aspect is addressed directly in climate policy, climate change will increase the existing gender gap.

The discussion that follows aims to flag some important issues about the gender differentiated impacts of climate change in Ethiopia. There is a general paucity of sex disaggregated quantitative data on climate change vulnerabilities, risks and adaptation in Ethiopia. However, there exists some data (both qualitative and quantitative) which at this stage permits us to attempt a general discussion and to highlight some of the gendered aspects of climate change which will require rigorous research and follow-up.

3.1 The vulnerability of women to climate change impacts in Ethiopia

Women constitute half of the Ethiopian population (49.6%) (CSA, 2007). Among the total heads of households, 26% are women with 23% of them in rural and 39% in urban areas. Almost all of the rural women are directly dependent on agriculture and environmental resources for their livelihoods. As elsewhere in the developing countries, Ethiopian women are engaged in reproductive and productive spheres and the management of environmental, socioeconomic and other household and community resources. Despite this, Ethiopian women have long been marginalized or even ignored in major decision making processes at all levels.

In Ethiopia, the majority of the poorest groups are composed of women, the disabled, and those living with HIV/AIDS. Women constitute nearly half of the country's population, and most of them are living in dire economic condition with endemic poverty and poor working and living conditions. Not surprisingly, these social and demographic groups are also the most vulnerable, least prepared and likely worst affected by climate change (Aklilu and Alebachew, 2009). It follows that any response to climate change should be sensitive to their needs and priorities, and thus aim at building their resilience and adaptive capacities. Women's limited access to resources and decision-making processes increases their vulnerability to climate change. Rural women have the major responsibility for household water supply and energy for cooking and heating, as well as for food security, and are negatively affected by drought, uncertain rainfall and deforestation. Because of their roles, unequal access to resources and limited mobility, women in many contexts are disproportionately affected by natural disasters, such as floods, fires, and mudslides (Betsiet, 2011).

Table 2. Gender differences in vulnerability and adaption to disasters

Disparities that increase risks for women in disasters	Disparities that increase risks for men in disasters
<ul style="list-style-type: none">• Higher levels of poverty• Extensive responsibilities of caring for others• Domestic violence• Traditional women's occupations	<ul style="list-style-type: none">• Occupational segregation• Internalized norms of masculinity• Roles in the family and in the home
Gender experiences that can increase capacities for managing disaster situations for women	Gender experiences that can increase capacities for managing disaster situations for men
<ul style="list-style-type: none">• Social networking• Caring abilities• Extensive knowledge of communities• Management of natural and environmental resources• High levels of risk awareness	<ul style="list-style-type: none">• Professional and work contacts• Technical abilities• Limited childcare responsibilities

Source: UNDP (2009)

The vulnerabilities of women in Ethiopia to climate change impacts can best be illustrated through a close assessment of the nexus between gender, climate change and socio-economic issues as follows:

3.1.1 Gender, agriculture and climate change

Although rural women and men play complementary roles in guaranteeing food security, women tend to play a greater role in natural resource management and ensuring nutrition (FAO, 2003). Women often grow, process, manage and market food and other natural resources, and are responsible for raising small livestock, managing vegetable gardens and collecting fuel and water (Alebachew, 2011). Men, by contrast, are generally responsible for cash cropping and larger livestock. Women's involvement in an agricultural capacity is most common in regions likely to be most adversely affected by

the impacts of climate change. In these contexts, responsibility for adaptation is likely to fall on their shoulders – including finding alternative ways to feed their family.

However, statutory and/or customary laws often restrict women's property and land rights and make it difficult for them to access credit and agricultural extension services, while also reducing their incentive to engage in environmentally sustainable farming practices and make long-term investments in land rehabilitation and soil quality. Despite these obstacles, recent evidence demonstrates that women who are already experiencing the effects of weather-related hazards- such as erratic rainfall patterns, flooding and extended periods of drought- are developing effective coping strategies, which include adapting their farming practices (see Alebachew, 2011).

3.1.2 Gender, water and climate change

The gendered dimensions of water use and management are fairly well-documented. It has long been noted in the gender and environment literature, for example, that women and girls generally assume primary responsibility for collecting water for drinking, cooking, washing, hygiene and raising small livestock, while men use water for irrigation or livestock farming and for industries (Oxfam International, 2010; Aklilu and Alebachew, 2011). These distinct roles mean that women and men often have different needs and priorities in terms of water use.

But while this knowledge isn't new, it does take on a pressing significance in the context of climate change. In Ethiopia, climate change may also lead to increasing frequency and intensity of floods and deteriorating water quality (NMA, 2006). This is likely to have a particularly harsh effect on women and girls because of their distinct roles in relation to water use and their specific vulnerabilities in the context of disasters (see the section on disasters) (See Aklilu and Alebachew, 2009; Alebachew, 2011). In drought-prone areas affected by desertification, for example, the time absorbed by water collection will increase as women and children (mostly girls) will have to travel greater distances to find water. In the southern lowlands of Ethiopia (Borena, Guji and South Omo) pastoral women may spend 4-5 hours a day to fetch water for household use (Aklilu and Alebachew, 2009). The heavy rainfall and more frequent floods predicted to result from climate change will also increase women's workloads, as they will have to devote more time to collecting water and to cleaning and maintaining their houses after flooding (Alebachew and Woldeamlak, 2011). This is time that could be spent in school, earning an income or participating in public life. Walking long distances to fetch water and fuel can expose women and girls to harassment or sexual assault, especially in areas of conflict. In urban areas, water collection is also an issue as women and girls may spend hours queuing for intermittent water supplies (Alebachew and Woldeamlak, 2011).

3.1.3 Gender, biodiversity and climate change

According to the Millennium Ecosystem Assessment, climate change is likely to become the dominant driver for the loss of biodiversity by the end of the century. Biodiversity plays an important role in climate change adaptation and mitigation. For example, in contexts where deforestation is responsible for an average of 20% of human-induced carbon dioxide emissions, the conservation of natural habitats can reduce the amount of

carbon dioxide released into the atmosphere. Additionally, the conservation of drought-resistant crops can reduce the impacts of climate change such as flooding and famine. In the rural areas, women and men are highly dependent on biomass, such as wood, agricultural crops, wastes and forest resources for their energy and livelihoods. However, in the face of climate change, the ability of women and men to obtain these indispensable resources is reduced (NMA, 2006). It is important to note that the declining biodiversity does not solely impact the material welfare and livelihoods of people; it also cripples access to security, resiliency, social relations, health, and freedom of choices and actions.

The majority of the biodiversity decline in Ethiopia has a disproportionate impact primarily on poor rural women in drought and hazard prone areas of the country. In poor communities, women and girls are responsible for collecting traditional fuels, a physically draining task that can take from 2 to 20 or more hours per week. As a result, women have less time to fulfill their domestic responsibilities, earn money, engage in politics or other public activities, learn to read or acquire other skills, or simply rest. Girls are sometimes kept home from school to help gather fuel, perpetuating the cycle of disempowerment. Moreover, when environmental degradation forces them to search farther afield for resources, women and girls become more vulnerable to injuries from carrying heavy loads long distances, and also face increased risk of sexual harassment and assault.

3.1.4 Gender, health and climate change

Climate change will also place additional burdens on women's health and have a triple effect on women. First, they are affected because of special physical vulnerabilities, second because of their caring roles in families, and third because the additional work which is required due to depletion of environmental conditions may lead to health damage.

- Waterborne and vector-borne diseases will increase in a warmer world. Pregnant women for example are particularly vulnerable to malaria, because they are twice as attractive to malaria carrying mosquitoes as non-pregnant women. Additionally, pregnancy reduces women's immunity to malaria, making them more susceptible to infection and increasing their risks to illness and secondary diseases, too. Anemia which can result from malaria infection is responsible for a quarter of maternal mortality (Duncan, 2007).
- Decreased agricultural productivity is supposed to increase malnutrition and hunger by 10 per cent (Duncan, 2007). Women are responsible for up to 80 per cent percent of household food production in Africa. Because of their involvement in labour-intensive, low-emission subsistence agriculture, women's livelihood strategies and efforts to ensure food security are seen to be disproportionately affected by impacts of climate change.
- As described above, climate change may put additional work on women. More work, heavier loads to carry, longer ways to find water or biomass in a sufficient amount - this all has a negative impact on women's health. Additionally, due to the gendered

division of labour, women have to take care of sick family members, which are again contributing to time constraints.

3.1.5 Gender, conflict and climate change

It is well-recognized that climate change will – and is already – resulting in a growing scarcity of natural resources such as water, pasture and arable land particularly in the arid and semi-arid pastoral areas of Ethiopia. With heightened competition over diminishing and unequally distributed resources, conflict over resources is set to increase (Ayalew, 2009; Gebremariam, 1994; Ali, 1997; Unruh, 2005). Furthermore, conflicts resulting from non-inclusive processes around climate change mitigation strategies may be imminent as large scale Clean Development Mechanisms (CDM) projects rarely involve consultation with local stakeholders (Röhr, 2006, Röhr et. al., 2008) pdf). Although there is currently little research explicitly linking climate change with both conflict and gender, there is a considerable body of work that exists on gender and conflict, from which lessons can and should be drawn (See, for example, Unruh, 1995). The differential impacts of conflict on men and women are also well documented, and include gender and sexual based violence targeted particularly at women and girls; women's reduced access to resources to cope with household responsibilities; the increased time women and girls are required to spend caring for the injured and sick; as well as the obvious risk of death and disability faced by men engaged in armed conflict.

3.2 Causes of women's vulnerability

Vulnerability is a reflection of the state of the individual and collective physical, social, economic and environmental conditions at hand. These individual and collective conditions are shaped by many factors, among which gender plays a key role. It has also been found that the vulnerability and adaptive capacity of a social group depends greatly on their assets (Enarson, 1998). Data from around the world indicates that women tend to have less or limited access to assets (physical, financial, human, social and natural capital). However, there is a need to avoid being simplistic and just seeing women (because of their sex) as victims.

