



GENDER MAINSTREAMING AND NATIONALLY DETERMINED CONTRIBUTIONS

TOOLKIT



IN CONTRIBUTION TO THE
NDC PARTNERSHIP
ACCELERATING CLIMATE AND DEVELOPMENT ACTION

Supported by:



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Gender Mainstreaming and Nationally Determined Contributions: Toolkit

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Ministry of Gender, Children and Social Protection

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Foreword

Gender equality is a fundamental human right, but there are economic imperatives for promoting equality in climate-development policy. Globally, women play a pivotal role in natural resources management as well as in other productive and reproductive activities at the household and community levels. This puts them in a position to contribute to livelihood strategies adapted to changing environmental conditions. Due to women's particular vulnerability to historical and future climate impacts in Ghana, responses need to be comprehensive and holistic, addressing women's historic and current disadvantages. As such, policy and programming should recognize that because of women's central role in environmental, social and economic development, women's empowerment and gender equality is beneficial for family and community well-being and livelihoods.

As a measure of concretizing visions and policies on gender equality issues within Ghana's climate action, the country has developed this gender mainstreaming toolkit to ensure that the various actions within the Nationally Determined Contributions (NDCs) are consciously implemented with gender in mind. The NDCs outline 31 programmes of action (consisting of 20 mitigation and 11 adaptation measures) spread across seven economic sectors, namely: energy and industry, health, transport, agriculture and forestry, waste, water, and gender/the vulnerable with an implementation period of 2020–2030.

The document has been written concisely with a step-by-step sector approach on how gender issues can be integrated into the various NDC actions. Issues that need further clarifications have been put into checkboxes to give the reader a better appreciation of them.

This toolkit has been developed through broad stakeholder consultations and inputs with the view of ensuring an inclusive process as well as stakeholder ownership and buy-in.

It is our fervent wish that the target users of this toolkit will put much premium on the content of the document and ensure its implementation to achieve the desired objectives.

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Special thanks also go to the various civil society organizations, including ABANTU for Development, WaterAid, Coalition of Non-Governmental Organizations in Water and Sanitation, Strategic Youth Network for Development, Youth in Climate Change, Greener Impact, and Gender Action on Climate Change for Equality and Sustainability. Others are Abibiman Foundation, Energy Foundation, Institute of Green Growth Solutions, Global Environment Facility Small Grants Programme, ActionAid Ghana, Network for Women's Rights in Ghana, Action Against Rural Poverty, Daasgift Quality Foundation, Oxfam in Ghana, International Union for Conservation of Nature, Kumasi Institute of Technology and Environment and Sustainability Traits Consult for their immense contributions and participation during the consultations. Finally, MESTI, EPA and MoGCSP would like to express their profound gratitude to the consultants, Prof. Philip Antwi-Agyei, Dr. Mumuni Abu and Ms. Akua Amoa Okyere-Nyako, for leading the development of this toolkit.

Abbreviations

BRECCIA	Building Research Capacity for Sustainable Water and Food Security in Drylands in Africa
BRT	Bus Rapid Transit
CPESDP	Coordinated Programme of Economic and Social Development Policies
CSO	civil society organization
EPA	Environmental Protection Agency
EWS	early warning system
FAO	Food and Agriculture Organization of the United Nations
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
GhIE	Ghana Institution of Engineers
GH-NDCs	Ghana's Nationally Determined Contributions
GSS	Ghana Statistical Service
ICS	improved cookstove
IDS	Institute of Development Studies
IPCC	Intergovernmental Panel on Climate Change
MESTI	Ministry of Environment, Science, Technology and Innovation
MoFA	Ministry of Food and Agriculture
MoGCSP	Ministry of Gender, Children and Social Protection
NDC	Nationally Determined Contribution
NGO	non-governmental organization
SDG	Sustainable Development Goal
SLAPP	Solar Lantern Promotion Programme
SRID	Statistics Research and Information Directorate
SSATP	Sub-Saharan Africa Transport Policy Program
UNCT	United Nations Country Team
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WHO	World Health Organization