It has also been found that the vulnerability and capacity of a social group to adapt or change depends greatly on their assets. Next to their physical location, women's assets such as resources and land, knowledge, technology, power, decision-making potential, education, health care and food have been identified as determinant factors of vulnerability and adaptive capacity. The more assets people have, the less vulnerable they are and the greater the erosion of people's assets, the greater their insecurity. Data from around the world indicates that women tend to have less or limited access to assets (physical, financial, human, social and natural capital). Women are not vulnerable because they are "naturally weaker": women and men face different vulnerabilities due to their different social roles. The main causes of vulnerability include:

Limited access to resources: In many poor communities, women have limited access to crucial resources such as land, livestock, tools, and credit. Access to land and security of tenure is often highlighted as an important cause of women's vulnerability.

Dependence on natural resources and sexual division of labor: As the primary users and managers of natural resources, women depend on the resources most at risk from climate change. Projected climate changes such as increases in temperature and reductions in precipitation will change the availability of natural resources such as forests and fisheries and potentially affect the growth of staple crops.

Lack of education and access to information: Particularly in the developing world, priority is still placed on boys' education rather than girls', and girls are thus likely to be the first ones to be pulled out of school when resources are short. This can affect their ability to understand and to act on information concerning climate risks and adaptation measures as well as limit their opportunities to get formal, paid employment, further reinforcing their subordination relative to men (Kevane, 2004; Appleton, 1996).

Limited mobility: Women are often restricted from leaving their communities, even though migration is a coping mechanism often used by men. This is due to the fact that gender roles dictate that they remain at home and carry out family tasks. Remaining at home can leave them vulnerable in two ways: first, they stay where climate change has hit hard, and second, they miss out on the economic opportunities and enrichment of personal experience that migration affords.

Limited roles in decision-making: Women's voices are often muted in family and community decision making. This is particularly unfortunate, given women's close relationship with natural resources and awareness of conservation and potential adaptation measures.

In this regard, there are a number of issues that point to the crucial role of gender when understanding the causes of climate change, aiming to mitigate it, and working towards successful adaptation to inevitable climate change:

- Women and men – in their respective social roles – are differently affected by the effects of climate change. Reasons are inter alia to be found in different responsibilities for care work and income generating work, in dependency on natural resources because of lacking access to environmental services, or in knowledge and capacities to cope with the effects because of differences in the access to education and information systems.
- Women and men – in their respective social roles – are differently affected by climate protection and adaptation instruments and measures. If these mechanisms and measures are developed in a non-gender-sensitive way – which most often is the case – they again do not take into account different responsibilities and financial options.
- Women and men differ with regard to their respective perceptions of and reactions to climate change.
- Gender differences are crucial when it comes to assessing adequate measures, too. While men trust in technical solutions, women vote stronger for lifestyle changes and reduction of energy consumption.
- Social roles and responsibilities of women and men lead to different degrees of dependency on the natural environment. Women are usually the ones engaged in household subsistence activities, thus degradation of forests, watersheds, foreshores and agricultural land in developing countries can have a severe effect on their ability to perform the daily household maintenance tasks.

- As the male perspective is dominating, climate protection and climate adaptation measures often fail to take into account the practical and strategical needs of large parts of the population (e.g. infrastructure, energy supply);
- The participation of women in decision-making regarding climate policy – mitigation and adaptation– and its implementation in instruments and measures is very low. Thus, in general it is men’s perspectives which are taken into account in planning processes.

Women and men are not homogenous groups but include people of various age, ethnicity, education, income. These social categories also relate to differences in influence, attitude and in contribution to climate change, to how people are affected by it and which possibilities they possess to adapt to climate change. This applies to developing as well as to developed countries. Principally, however, the situation of women in the global South differs significantly from the situation in the global North. While women in the South are more dramatically affected by climate change, women in the North are expected to play a significant role as consumers without having appreciable influence on decision making as it relates to emission reduction (Röhr/Hemmati, 2007).

The same holds true for the adaptation to climate change: women in the South suffer most and have least capacities (economic, information, education etc.) to adapt to climate change and to prepare for the effects. Whereas both women and men in the global North need to adapt their consumption behavior and daily life routines in order to mitigate climate change, they are differently affected by natural disasters and changing weather conditions too (PIK, 2000).

3.3 What is gender mainstreaming?

Gender mainstreaming is the process of assessing the implications for women and men of any planned action, policy or programme, in all areas and at all levels. It is a strategy for making women’s and men’s concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies, initiatives and programmes. Thus, gender mainstreaming ensures that women and men benefit equally from the development process that or at least inequality is not perpetuated (ECOSOC, 1997).

Gender mainstreaming is not only a question of social justice and human rights, but is necessary for ensuring equitable and sustainable human development by the most effective and efficient means. A gender-mainstreaming approach does not look at women in isolation, but instead assesses the situation of women and men – both as actors in the development process, and as its beneficiaries (ECOSOC, 1997). Rather than adding women’s participation onto existing strategies and programmes, gender mainstreaming aims to transform unequal social and institutional structures, in order to make them profoundly responsive to gender. Gender mainstreaming, therefore, differs from a “women in development” approach in that its starting point is a thorough and rigorous analysis of the development situation, rather than *a priori* assumptions about women’s roles and problems (Aguilar et al., 2007).

Gender issues differ according to regional and contextual circumstances. At the same time, experience has also shown that rigorous, gender-sensitive analysis invariably reveals gender-differentiated needs and priorities, as well as gender inequalities in terms of opportunities and outcomes. Gender mainstreaming seeks to redress these problems. The use of a gender equality perspective requires analysis and understanding of the different roles and responsibilities, needs and visions of women and men, as well as their respective levels of participation and influence in decision making. It goes beyond mere recognition of differences towards building more equitable relations between women and men (Aguilar et al., 2007).

Gender-blind policies or programmes are potentially harmful to human development as they tend to exacerbate existing inequality or exclusion. Gender mainstreaming assesses the different implications of any planned action for men and women and pertains to legislation, policies or programmes in any area and at all levels. It is a strategy to make the concerns and experiences of men and women an integral dimension of the design, implementation, monitoring and evaluation of policies, initiatives and programmes. When realized, it ensures that women and men benefit equally from the development process, thereby resulting in effective and sustainable policies and programmes. Rather than adding women's participation to existing strategies and programmes, gender mainstreaming aims to transform unequal social and institutional structures in order to make them profoundly responsive to gender. However, special attention may be required to compensate for the existing gaps and inequalities that women currently face.

Gender mainstreaming is about more than simply adding a gender dimension to existing policy and practice; rather, it should be about ensuring all thinking, planning, implementation and evaluations across all sectors are informed by a gender-responsive approach. Moreover, it should provide a lens for examining relationships and processes *within* donor institutions at all levels. As various respondents expressed, it is vital that integrating gender dimensions into climate change responses is not simply perceived as 'another task on the list' or a superficial 'tick-box' exercise and, instead, becomes an integral part of policy dialogue, and of planning, implementation, monitoring and evaluation, from the outset of any initiative.

The reality is that this deep level of gender mainstreaming often does not happen – and is replaced by a 'tick-box' exercise to satisfy the 'gender requirements'. Another risk of gender mainstreaming is that, where there is an expectation that organizations or sectoral offices will mainstream gender into their work, a more specific focus on gender equality issues and on women's rights often falls off the agenda. For this reason a 'twin track' approach that both mainstreams gender into broad sectoral processes and treats gender equality as a separate but linked issue are often the most effective ways of tackling both the causes of inequality and the solutions in terms of more gender-responsive policy and practice.

3.4 The National Policy on Ethiopian Women (NPEW)

The role of women in Ethiopia is critical to sustainable development. Programs of social and economic action that ignore the situation of women and their contribution to the development process are very unlikely to succeed. Schemes for development that help empower poor rural and urban women, and improve their living and working conditions are very useful. In any event, environmental conservation, social and economic development plans have little chance of success where women are excluded in the design, planning and implementation processes.

Recognizing this, the government of Ethiopia issued a National Policy on Ethiopian Women (NPEW) in 1993 with the aim of redressing the gender imbalances; overcoming gender based discriminatory practices and perceptions as well as empowering women at all levels so as to make them equal beneficiaries from all economic, socio-cultural and political development activities in the country.

In March 2010, the then Ministry of Women's Affairs developed a draft development plan, Ethiopian Women's and Children's Development Plan for the period 2010/2011 to 2027/2028, which recognizes the unique role of women and children in Ethiopia who together constitute about 70% of the country's population and calls for their active participation in all development endeavors. The proposed Development Plan has been prepared with the aim of securing appropriate position for women and children by 2027/28, the time when Ethiopia envisioned moving out of poverty and joining the category of middle income countries. The plan aims to ensure that all sectors and stakeholders in the country mainstream women's and children's issues in planning, implementation and monitoring of their policies and programs. The plan advocates for equitable and gender and generation-sensitive public policies, strategies and implementation plans.

3.4.1 Climate Change Issues in the Women's Policy

Even though there are policies, regulations and plans promoting a gender perspective in plan and project development and execution (including the National Policy on Ethiopian Women (also a draft Women's and Development Plan), the National Strategy for Mainstreaming Gender in the Conservation Strategy of Ethiopia, the Strategy for Mainstreaming Gender in the Action Program for Combating Desertification, the National Action Plan for Gender Equality), Ethiopian women still lack the necessary resources, skills and power to participate and effectively influence decision making processes in Ethiopia. Deep rooted patriarchal system, customary laws and society enforced roles still bar poor rural women from having equal access to resources and decision making processes. Climate change further aggravates the condition of women, and makes resource poor rural and urban women more vulnerable to climate change impacts compared to most men.

In this regard, the 1994 Women's Policy failed to address environmental issues. The policy has major gap in explicitly linking the dependence of poor women on climate-sensitive environmental resources and their vulnerability to poverty and insecurity when the environmental resources these women rely up on for their survival and even wealth

(including forest and range resources, water, and soils) are severely degraded or lost. In fact, the first National Action Plans for Gender Equality (NAP-GE, 2002-2006) briefly mentioned environmental is a cross-cutting issue but failed to show the link between environment and women. The second NAP-GE (2006-2010) raised gender as an important issue and one key principle which needs to be factored while dealing with environmental problems in the country.

The draft Women's and Children's Development Plan, on the other hand, discussed women's issues from the perspectives of environment related health problems and global warming. According to the plan, in both urban and rural areas, environmental degradation results in negative effects on the health, wellbeing and quality of life of the population at large and in particular girls and women of all ages. The Plan also addresses that the limited participation of women remain at all levels of policy formulation and decision-making in natural resource and environmental management, conservation, protection and rehabilitation.

To date little has been done to mobilize and empower women and men particularly in rural areas to address environmental challenges including climate change. In this regard, neither the Women's Policy nor the draft Development Plan satisfactorily address the critical link between women and climate change and they fall short from explicitly calling for the effective integration of gender issues in any future climate change adaptation and mitigation planning or the execution of existing sectoral development policy and program instruments in a gender-sensitive manner.

The danger, of course, is that, if there is no gendered approach toward adaptation, existing differences between men and women may be overlooked, inadvertently reinforcing gender inequality and women's vulnerability to climate change relative to men. The collection of sex-disaggregated data about women's vulnerabilities and is essential to highlight the differences between men and women and to ensure that adaptation options are gender-sensitive. The complementarity of men's and women's knowledge and skills is key for designing and implementing effective and sustainable adaptation initiatives, answering to their specific needs and ensuring that both benefit equally from the development process.

Despite their vulnerability to climate change and environmental degradation, Ethiopian women are also the unsung heroines (Alebachew, 2011). Rural women in particular struggle and strategize to prevail amid deteriorating environmental conditions. They generally have developed a sense of how to cope with disasters and have found ways to adapt with climatic and non-climatic stressors. They have developed important knowledge and skills for orienting the adaptation processes, a product of their roles in society (in the productive, reproductive and community spheres). In this regard, involving both women and men and their respective viewpoints in the climate adaptation process of planning and implementation is critical to ensure that the end solutions will actually benefit all members of the community.

4. Assessment of climate change related national policies and programs

4.1 Environmental Policy of Ethiopia

In a number of developing countries, balancing poverty and socioeconomic needs with environmental concerns creates very pressing problems. To meet this challenge and to realize the spirit of the World Summit on Sustainable Development held in Rio de Janeiro, Brazil, 1992, a number of countries have formulated strategic environmental sustainability policies to: a) include environmental concerns in their mission statements; b) develop long-term objectives; c) generate alternative strategies to pursue those objectives; d) implement strategies to devise policies, motivate employees, and allocate resources so that the formulated strategies can be executed; e) monitor the execution of strategies and make adjustments according to feedback; and f) assess whether the strategies actually fulfill the countries' mission statements.

In Ethiopia, as in other African countries, the environment is the foundation of the national economy and livelihoods of millions of poor people. The country contains rich species of plants and animals and some of the species are endemic. However, the country's environmental resources are under threat from mismanagement, indiscriminate exploitation and climate change related stresses. It is now widely recognized that because of rapid and widespread ecological destruction, it is not just the supply of food, fodder, water, fuel, and shelter that will be put under threat, but the resource base itself, and the lives that depend upon it. There is also growing evidence that climate change is increasing the frequency and intensity of climate-related disasters, exacerbating environmental resource degradations and vulnerability of the poor to the many stressors.

Ethiopia did not have a comprehensive environmental policy until 1997. Realizing that natural resources are the foundation of an economy, the Government of Ethiopia (GoE) issued the country's first ever Environmental Policy in 1997. The aim was to rectify the economic and social costs of environmental damage from widespread mismanagement of environmental resources, and to provide overall guidance in the conservation and sustainable utilization of the country's environmental resources. The policy covers a wide range of resource sectors: soil, forest, woodlands, biodiversity, water, energy, minerals, urban environment, environmental health, industrial pollution, atmospheric pollution and climate change, and cultural and natural heritage. It also encompasses other cross-sectoral issues such as population and the environment, community participation and the environment, tenure and access rights to land, etc.

The Environmental Protection Authority (EPA) is the lead federal environmental organ with the mandate of formulating policies, strategies, laws and standards to ensure that social and economic development activities in the country and enhance human welfare and the safety of the environment (Art. 6, of Proclamation No. 9/1995). The EPA mainly assumes regulatory role and coordinates various activities within line ministries, agencies and non-governmental organizations. As per EPA's establishment proclamation No. 9/1995, the role of EPA is "policy formulation and integration, drafting of environmental legislation, standard setting, awareness creation and environmental monitoring" among others. EPA is, therefore, the first government institution with the overall mandate for

coordinating, regulating and monitoring broad-based, cross-cutting environmental issues in the country.

The environmental policy lays the foundation for environmental impact assessment in the country. In section 4.9, the environment policy stipulates the country's policies regarding EIA. It provides for the enactment of a law which requires that an appropriate EIA and environmental audits be undertaken on private and state development projects, and the development of detailed technical guidelines that direct the undertaking of EIA and environmental audits in the various sectors. It states that EIA should consider not only physical and biological impacts, but also address social, economic, political and cultural conditions, and that environmental audits should be undertaken at specified intervals during project implementation to ensure compliance with terms of EIA authorization. It also states that environmental impact statements should always include mitigation plans in case of accidents, and that the EIA procedure should provide for an independent review and public comment on environmental impact statements before they are considered by decision makers. However, the EPA was created to assist developers in addressing environmental issues related to the development of their projects and in meeting environmental impact assessment requirements. However, while it is recognized that environmental resources contribute significantly to sustainable economic development, the policy does not include strategies for rigorous implementation, monitoring, or evaluation. In addition, the implementation of its functions is hindered by the lack of institutional frameworks. The capacity to initiate and sustain change and mobilize adequate resources linking activities effectively among sectors is hardly visible.

4.1.1 Climate Change Issues in the EPE

From the perspective of climate change, the policy has considered in its sectoral environmental policy components atmospheric pollution and climate change as important environmental, social and development challenges that need to be tackled. The policies consider the vulnerability of the country to climate variability and aims to promote a climate monitoring program, take appropriate mitigation measures, develop the energy sector, actively participating in protecting the ozone layer, and to maximize the standing biomass in the country through a combination of reforestation, agro-forestry, rehabilitation of degraded areas, re-vegetation, control of free range grazing (in the highlands), maximizing standing biomass and seeking financial support for offsetting carbon emissions from such activities.

Despite mentioning of the vulnerability of the country and the need for national action aimed at the management of climate risks and the mobilization of financial support from the international community, there is no mention of the need for full integration of climate change adaptation and nationally appropriate mitigation measures in the EPE. This deficiency is largely because of the fact that the policy was crafted much before climate change has become common knowledge and high on the political agenda.

It was envisaged that the EPE would be reviewed every five years for the purpose of improving and updating the policy in light of emerging environmental threats and on the

basis of feedback from implementation. This has not been materialized yet. On the other hand, the EPE lacks strategies for monitoring, evaluation, review and reporting of environmental activities. Now, climate change is an emerging challenge threatening the attainment of important national development goals. Climate change also brings opportunities that Ethiopia can reap. Thus, it is very important for the EPE to fully appreciate the multifaceted implications of climate change and provide sufficient space for climate change issues when revising the policy.

4.1.2 Gender issues in the EPE

The EPE fully considers sectoral and cross-sectoral issues, and ensures the full participation of women in environmental decision making, resource ownership and management and in legal and policy aspect is also a landmark in this regard. One of the Guiding Principles of the EPE reads *“As key actors in natural resource use and management, women shall be treated equally with men and empowered to be totally involved in policy, programme and project design, decision making and implementation”*. In the water resources sector, the policy instruments stated in the EPE clearly stipulates the active involvement of water resource users, *“particularly women and animal herders, in the planning, design, implementation and follow up in their localities of water policies, programmes and projects so as to carry them out without affecting the ecological balance”*. Further in section four where cross-sectoral environment policies were discussed, the sub-section on Population and the Environment raised two important issues on women. These concern the interest *“to ensure a complete empowerment of women especially to enable their full participation in population and environmental decision making, resource ownership and management”*; and *“to promote off-farm and on-farm income generating programmes which aim at the alleviation of poverty, especially, among women whether they have access to land or not and among men who have no access to land”*. In the sub-section on Community Participation and the Environment, the policy aim *“to greatly increase the number of women extension agents in the field of natural resource and environmental management”*.

Sub-section 4.5 of the EPE concerns Social and Gender Issues. The policies in this sub-section aim:

- a) To ensure that formal and informal training in environmental and resource management include methodologies and tools for analysis and elimination of inequities;
- b) To make environmental awareness and public education programmes include both men and women in all social, economic and cultural groupings of society;
- c) To subject all policies, programmes and projects to impact assessments in order to maximize equity for economic, ethnic, social, cultural, gender and age groups, especially the socially disadvantaged; and
- d) To facilitate the participation of women across all sections of society in training, public awareness campaigns, formal and informal education and decision making in environment and resource management.

It is clear from the above policy statements of the EPE that the policy has considered gender issues seriously. The promulgation of the national EPE and the various

institutional and sensitization measures carried out to develop and establish regional conservation strategies and policies in a gender sensitive manner assisted regional governments and other stakeholders to appreciate the role that women play in environment and natural resource management. However, during implementation of the various policy measures stipulated in the EPE, the issue of gender and the role of women in environmental adaptation and sustainable development were not taken seriously. Cognizant of the implementation gaps, the environmental authority developed the following strategies:

- a) ***Institutional set up***: Women's Affairs unit established at the EPA. The establishment of Women's Affairs Department in the EPA at federal level created an enabling environment for mainstreaming gender issues in different development projects, programs and strategies. Some Regional States have also established Regional Environmental Institutions and offices that coordinate the environment protection interventions. These institutions consider gender concerns as cross sectoral issues to be mainstreamed in project planning and execution.
- b) ***Strategy for mainstreaming gender and ensuring effective participation of women in the environment conservation process***: this strategic document was finalized in 2001 with a detailed monitoring and evaluation framework. Six areas of interventions were identified and various approaches such as training on gender sensitivity, developing participatory rural appraisal techniques, promoting the formulation of women groups, etc. included in the strategy.
- c) ***Strategies for mainstreaming gender into the national action program in combating desertification***: these strategies were also developed in December 2001 with the objective of reviewing activities related to combating desertification and identify constraints and opportunities, and to come up with strategies for mainstreaming gender in the national adaptation planning process for combating desertification based on the UNCCD guideline. The strategic documents are being used for the purpose of guiding the integration of women participation in management and development of natural resources.
- d) ***Awareness creation***: In order to create broader awareness on gender and environment, women and environment communication workshops were organized in all the regional states and city administrations. As a result, the regional states have formulated their regional environmental communication strategies that include gender mainstreaming activities.