1 Chapter One:

OVERVIEW OF GHANA'S NATIONALLY DETERMINED CONTRIBUTIONS

1.1 A general overview of climate change issues in Ghana

Ghana's climate is tropical and greatly influenced by the West African Monsoon. The rainfall season is predominantly influenced by the movement of the Inter-Tropical Convergence Zone, which oscillates between the northern and southern tropics during a particular year. The country's rainfall pattern has demonstrated a decreasing trend especially in northern Ghana and the southern parts of the country. However, the forest transition and rainforest zones have recorded some increases (Environmental Protection Agency [EPA], 2015). Temperatures in Ghana have increased by a mean of 1°C since 1960, increasing on average at a rate of 0.21°C per decade (EPA, 2015). In all agroecological zones, average annual temperatures are estimated to increase between 0.8°C and 5.4°C for the years 2020 and 2080 respectively (United Nations Development Programme [UNDP], 2013). Within the same period, average annual rainfall total is estimated to decline by between 1.1 percent, and 20.5 percent (UNDP, 2013). Thus, Ghana is projected to suffer intense drought and increasing rainfall variability. These changes in climatic conditions are and will directly or indirectly affect major sectors of the country's economy, particularly climate-sensitive sectors including water, health, energy, agriculture, transport, and disaster risk and climate services (Ministry of Environment, Science, Technology and Innovation [MESTI], 2020). As in most developing countries, the ravages of climate change in the country pose serious threats to the economy and livelihoods.

“Changes in climatic conditions are and will directly or indirectly affect major sectors of the country's economy, particularly climate-sensitive sectors including water, health, energy, agriculture, transport, and disaster risk and climate services (Ministry of Environment, Science, Technology and Innovation, 2020).”

In order to address these challenges, Ghana has developed a broad legal and policy framework for climate change issues for the country. The strategy is to adopt development choices that promise to deliver growth-focused, people-centred and climate-resilient outcomes. The Coordinated Programme of Economic and Social Development Policies (CPESDP) for 2017–2024 and the medium-term development policy framework recognize climate change as a development issue. The CPESDP fully embraces Ghana's obligations under the Nationally Determined Contributions (NDCs) to the Paris Climate Agreement and linkages to the Sustainable Development Goals (SDGs) and the African Union's Agenda 2063. Ghana's NDC obligations are adopted as the vehicle to domesticate Ghana's multilateral environmental obligations by mainstreaming it in the ministries, departments and agencies' and metropolitan, municipal and district assemblies' medium-term development plans.¹

¹ Ministry of Environment, Science, Technology and Innovation (MESTI). (2019). Nationally Determined Contributions Implementation Plan. MESTI, Accra.

In line with this, Ghana’s National Climate Change Policy (2013) provides an integrated response to the challenges of climate change. The policy seeks to mainstream climate change into policies and sectoral activities for sustainable growth. Additionally, the NDCs provide a further policy framework for climate change issues in Ghana. Ghana has also developed a number of policies including the National Climate Change Adaptation Strategy (2012), the National Master Plan for Climate Change, the National Gender Policy, and the National Adaptation Plan Framework and has instituted a number of programmes and actions to achieve the SDGs and the Sendai Framework (on disaster risk reduction). The government’s latest CPESDP for 2017–2024, demonstrates the relevance of and commitment to respond to the challenges and opportunities offered by climate change. The CPESDP embraced Ghana’s obligations under the NDCs to the Paris Climate Agreement and linkages to the SDGs and the African Union’s Agenda 2063.² Besides committing to climate change efforts in the national development plan and the cross-cutting strategies, some sectoral policies including the National Energy Policy, the National Transport Policy, the National Forest and Wildlife Policy and the National Climate Smart And Food Security Action Plan explicitly seek to address climate change.

1.2 The Nationally Determined Contributions under the Paris Agreement

Climate change presents challenges to all sectors of the Ghanaian economy with agriculture, energy, forestry and water resources being disproportionately affected. As in most developing countries across sub-Saharan Africa, the Ghanaian economy and the majority of rural livelihoods are heavily reliant on agro-based livelihoods and forest resources. Climate change poses serious threats to the attainment of the SDGs, particularly in relation to poverty eradication (Goal 1), food security (Goal 2), gender empowerment (Goal 5) and climate action (Goal 13).