As a result of the various policy and development strategies and interventions, various women groups are being organized and playing vanguard role in environmental rehabilitation and natural resource management activities. Also,, the importance of involving women in project design, implementation and evaluation has got better recognition while the inclusion of environmental education and trainings on natural resource management courses has played important role in raising awareness and enhancing the capacity of girls and young women in the field of disaster risk analysis and management and environmental adaptation.

However, there are some challenges that need to be tackled if the gender variable and the issue of women is to be taken seriously in environmental and climate change adaptation and mitigation activities:

- Limited community and policy makers' awareness about the role of women in environmental adaptation and sustainable development;
- Lack of gender specific information, data, indicators, etc to guide and/or influence environmental policy making and programming;
- There is a general tendency among most policy makers and the research community of seeing women only as victims of environmental change, not as social actors and agents of sustainable development;
- Lack of appropriate tools to effectively mainstreaming gender issues in environmental policies, programs and action plans;
- Insufficient skilled and dynamic female and male professionals who can support/facilitate/guide works that aim to engender environmental activities in the country;
- Lack of sufficient attention and commitment to effectively implement some of the existing gender-sensitive environmental policies and programmes of action;
- The Women's Affairs Office at EPA and the regional bureaus are understaffed and under-resourced to follow up and monitor the gender sensitiveness of existing policies and implementation strategies;
- The establishment of Women's Affairs Bureaus in the regional EPA's have not been fully realized;
- There is no effective and responsive mechanism for collecting gender disaggregated data.

4.2 Ethiopia's Program of Adaptation to Climate Change (EPA-CC)

The UNFCCC requires that Least Developed Country Parties submit a National Adaptation Programme of Action (NAPA) where the country describes its priorities and strategies to enable it adapt to climate change impacts. The UNFCCC itself does not require the NAPAs to include a gender perspective; however, it is advised to include a gender principle and hire gender teams to work on gender-mainstreaming the NAPAs (Dankelman, 2008). These recommendations are not enforced, therefore gender issues rarely get written into the project's main adaptation focus. While many countries have noted the increased levels of vulnerability experienced by women dealing with changing climates in their NAPA, few have targeted women as direct agents in climate change adaptation strategies.

Ethiopia's Programme of Adaptation to Climate Change (EPACC) is a programme of action to build a climate resilient economy through adaptation at sectoral, regional and local community levels. EPA-CC updated and replaced the NAPA which was formulated and submitted to the UNFCCC Secretariat in 2007. The May 2010 report of the UNFCCC's Least Developed Countries Expert Group encouraged the updating of NAPAs, suggesting that a more programmatic approach could be more effective than the project approach of the NAPAs. It was in line with this suggestion that the project based

NAPA has been reformulated and replaced by the programme based and more ambitious EPA-CC.

The EPA-CC interlinks climate change adaptation strongly with the economic and physical survival of the country and identifies key climate change adaptation measures, and strategic priorities and intervention areas to address the adverse effects of climate change. According to the program, climate change is feared to interact with local environmental and socioeconomic factors in different ways across regions to reduce the ability of some environmental systems to provide, on a sustained basis, key goods and services needed for successful economic and social development including adequate food and feed, water and energy supplies, employment opportunities, gender equality, good health and social advancement in general.

The main objective of EPA-CC is to create the foundation for a climate-resilient low-carbon development path towards sustainable development in the country. It includes 29 components (climate change risks reflecting specific objectives of each component and the institutions responsible for countering and mitigating each of the identified risks) (See Box 1). The climate risks identified are broadly in the areas of human, animal and crop diseases, land degradation, loss of biodiversity, decline in agricultural production, dwindling water supply, social inequality, urban waste accumulation, and displacement due to environmental stress and insecurity. It identifies adaptation strategies and options in the various socioeconomic sectors including cloud seedling, crop and livestock insurance mechanisms, grain storage, societal reorganization, renewable energy, gender equality, factoring disability, climate change adaptation education, capacity building, research and development, and enhancing institutional capacity and the political momentum.

Box 1. Objectives of EPACC

1. Involve the whole population in planning and implementation of adaptation to climate change.
2. Forecast climate change through country-level and sub-country level climate change modeling.
3. Identify and prevent worsening and emerging human diseases.
4. Identify and prevent worsening and emerging animal diseases.
5. Identify and prevent worsening and emerging crop and plant diseases and pests.
6. Prevent land degradation and thus reduce soil loss to its natural equilibrium rate of equaling the rate of soil formation from bedrock.
7. Reduce biodiversity loss to achieve equilibrium with the natural rate of diversification.
8. Prevent biomass and soil nutrient accumulation in urban areas as waste by taking the waste back to farmlands as fertilizer.
9. Counter the agricultural productivity reduction that emanates from climate change through effective research and development.
10. Manage water effectively to make it always available to humans, animals and crops.
11. Reduce the impacts of severe droughts by cloud seeding to induce rain.
12. Establish building & construction codes that ensure structures withstand extreme weather events.
13. Store food and feed in good years for use in bad years.
14. Ensure that transportation access to disaster prone areas is always available.
15. Develop an insurance scheme for compensation from damage from bad weather.
16. Organize and train local communities for quick response to extreme weather events.
17. Resettle people from disaster prone areas before disasters materialize.
18. Shift homesteads to using renewable resources of energy.
19. Shift from fossil fuel to renewable energy for running engines for transportation and other purposes.
20. Ensure that gender equity is achieved.
21. Ensure that the physically handicapped are enabled to fend for themselves.
22. Prepare to receive and cater for environmental refugees driven away by climate change.
23. Map and delineate areas likely to suffer from climate change and extreme weather events.
24. Develop an accessible information network on climate change.
25. Develop an early warning system to alert people of impending extreme weather events.
26. Mainstream awareness on climate change into development and service activities.
27. Mainstream adaptation to climate change into education curricula.
28. Ensure that research and development efforts in all sectors focus on adaptation to climate change.
29. Establish an effective monitoring and evaluation system for the Implementation of the Programme of Adaptation to Climate Change.

EPA-CC's suggested programme of implementation is based on an open-ended iterative, participatory process which will work primarily across three dimensions, horizontally across sectors, vertically from federal level down to local communities and back up to the federal level, and through time, to gather and disseminate the learning developed to deepen benefits and widen coverage. Accordingly, it is suggested that each local community will formulate its own work programmes and by-laws to guide and govern the actions of its members towards greater climate resilience. From an initial sample focus of 64 woredas (12% of the total) the lessons learnt will be gradually scaled up to the whole country. The second dimension of EPA-CC is to reach throughout government sectors to ensure that the mainstreaming of climate change is embedded within government policies and plans through Sectoral Climate Programmes and Action Plans. Both the planning and implementation of EPA-CC is said to be participatory and inclusive process involving all levels of government, all types of civil society and religious organizations and communities across the country. In addition, it is suggested that the programme will be regularly monitored and reported on and verified.

The work program is both comprehensive and prescriptive. It has adequately captured the growing threat of climate change in Ethiopia and clearly spells out the need to mainstream climate change in all spheres of development policy making and planning at all phases and stages of the planning and implementation process. The program clearly states the urgency of taking practical adaptation and mitigation actions in the various social and economic sectors. However, since the program is compiled from contributions made by different sector ministries, there might be challenges with regard to coherence, and civil society and community participation in adaptation interventions.

4.2.1 Gender issues in the EPA-CC

In the project based NAPA that Ethiopia prepared in 2007, there were important concerns about the participation of relevant stakeholders in the plan preparation process. Most importantly, there were no representatives from the Women's Affairs Office and the Ministry of Health in the steering committee (responsible for the preparation of the NAPA document). Social and gender issues were also not given sufficient attention. The EPA-CC, on the other hand, considers gender and social issues as two important components of the adaptation process. Among the objectives listed for EPA-CC relate directly to gender and social issues: ensuring that gender equity is achieved and ensuring that the physically handicapped are enabled to fend for themselves. In the draft EPA-CC document these read as:

- In the pressure for acting towards adaptation to climate change, gender equity and child welfare could receive reducing attention. This must be prevented. The focal federal institution to ensure the necessary attention is the Ministry of Women's Affairs.
- The same pressure could also further weaken the already weak attention given by Ethiopia to the physically handicapped. Care must be taken that this weakening does not happen. At the federal level, the institution for ensuring that care for the handicapped is the Ministry of Labor and Social Affairs.

In this regard, the EPA-CC document has considered the gender and social aspects of climate change adaptation. But, gender perspectives are relevant to all the 29 components and objectives of the EPA-CC. Gender is also a crucial factor that needs to be taken seriously in all phases and stages of the EPA-CC preparation and implementation process (i.e., from preparation, planning, implementation, and monitoring and evaluation phases). From data and information gathering, sensitization, capacity building, governance, access to finance and technology, and implementation of the various components of EPA-CC, the gender factor needs to be mainstreamed and taken seriously. Since adaptation programming should stress the costs of adaptation, there has to be specific and clear information as to the financing process for adaptation initiatives. These initiatives have to be gender sensitive and the costs for this must be clearly stated (Oslo Policy Forum Report, 2008).

EPA-CC must also be based on and include local development plans, insuring a bottom-up approach to the whole process, their reviewing and approval and they must guarantee the inclusion of gendered local knowledge. It is interesting to see that the programme of implementation suggested for EPA-CC clearly shows the cross-sectoral and multi-

directional nature of the adaptation process. The programme of implementation is based on an open-ended iterative, participatory process which will work primarily across sectors combining top-down and bottom approaches through time (to gather and disseminate the learning for extended benefits and coverage).

Prior to implementation, a gender analysis of the EPA-CC can be undertaken, in order to review how climate change affects women and men differently, and to explore scaling up of specific innovations that promote gender equality and women's participation. Also, to ensure gender targets are being consistently met, a "gender team" can be formed to create processes that monitor gender targets at all stages. Engendering the EPA-CC will not only contribute to enhanced adaptive capacity and successful progression towards building climate resilient green economy, but also alleviate environmental pressures by utilizing an overlooked demographic as innovative and potent agents of change.

There are some steps that should guide the process of mainstreaming gender in national and regional adaptation plans and programmes, including the EPA-CC. These include²:

- Analyzing the effects of climate change from both a male and female perspective;
- Incorporate a female perspective when designing and implementing projects;
- Developing and applying gender-sensitive criteria and indicators;
- When collecting and presenting data include women's statistics as well as men's;
- Capitalizing on the talents and contributions of both women and men;
- Setting targets for female participation in activities;
- Ensuring that women are represented in 50% of all decision-making processes;
- Making women's equality, access to information, economic resources and education a priority;
- Focusing on gender differences in capabilities to cope with climate change adaptation and mitigation actions;
- Undertaking a gender analysis of all budget lines and financial instruments.

4.3 Nationally Appropriate Mitigation Actions (NAMA) of Ethiopia

Climate change mitigation is any action taken to permanently eliminate or reduce the long-term risks and hazards of climate change to human life, property and natural resources. Mitigation is distinguished from adaptation, which involves acting to minimize the effects of climate change. Most often mitigation involves reductions in the concentrations of greenhouse gases, either by reducing their sources or by increasing their sinks. In general the more mitigation there is, the less will be the impacts to which we will have to adjust and/ or adapt, and the less the risks for which we will have to prepare. Conversely, the greater the degree of anticipatory adaptation, the less may be the impacts associated with a given degree of climate change. However, climate change mitigation and adaptation should not be seen as alternatives to each other, as they are not discrete

² The steps are adapted from "Mainstreaming Gender into the Climate Change Regime" (COP 10, 14 December, 2004) and were supported by the UNEP Women's Assembly, held in Nairobi in October 2004.

activities but rather a combined set of actions in an overall strategy to reduce climate change impacts.

NAMAs are voluntary emission reduction measures undertaken by developing country parties and reported to the UNFCCC. In accordance with the requirements of the Copenhagen Accord, Ethiopia prepared and submitted its NAMAs in January 2010. The Ethiopian NAMA is comprised of various sectors and concrete projects in the energy, transport, forestry, agriculture and urban waste management sectors (See Box 2) and has been registered by the Secretariat of the UNFCCC in line with the Copenhagen Accord.

Box 2. Sectors and major areas of project intervention included in the Ethiopian NAMA

1. Electricity generation from renewable energy for the grid system (hydropower, wind, geothermal projects),
2. Electricity generation from renewable energy for off-grid use and direct use of renewable energy,
3. Transport- railway projects with trains to run with electricity generated from renewable energy in eight routes,
4. Bio-fuel development for road transport and household uses,
5. Forestry- enhanced district-level reforestation, management of natural high forests, deciduous forestland, national parks, and wetland resources,
6. Agriculture- application of compost and implementation of agro-forestry practices, and,
7. Waste management in major cities and towns- Addis Ababa, Mekele, Adama, Bahir Dar, Dire Dawa, Hawasa and Harar.

Although climate change poses significant threats, the international response to climate change also offers considerable opportunities for Ethiopia. Within the broader global agenda on climate change, poor developing countries like Ethiopia stand to gain from both adaptation and carbon finance. Carbon finance has the potential to be a major revenue source for Ethiopia. The opportunity is not just financial. Climate change offers a lens through which Ethiopia can revisit some of its most intractable problems related to the excessive reliance on traditional biomass for energy generation. The case for pursuing a low-carbon development path and building green economy has implications for the health and wealth of the country's populations and the environment. The sustainable utilization of the country's rich and diverse renewable natural resources (hydro, solar, wind and geothermal) for energy production will help overcome the energy poverty, the loss of foreign currency from rising and fluctuating oil prices and lessen the pressure on the environment. The co-benefits for health, overall wellbeing, economic growth and natural resource conservation are significant – for example clean energy reduces local pollution and forest conservation maintains watershed functions and reduces soil loss; and Ethiopia is well positioned to become a regional and global leader in low carbon growth which will have legacy and commercial benefit long into the future.

As can be seen from Box-2, the Ethiopian NAMA pays special attention to unleashing the potential of the country's water, land, wind and geothermal energy resources for the purpose of generating electricity for road and rail transport and household consumption, and to managing urban wastes. This is a very important and positive step forward. However, there are two important concerns. First, the limited experience in the country so

far in the production of bio-fuels show that there is real danger of energy crops displacing food crops and forest resources. If care is not taken, land use change from forests and woodlands to energy crops will rather lead to more carbon emissions than sequestration. Second, as compared to NAMAs prepared by other countries, the Ethiopian NAMA has failed to include important mitigation actions in land use planning (e.g. the NAMA of DR Congo), energy efficiency (e.g. in Botswana), fiscal incentives and traffic management regulatory policy measures (e.g. in Jordan).

Over all, mitigation responses should avoid a narrow criterion that leads to environmentally and socially harmful consequences. These responses should have broad goals that aim to reduce climate change, protect natural resources, improve social wellbeing, promote equality, and recognize that women are key agents in climate change processes.

4.3.1 The need for gender-sensitive strategies for NAMAs

In Ethiopia, work on gender and climate change has largely focused on impact and adaptation. This may be due to the widespread acceptance that climate change will hit the poorest the hardest, with women making up a large proportion of ‘the poor’. What receives less attention is women’s willingness and potential to significantly contribute to climate change mitigation strategy design and implementation. For this potential to be realized, however, women need opportunities for meaningful involvement in these decision-making processes.

While there has already been some exploration of the links between adaptation to climate change and gender equality, the gender aspects of mitigation are still at an initial stage. As pointed out by Brody et al. (2008) this may be due to the seemingly “technical” or “scientific” nature of mitigation, as being about reducing GHGs. It may also be due to the fact that women are often seen only as victims or members of vulnerable groups, rather than experts or leaders, and thus readily associated with the adaptation side of climate change. Another fundamental explanation for the lack of gender considerations in mitigation actions is the fact that women are poorly represented in planning and decision-making processes in climate change policies, limiting their capacity to engage in political decisions related to climate change. In this respect, there is a need to conduct actions that will empower women to get involved in decision-making processes (i.e., training on climate change, access to information, invitation to participate in national, regional and local discussions).

In the context of climate change, mitigation actions aim to reduce the sources of greenhouse gases emissions or enhance their sinks through carbon capture, fixing and sequestration. In each of these cases the solutions or initiatives are different in developed and developing countries and, consequently, so is the way in which gender considerations are articulated. In this regard, there are certain areas in which mitigation actions are being proposed or undertaken, where women have proven over the years (and in some cases centuries) to be crucial players. Such is the case with conservation of forests and reforestation, management of local resources, consumption and energy, among others. In these proposed intervention areas for climate change mitigation, what have been lacking

are awareness, recognition and acknowledgement of the role and input that rural and urban women have had and are having.

Unlike other mitigation strategies, NAMAs are primarily directed at the less developed countries, many of which have ecosystems that fix or capture carbon, for example, forests, wetlands, grasslands, mangroves, among others. In Ethiopia, the development of clean energy sources (solar, hydro, wind, geothermal), sustainable agriculture, forestry (afforestation, reducing deforestation, and reforestation), urban waste management and the conservation of nature are important strategies that will help increase storage of GHGs by means of “sinks” (through Carbon capture, fixing or sequestration).

Carbon capture, fixing or sequestration

Within the complexity of the services that forests provide for climate change mitigation, it is crucial to understand women’s role in these processes. Strategies are now turning towards: understanding and taking into account the different benefits that women and men derive from forestry services; recognizing gender differences in access to, control and knowledge of forest resources; and identifying the significant differences in access of women and men to forest related decision making, institutions, and economic opportunities. In relation to the management or conservation of forests, it is important first to understand that men and women often have different productive and reproductive roles with regard to forest resource management. They play different parts in planting, protecting or caring for seedlings and small trees, as well as in planting and maintaining homestead wood lots and plantations on public lands. Men are more likely to be involved in extracting timber and non-timber forest products (NTFPs) for commercial purposes. Women typically gather forest products for fuel, fencing, food for the family, fodder for livestock and raw materials to produce natural medicines, all of which help to increase family income.

Reducing emissions through clean energy sources and technologies

In Ethiopia, especially in rural areas, there is a direct connection between energy supplies and gender roles. Currently, overall GHG emissions are low in these areas because there is little access to electricity or motorized equipment outside the urban centres. Burning biomass for household cooking, heating and lighting represents a high percentage of Ethiopia’s overall energy use. For example, in 2010, firewood and charcoal account for about 91% of national energy consumption (Hilawi, 2011).

In these areas, providing the fuel needed for daily life is viewed as one of women’s responsibilities. Where women are already managing traditional biomass energy supplies, they can also become key players in the adoption of energy technologies that reduce GHG emissions. It is important, however, that women are engaged in designing and implementing energy projects and that proposed alternatives are affordable, accessible and designed to meet women’s actual energy needs.

There are a number of cleaner fuels and/or more efficient energy systems that can provide win-win solutions by cutting emissions as well as indoor air pollution, which is a major source of respiratory diseases for women cooking over smoky fires. New energy

alternatives also reduce the time and physical effort women need to expend collecting and transporting traditional biomass fuels, thereby creating new opportunities for education, productive activities and much-needed economic and social advancement. Even in areas where grid-based electricity is available, many households still use wood or charcoal for cooking and heating. An approved methodology has recently been developed that will allow large-scale improved stove projects to access carbon financing through the sale of emission reduction credits. By increasing the efficiency of fuel combustion, improved stoves have the potential to reduce carbon dioxide emission levels and also conserve increasingly scarce fuel wood. However, some past efforts to introduce new stove technologies have failed because they primarily emphasized environmental benefits and were not well suited to local customs. Engaging women in the design of improved stoves and implementation of projects will greatly increase the chances that the equipment will actually be used, and therefore the expected GHG reductions actually achieved. Biogas digesters and solar cookers are other technologies that offer lower emission options for cooking and potential benefits to women – if they are compatible with women’s daily routines and workloads, and adapted to the local context. Solar cookers can be readily accepted in areas where drought, land degradation and deforestation have made reliance on traditional wood fuels extremely difficult.

In areas beyond the reach of grid-based electricity, renewable energy options such as wind, solar and small hydro-technologies provide alternatives to diesel engines and generators as low-emission sources of electricity and/or motorized power for essential equipment such as water pumps and grain mills. Since much of women’s time in rural areas is spent getting water and preparing food for their families, motorized equipment greatly relieves the drudgery of their daily routines and increases the time they have available for other types of activities. Production of liquid bio-fuels from plant products and waste materials may also offer new opportunities for women and communities to gain access to energy without adding to global carbon emissions. There is much controversy about the advisability and sustainability of creating large monoculture bio-fuel plantations, or using food crops for fuel, and in many cases it is women who will be most impacted by food insecurity and loss of access to land and resources for traditional biomass fuels. There are also questions about whether bio-fuel operations actually reduce GHG emissions when all the energy inputs required for large-scale operations are taken into account. However, well planned, decentralized and gender-sensitive policies on bio-fuel production have the potential to transform women’s current roles as energy suppliers into sustainable livelihoods that trigger new advancements in rural development and self-reliance.

When women’s groups are engaged in acquiring and operating new types of energy systems, they also develop new skills and livelihoods as business managers and energy entrepreneurs. In this way they can improve their own lives and economic opportunities while at the same time serving as active participants in the transition to environmentally sustainable energy production and consumption. So far, however, it has been difficult for the types of small-scale projects that women tend to be involved in to gain access to the CDM and voluntary carbon credit markets, especially in poor countries like Ethiopia. More work is needed to expand women’s participation in these opportunities.

The gender dimensions of mitigation technologies

Because technology is not gender-neutral, technology-based strategies for both mitigation of, and adaptation to, climate change sometimes have different implications for women and men. These differences must be recognized and integrated into our thinking about climate change. If technologies are to be used by both women and men, they must be designed to reflect the circumstances and preferences of both sexes. This is especially true in the case of technologies aimed at tasks most frequently performed by women. While the participation of women in decision making about technologies will not guarantee gender sensitivity, it is an important aspect, and ultimately may help to make the technologies more useful and productive for both women and men.

Technology in the traditional sense of tools and machines has been considered a “male domain”. Despite their ingenuity and ability to improvise with whatever materials they happen to have at hand, women in most parts of the world are highly under-represented in the formal creation of new technologies. It is only in recent years that girls and women have been encouraged to pursue studies in engineering and other so-called hard science disciplines. However, in all parts of the world, women are active users of technology. Women’s specific needs in technology development, their access to technical information, tools and machines often is very different from that of men. All of this influences how (and if) they will have access to, or make use of, new technologies. Cultural patterns are also important. For example, among some pastoral communities, water points are managed by men (who are mainly concerned with providing water for livestock – a source of income and prestige for them). These water points often have no taps for women to draw domestic water with the result that women are forced to collect water at the cattle troughs being used (and contaminated) by the animals. There are many examples, especially in the agricultural sector, of technologies designed specifically to reduce the heavy workloads of rural women but developed without their input and which ultimately were not successfully adopted. Technologies have often been designed without attention to the specific needs of women and their limited access to resources, including capital, labor, time or even the right to make decisions.

In this regard, there is need to consider gender in technology needs and needs assessment. Technology needs assessment exercises should begin from the recognition that the technology needs of men and women are not always identical. For example, in agriculture there is often an emphasis on the development of drought or flood-resistant varieties, to increase food security. However, in Ethiopia as elsewhere in many developing countries, processing agricultural products is a time-consuming and laborious task undertaken almost entirely by women. Given the time constraints under which women already operate, it would be appropriate to focus on developing varieties that will be easier to process and to invest in the development of appropriate tools for women such as simple threshing instruments, in addition to the identification of technologies that will lead to an increase in yields. Technology needs assessment should give some consideration to the end users who are often female farmers and herders who face constraints of time, access to credit and information, and poor/marginal arable or range land.

Since existing traditional channels for the dissemination of technical information often bypass women, special efforts may have to be made to reach them. Male family members do not necessarily share newly-acquired technical information with women. In this regard, efforts should be made to create awareness, sensitize and train stakeholders on gender and climate change's new technology concerns.

5. Tools for engendering climate change related policies and programmes

This chapter discusses the major gender mainstreaming tools to facilitate and/or guide the mainstreaming of gender issues and the engenderment of climate change related policies and programmes of action. It presents major steps, analytical tools and checklist items that help mainstream gender issues in climate change policy making and programming.

5.1 Commonly used Gender analysis frameworks in relation to climate change policy

5.1.1 Harvard Analytical Framework

This will help researchers for collecting information on any research at micro level:

- A.** Socio - economic activity profile (look at who does what, where, when and for how long);
- B.** Access and control profile (look at who has access to and control over resource and benefits);
- C.** Analysis of influencing factors (look at other factors that affect the gender differentiations, past and present influences, past and present, and opportunities and constraints);
- D.** Contains a checklist of key questions to ask at each stage of project cycle analysis.

This framework is appropriate for project design rather than program or policy planning. As a gender not taking sides/neutral entry point when working with those who might be resistant to look at gender relations for collecting baseline data.

The strength is that it is practical, can be used to collect, and organize information about gender division of labor and it also makes women's work visible. It distinguishes difference between accesses to control over the resources. It is useful for projects at micro level and can easily be adapted to a range of settings. Comparatively non- frightening as it is focused on collection of facts.

Limitation of the framework is it needs to be used with another tool to allow idea of strategic gender needs to be identified. It focuses on a project rather than on a program, on efficiency not that effectiveness – doesn't provide guidance on how to change gender inequality. It center for top down planning that excludes men and women own analysis of their situation. It can be carried out in a non – participatory way, it ignores other inequalities such as race, class and ethnicity, it emphasis separation of activities based on sex or age and ignores connections and cooperative relations. It also tends to focus on material resources rather than on social relationships (MoWCYA, 2011).

5.1.2 Gender Planning framework in relation to climate change policy(Caroline Mosser Framework)

- Its center of attention is on strategic gender needs and concentrates on gender inequalities and how to address these at program and policy levels.
- Its characteristics is it is used to identify gender roles, identification – center of attention on triple roles of women (productive, reproductive and community).It centers gender needs assessment (practical and strategic needs). I disaggregate control of resources and decision – making within a households (intra – household resource allocation and power of decision – making within the household). It balances roles that are related to how women manage the balance between their productive, reproductive and community roles.
- WID and GAD policy matrix provides a framework for identifying/evaluating the approaches that have been/can be used to address the triple roles and the practical and strategic gender needs of women programs and projects.
- It refers to involving women, gender, conscious organizations and planners in planning. The aim of this tool is to ensure that ‘real needs’ as opposed to perceived needs are incorporated into planning process.
- This will best fit for planning at all levels from policies to projects. It can be implemented in combination with the Harvard framework
- This framework assumes planning as exist to challenge unequal gender relations and support women’s empowerment makes all work visible through concept of triple roles and also recognizes institutional and political resistance to transformation of gender relations. It distinguishes between practical gender needs (those that potentially transform the current situation).
- Limitations of this framework is it doesn’t mention other inequalities like class, race and ethnicity, it is static and doesn’t examine changes over time, look at separate rather than inter related activities of women and men, strategic needs of women are not addressed, accepts the concepts of the triple role in relation to community roles.

5.1.3 Social Relations Framework in relation to climate change policy (Naile Kabeer IDS Framework)

This model can be used to analyze gender inequalities in the distribution of resource, responsibilities and power, relationship between people, their relationship to resources and activities and how these are reworked through institutions, to emphasize human wellbeing as the final goal of development.

These are concepts rather than tools are used in the framework in order to focus on the relationship to resources and activities and how they are re-worked though institutions. In the framework necessary concepts are needed:

- Development is increasing human wellbeing(survival, such security and autonomy);
- Social relationship analysis, the way people are positioned in relation to tangible and resources ;
- Institutional analysis Key institutions; state, market, legal, family/kinship. Aspects of institution, rules, activities resources, people, power;
- Institutional gender policy analysis in relation to climate change;
- Analysis of underlining causes and effect of these.

This can be used across all modalities of development delivering from project to policy planning and can be used at local, national, national and international level.

The Strength of this framework is that it presents a border picture of poverty, conceptualizes gender as central to development thinking not an add on, used at different levels for planning and policy development, links micro and macro analysis around institutions and highlights their political aspects, highlights interactions between inequalities, race, class, and ethnicity, is dynamic-works to cover processes of impoverishment and empowerment.

Limitation can be appeared to complicated since it looks at all inequalities, it can include gender in to other analytical categories, can cover look the potential for people to effect change , may give an overwhelming impression of large institutions.

5.1.4 Capacity and vulnerabilities Analysis in relation to climate change(CVA)

It aims to assist outside agencies to plan interventions in a way that meet the immediate needs of people, build on their strengths, and support their efforts to achieve long term development.

The core concept of the CVA framework is hat people's existing strengths, capacities and existing weaknesses (vulnerabilities) determine the effect that a crisis has on them and their response to it.

This can be used for both planning and assessment of changes of time for example tracking change in gender relations in the consequences of disaster or agency intervention. The CVA can be used at different stages of a crisis and take in a short term and long term perspective. It causes the social psychological as well as material dimensions are included in an analysis.

Strength of this framework is it ensures the social and psychosocial as well as material dimensions are included in an analysis. It can be adapted to include all categories of social differentiation, such as , gender, age, class, cast, ethnicity and disability

CVA could be used without including a gender analysis, resulting in gender blind – analysis and responses. Hough the framework was not specifically designed to promote women's empowerment it can be used to create more equal gender relations provided this difficult to use in a participatory way, particularly with communities in crisis situation

The reason why these frameworks are dealt with here are to create awareness on the different tools that supports to make assessment with different categories of the society whenever we want to formulate polices that can be applied at all levels in order to mainstreams gender in polices. Still there are some gender analysis frameworks but for this purpose it is enough to use the above mentioned tools.

5.2 Steps for mainstreaming gender in the policy related to climate change

5.2.1 Gender mainstreaming in the policy related to climate level should follow the following steps.

Step One: Gender Auditing

An organization who works on climate change adaptation and mitigation strictly do gender audit at policy level to identify gender gaps in the organizations' policies through making gender issues visible. Gender audit will contribute to the effective internal assessment to identify weaknesses and strengths as well as existing opportunities and threats of the policy regarding narrowing down the gaps between men and women, boys and girls in processes of climate change adaptation and mitigation programs.

Gender responsive organization is the one that is well sensitive about gender disparity and factors contributing to inequalities and takes action to address them. A gender transformative organization is the one that seeks to understand and addresses causes of gender inequality by taking effective strategic actions to transform the unequal power relations between men and women; resulting in improved status for women and hence gender equality. The following factors are important to mainstream gender at organizational policy level. Gender mainstreaming in the policy related to climate change is possible if the organization fulfill the following conditions:

- Strong and committed leadership;
- Shared responsibilities
- Effective institutional framework;
- Adequate resources;
- Sex disaggregated data and gender statistics;
- Trained human resource in gender field.

Strong leadership and commitment:

- At senior management level strong leadership is required to create sustainable condition for successful gender mainstreaming in the policy related to climate change.;
- Senior management that can provide appropriate leadership, resources and who is able to create conducive environment for the implementation of gender mainstreaming in climate change policy.

Shared responsibilities:

- This refers to division of labor to address gender inequalities in climate change related policy ;
- Gender mainstreaming can be successful only when the majority in the organization understands, accepts and take responsibilities with accountability that gender issue need to be inbuilt in an organization that is working on climate change vision, mission, values, goals and implementation plan.
- GM as a strategy, and gender equality as an outcome, cannot be achieved by a few women-focused group acting alone;

- GM approach is when the majority understands that gender issues are inbuilt in all government activities, policy and program planning and development processes, at all levels and in all sectors;
- GM will be successful when the mainstream accepts responsibilities does gender equality outcomes and start in a gender with responsive manner.

Sex disaggregated data and gender statistics:

- It is necessary to see the existing gender gap of the organization that is working on climate change using figures and numbers which helps decision - makers, planners, researchers to formulate policies, strategies and decisions in order to make the organization to be gender responsive;
- Hence qualitative and quantitative sex disaggregated data is vital for the policy to mainstream gender successfully.

Training Staff:

- For an organization that is working on climate change to effectively implement gender mainstreaming in its development programs the requirements of trained staff in gender has a top importance;
- The number of staff will depend on the necessities and paramount of the gender mainstreaming strategy, especially the amount of support and guidance required by the organization policy;
- Preferably the core staff will be relatively have enough status and influence to have an impact. Ideally the core staff will be relatively have enough status and influence to have an impact on climate related policy.

Gender audit process for mainstreaming gender in the policy related to climate change requires the following activities:

- Establish a task force enhancing organizational representative those trained in gender audit;
- Develop annoyed gender audit questionnaire for self –assessment of (program, project, vision, mission, structure, human, material and financial resources culture, networking etc...)
- Conduct self-assessment and organize the data;
- Analysis of assessment results (questioner and interview of focuses group discussion, ...etc);
- Preparation of gender audit draft report;
- Conducting validation workshop on the report, incorporate valuable inputs and finalize the report;
- Implementation of action plan produced and distributed to all concerned sections of the organization.

Step Two: Gender Analysis for mainstreaming gender in the policy related to climate change

- Gender analysis is a mixture and careful examination of existing situation with focus on identifying gender gaps or disparities;
- It is a useful tool for identifying the different needs, interests, concerns, and priorities of women and men in climate change policy;
- Using sex disaggregated database, gender analysis shows labor is divided;
- Gender analysis also shows existing problems, causes and effects of the problems required actions and exposed impacts; Thus information obtained from the gender analyses helps to formulate gender responsive organization;
- Gender analysis also shows existing problems, causes and effects of the problems required actions and exposed impacts; Thus information obtained from the gender analyses helps to formulate gender responsive organization;

Three steps of organizational level gender analysis:

- A. Assessment
- B. Analysis
- C. Action

Step three: Idea formulation

In implementing gender mainstreaming at the idea formulation of policy related to climate change stage the following are required:

- Being explicit about the different needs and experiences of men and women as expressed by the targets;
- Ensuring that there are clear and specific mandates, goals, objective, activities, and indicators that will lead to gender equality;
- Ensuring that women and men participate equally in the approval and decision - making process for accepting the idea and treating both with equal respect;
- Obtaining important information, sex-disaggregated data of men and women on equal basis;
- Finding resources and allocating it explicitly to benefit men and, women staff is on comparative/relative basis at all levels, up to evaluation.

Step Four: Strategy

- Every organization by taking in to account the provided preconditions should have clear objective, explicit approach, which are essential for gender mainstreaming in climate related policy.
- Address the identified practical and strategic needs and priorities of women and men in relation to the organization's policies and strategies;
- Establish and strengthen the interlink ageing vested;
- Of specific organization with other government and non-government organizations to implement effectively its mandate particularly in addressing the issues of gender equality in climate change related policy;
- Develop mechanism to insure that different work processes in the organization are addressing the gender issues;

- Develop monitoring and evaluation mechanism for the proper implementation of gender mainstreaming in the organization related to climate change.

Step Five: Action

Equality does not mean treating all groups alike to achieve true equality. Conditions to be considered to take action include the followings:

- Plan capacity building and skill development on gender issues targeting senior management members;
- Ensure the existence and plan for gender responsive policies, legislations. Procedures, and manuals to address inequality as well as diversity by allowing and encouraging participation of women and men in climate change adaptation and mitigation demanded measure;
- Review gender responsiveness of employees; job descriptions and their accountability at decisions making of climate change adaptation and mitigation programs and at all other levels;
- Ensure access to gender related government climate change policies, international conventions and declaration readers and up date to senior management members;

- Facilitate a women friendly organizational culture (violence free environment;
- Set a target for equal number of men and women staff;
- Encourage and support more women into higher positions;
- Design a system that include job classification and required qualification in relation to affirmative action ;
- Create conducive opportunity for women as targets of training both at nationally and overseas look forward to gender balance.

Checklist at organization level

Vision and mission:

- Are the policies, vision, and mission and strategic plans clear about gender equality and women's empowerment in climate related programs?
- Does the employment policy of organization that are working on climate change adaptation and mitigation programs incorporated women's right to affirmative action?
- Is there a strategy that enhances, encourage and create opportunities for women employees to equally and fairly participate in training related to climate change programs?
- Do women employees participate in the formulation of climate related policy policies programs and projects?

Personnel:

- Are personnel at organizations trained to be aware of and understanding women and men's needs in climate related policy?

- Are senior management members competent and skilled to handle gender /women issue in in climate change adaptation and mitigation area of responsibilities?
- Are women included in the senior management group of organizations that are working on climate change adaptation and mitigation programs as expected by BPFA and goal of MDG as well FDRE's constitutional provision (at least 30% positions)?
- Are practices on gender stereotype /label discouraged through advocacy and awareness creation on climate change policy?

Organizational structure:

- Do women have equal access to the organization resources?
- Does the organization structure of climate change provide equal access to women and men?
- Are organizational structures of climate change rigid or flexible to allow horizontal relations and easy for all equally?

Finances:

- Is there funding to ensure the continuity of activities of the organization in relation to climate change?
- Is the level of finance enough for planned task of climate change policy?
- Does the organization ensure that male do not get special access in climate change programs?
- Is it possible to trace fund for both women and men from allocation to release, with a fair degree of accuracy in climate change program?

Organizational level checklist:

- Is gender sensitive recruitment practices used in climate change programs?
- Do women and men have equal access to professional development opportunities climate change adaptation and mitigation programs?
- Is strong leadership and role modeling on mainstreaming gender in climate change?
- Is climate change program date disaggregated by sex?
- Is the working culture of the organization that are working on climate change are conducive to the empowerment of women or do discriminatory attitudes and practices exist?
- Do in climate change programs are family-Friendly policies exist e.g.. Flexible working hours, childcare centers to reduce work loads of women?

5.3. Gender mainstreaming tools and checklists at policy level

A policy is a general directive that gives chance to an organization to perform on an issue. Preparing policy related to climate change at all level requires clear understanding of the gender status such as the, historical development of gender inequality, the effect of gender roles power relations, status differences, access to and control over resources between men and women. It is essential to know the different life experiences, the differentiated needs of women and men, how it affects each differently, and disproportionately in climate change policy and programs..

Gender analysis is one of the crucial factors in drafting climate related policy. Gender based knowledge and experience is necessary to product gender sensitive climate change policy.

Checklists

Problem identification

Are both men and women participated and contributed equally in climate related problem identification to formulate gender responsive climate change adaptation and mitigation policy?

- Are women organizations and gender Equality advocates been involved in problem and consulted in problem identification of climate change policy formulation?
- Are there been specific meetings to discuss the gender dimension of suggested climate change policy?
- Are there government institutions responsible for gender equality been involved and consulted in climate change policy?

Indicator for problem Identification

- Number of men and women participated in problem identification of climate related policy.
- Number of relevant women organizations involved in problem identification of climate related policy?
- Number of discussion forums conducted with expertise on the gender implications/dimensions of the suggested climate change policy.
- Government institutions responsible for gender equality with gender expertise consulted when preparing climate change policy?

Checklist at climate related policy design and drafting level

- Are climate related policies formulated address gender needs (practical and strategic) in climate change adaptation and mitigation?
- Do the policy's goal, objective and proposal intervention address equal benefits of women and men in climate change adaptation and mitigation programs?

Gender related problems addressed/incorporated at climate change policy design

- Are consultative processes designed to set gender responsiveness of climate change policy?
- Are government institutions responsible for gender equality been involved in the consultation processes climate change policy?
- Are all gender related problems identified during problem identification incorporated at climate related Policy design drafting phase?
- Women equally and fully participated with men during climate policy policy design and drafting?
- Are sufficient resources (financial, human, material and time) allocated to address the gender aspect of climate change policy?

Indicators at policy design and drafting phase level

- Gender needs clearly identified and analyzed in the climate change policy.
- Gender issues addressed in climate change policy's goal, objective and interventions.
- Numbers of consultative workshops conducted on climate change related policy of adaptation and mitigation programs.
- Relevant government institutions with gender expertise consulted during climate related policy workshops..
- Proportion of women and men equally participated during climate related policy design and drafting

Checklist at climate change policy appraisal and approval level

- Has the draft climate related policy reviewed by stakeholders before approved by the parliament?
- Are all comments given by stakeholders included in the climate related policy?

Indicators at climate change policy appraisal and approval level

- Relevant stakeholders' involvement
- Relevant comment given in the final draft of climate change policy.

Climate change policy promotion and implementation checklist

- Are gender issues considered in the promotional activities done on the climate change policy?
- Has the promotion of the climate change policy reached to pertinent women? Are women been invited and participated in climate change policy workshops, conference, meeting ...etc?
- Are sufficient resource (finance, human, material and time) secured to inform to implement gender aspects of the climate change policy?
- Is there well designed strategy to implement the gender aspects of the climate change policy?
- Are programs and projects designed to achieve pre-determined climate change policy goals gender responsiveness?

Climate change indicator at policy promotion and implementation

- Involvement of relevant stakeholders.
- Inclusion of relevant comments in the final draft of the climate change policy.
- Gender issues considered in the promotion of the climate change policy.
- Number of pertinent women got information on climate change policy.
- Amount of resource secured to gender aspect of climate change policy. Number of gender responsiveness of climate related programs and projects prepared to translate climate change policy into operational activities
- M&E system designed to mainstream gender responsiveness of climate change policy.
- Number of women and gender experts participated in M&E of climate change policy.
- Workable strategy designed for the implementation of climate change policy.

Checklist at climate change Program monitoring and evaluation

- Are climate change policy's monitoring and evaluation tools gender responsive (gender sensitive indicators and targets)?
- Do women and gender experts participated in monitoring and evaluation of task of climate change policy?
- Does climate change policy extend benefits and opportunities equitable to women and men?
- Has climate change policy brought positive change on the life of women and men?

Indicators at climate change program monitoring and evaluation level

- Proportion of women and men benefited from climate change policy.

6. Engendering climate change policy and practice: Some recommended strategies

6.1 Beyond a focus on women's' vulnerability

In the discourse on climate change in the poor developing countries, the tendency is to view women and girls as the stewards of nature and primary victims of environmental degradation, often viewed in isolation from the multiple processes that put them in this place (Leach, 2007). Such descriptions portraying women as helpless victims of environmental change, runs through both climate change adaptation and mitigation policies and programmes of action. They perpetuate a very narrow view of gender-responsiveness, limited to the role of vulnerable women in adaptive or low-carbon natural resource management on a small scale, at community level, in the informal economy, or in activities for household subsistence.

In Ethiopia too, the limited available literature that investigated the gender dimension of climate change has focused on exploring and highlighting the particular vulnerabilities of women to the multifaceted risks and impacts posed by climate variability and change (Alebachew, 2011). In responses to climate change, this emphasis on vulnerability has led to a focus on women (as victims) at the receiving end of adaptation and – in domains perceived as most relevant for women such as household water supply or energy saving development initiatives. Often, this has translated into ensuring that a certain percentage of beneficiaries of programmes, projects and policy targets are female, or into analyses of women's specific needs in assessments preceding policy, programme and project design. However, while recognizing women's specific needs is one key element of gender-responsive policy making and programming, neither of these approaches has necessarily meant that the specific needs and capacities of women and girls, as well as unequal power relationships would be thoroughly addressed.

Ethiopian women are not merely victims of their environment. Equally, they are actively involved in the management and sustainable utilization of natural resources. They have long developed experiential knowledge and indigenous technologies for environmental adaptation. In rural Ethiopia, women are observed struggling and strategizing to prevail amid deteriorating environmental conditions. They generally have developed a sense of how to cope with disasters and have found ways to adapt with climatic and non-climatic stressors. They have developed important knowledge and skills for orienting the adaptation processes, a product of their roles in society (in the productive, reproductive and community spheres). In this regard, involving both women and men and their respective viewpoints in climate change policy making, programming and implementation is critical to ensure that the end solutions will actually benefit all members of a community (See Alebachew, 2011).

In this regard, there are a number of new frameworks to assist thinking about gendered vulnerabilities and capacities from the outset of a design process at community level (see Daze et al., 2009; Ahmed and Fajber, 2009) and various sources showcasing women's capacities as well as changes in gender relations through climate change adaptation, low-

carbon development or disaster risk management initiatives. They include, for example, women spearheading movements for natural resource management, receiving training for and managing renewable energy projects, or reducing disaster risk through micro-insurance and livelihood diversification (HEDON, 2009; IUCN et al., 2009; UNDP, 2009a; UNDP, 2010; Terry, 2009a; Terry, 2009b).

6.2 Women as environmental managers and leaders

Women are not only victims of climate change, but also effective agents of change in relation to both adaptation and mitigation. Women have a strong body of knowledge and lived expertise that can be tapped in planning for climate change adaptation, disaster risk management and mitigation strategies. Women's responsibilities in households and communities as stewards of natural resources has positioned them well for livelihood strategies adapted to changing environmental realities. Women tend, however, to be underrepresented in decision-making on sustainable development, including on climate change, and this impedes their ability to contribute their unique and valuable perspectives and expertise on climate change.

In both rural and urban Ethiopia, women are not just helpless victims. They are powerful agents of change, and their leadership is critical. Ethiopian women can help or hinder strategies related to water supply, energy use, deforestation, population, economic growth, science and technology, and policy making, among other things. Hence, their participation in climate change adaptation and mitigation policy making and program development is critical. Furthermore, it may be expected that women, in their specific relation to natural resources, through the conservation of soil and water, the building of embankments to avoid floods, the giving of care to the sick and other types of related activities could make a significant contribution to the efforts that will be required to confront climate risks.

6.3 Generating and disseminating gender disaggregated data

The gender variable is generally poorly addressed in climate change related policies and programmes of action. This is due to the lack of gender sensitivity of those shaping policies and programmes of actions, leading to a strong technical and economical bias in the contents of most development and even environmentally-oriented policies. Additionally there is another lack preventing the 'mainstreaming of gender' into climate change policies, which is the lack of data and research. Engendering climate change related policies and programmes necessary requires sufficient information and gender disaggregated data and sufficient scientific and institutional capacity.

6.4 Paying particular attention to women's special condition

In applying a gender perspective, attention needs to be given to what has been called women's "special condition," i.e., the social, economic and cultural factors and mechanisms which keep women in a situation of disadvantage and subordination with regard to men. Women's special condition consists of social, economic and cultural factors and mechanisms that maintain women in a situation of disadvantage and subordination with regard to men. Such subordination is expressed in varying manners depending on the historical and cultural context. Women's condition as a conceptual and

operational tool for analysis entails consideration of material status, or the level to which their “practical needs” are met, such as access to water, electricity, housing, health care, employment and income-generating services. This concept connects women’s material wellbeing to the specific circumstances surrounding her social environment and the roles and responsibilities that society accords to women (USAID, 2007).

6.5 Overcoming underlying drivers of women’s vulnerability

A gender-sensitive response requires more than a set of disaggregated data showing that climate change has differential impacts on women and men. It requires an understanding of existing inequalities between women and men, and of the ways in which climate change can exacerbate these inequalities. Conversely, it also requires an understanding of the ways in which these inequalities can intensify the impacts of climate change for all individuals and communities. For example, men may have greater access to vital information on climate change adaptation or mitigation strategies for socio-cultural reasons, or because women are too busy with caring and other domestic responsibilities. This lack of information and lack of opportunity to feed their own knowledge into community or national-level adaptation and mitigation strategies could jeopardize larger processes of reducing climate change and its impacts.

Gender sensitivity in consultation and decision-making is also essential for effective mitigation and adaptation responses to climate change. More than simply thinking about how these processes can be tailored to the specific needs of poor and vulnerable men and women, there is a need to recognize the capacity of women and men, girls and boys, to contribute important knowledge and insights. With more participative processes, these strategies and interventions can truly identify and meet the needs of those they aim to assist. In this way, processes can be forged that respond to local realities while feeding into a broader vision of climate change deceleration. Thus, it is critical that more is done to promote women’s and girl’s meaningful participation in decision-making on climate change responses, to ensure that climate change policy and grassroots interventions respond to their specific needs and draw on their knowledge and experience. In this way the profile and status of women and girls can also be raised, while challenging traditional assumptions about their capabilities.

6.6 Taking into account the concerns and capabilities of men and boys

Finally, it is important to note that a gendered approach to climate change should not simply be about women. Men and boys are also vulnerable to the impacts of climate change but often in different ways, and these need to be identified and communicated. Furthermore, women and girls are involved in relationships with men and boys and it is at the level of these gender relations and the social expectations influencing them that research needs to be conducted and change needs to happen.

6.7 Technology needs assessment and information

Technology needs assessment exercises should begin from the recognition that the technology needs of men and women are not always identical. For example, in agriculture there is often an emphasis on the development of drought or flood-resistant varieties, to

increase food security. However, in many developing countries, processing agricultural products is a time-consuming and laborious task undertaken almost entirely by women. Given the time constraints under which women already operate, it would be appropriate to focus on developing varieties that will be easier to process and to invest in the development of appropriate tools for women such as simple threshing instruments, in addition to the identification of technologies that will lead to an increase in yields. Technology needs assessment should give some consideration to the end users who are often female farmers who face constraints of time, access to credit and information, and poor or marginal land.

On the other hand, existing traditional channels for the dissemination of technical information often bypass women and special efforts may have to be made to reach them. Male family members do not necessarily share newly-acquired technical information with women. Gender should be mainstreamed into extension services and efforts should be made to create awareness, sensitize and train all existing and upcoming extension workers on gender and climate change's new technology concerns. Other media should also be used to impart technology information to women, especially radio and, increasingly, television. It is also important to bear in mind that women more responsive to technical information when it is presented within a social context, making it important that technology information be presented in an accessible, contextual style that resonates with women.

6.8 The need for gender training

There is also the problem of lack of knowledge on how to integrate gender perspectives and what the specific women/gender aspects are in a concrete situation/measure. In order to assure the integration of gender perspectives in climate change policy making, programming and implementation, gender trainings have to be carried out, aiming to sensitize people for the gender relevance of the work they are doing. Gender experts must be involved in all stages of the planning to back the people making policies, and planning or carrying out the projects/programmes with gender knowledge. Since gender mainstreaming needs the strong support of top level decision makers and institutional leaders (to force departments or bureaus to include gender perspectives and undertake gender assessments of each policy and measure they are planning), training, sensitization and capacity building activities should target these key leaders. Nevertheless, when it comes to implementation strong support and requirements from bottom up are needed. Hence, the need to target project staff and middle and low level experts about the role of the gender variable in climate change policy making and the how of engendering projects and actions.

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