² Ghana’s Fourth National Communication to the United Nations Framework Convention on Climate Change.

The adverse impacts of climate change are projected to worsen in the future, with unbearable consequences, including erratic rainfall patterns, high frequency of flooding and droughts, and increasing temperatures. Recognizing the manifestations of climate change and its implications for national development, the Government of Ghana has taken various actions to support climate change adaptation planning.

Adopting a bottom-up approach, the Paris Agreement is hailed as a “landmark achievement in multilateral diplomacy in the discourse on climate change” (UNDP, 2015) and represents the first ever universal pact that sets out a global action plan to hold global warming to well below 2°C above pre-industrial levels and pursue efforts to limit this to 1.5°C. The Paris Agreement requires all Parties to the United Nations Framework Convention on Climate Change (UNFCCC) to put forward their best efforts through ‘Nationally Determined Contributions’ (NDCs).³ The NDCs reflect each country’s ambition for reducing emissions, within the context of its domestic priorities, circumstances and capabilities. Promotion of gender equality and the subsequent empowerment of women are critical components of the Paris Agreement. Therefore, there is a strong call on parties to implement gender-responsive mitigation, adaptation actions and capacity-building actions. Ahead of the Conference of Parties 21, Ghana submitted its Intended NDCs. In 2016, Ghana joined the Paris Agreement after parliament passed a ratification instrument to back the NDCs as a legally binding commitment.

“ The Paris Agreement requires all Parties to the United Nations Framework Convention on Climate Change to put forward their best efforts through ‘Nationally Determined Contributions’ ”

Ghana’s NDCs outline 31 programmes of action (consisting of 20 mitigation and 11 adaptation measures) spread across seven economic sectors, namely: energy and industry, health, transport, agriculture and forestry, waste, water and gender/the vulnerable with an implementation period of 2020–2030. The 20 mitigation actions have strong development imperatives and thus aim to scale up renewable electricity and promote clean cooking and lighting, to mention but a few (MESTI, 2019). The 11 adaptation programmes of action aim to build a resilient economy and a social system capable of withstanding climate shocks without jeopardizing Ghana’s development agenda (MESTI, 2015).

Societies do not consist of homogeneous groups and not everyone is affected equally because individuals have differing vulnerability and capacity to cope and adapt to the ravages of climate change. Different socio-economic groups experience varying degrees of climate change vulnerability due to factors such as age, socio-economic status, disability, access to power and control over economic resources. Women in particular are more vulnerable to the adverse effects of climate change due largely to their limited access and control over productive and economic assets and resources needed to build their resilience to climate change (Intergovernmental Panel on Climate Change (IPCC), 2014).

3 The Nationally Determined Contributions (NDCs) were originally submitted as Intended NDCs, and these become binding NDCs when a country ratifies the Paris Agreement. Article 3 requires them to be “ambitious,” “represent a progression over time” and set “with the view to achieving the purpose of the Paris Agreement.”

1.3 A general overview of gender issues in Ghana

Over the years, Ghana has increased its commitments to gender equality through the signing of a number of international and regional conventions and agreements such as the Convention on the Elimination of All Forms of Discrimination Against Women, the International Covenant on Civil and Political Rights, the Beijing Declaration and Platform for Action, the Commonwealth Plan of Action for Gender Equality and the African Women's Protocol. Others include the Maputo Protocol on Gender, the African Charter on Human and People's Rights and the Economic Community of West African States Gender Policy. The international and regional treaties have been translated into national laws and policies to address discriminatory practices and inequalities against women in decision-making structures, governance processes and socio-economic sectors.

The Ministry of Gender, Children and Social Protection (MoGCSP) has been created to coordinate and ensure gender equality and equity; promote the survival, social protection and development of children, vulnerable and excluded individuals and persons living with disabilities; and integrate the fulfilment of their rights, empowerment and full participation in national development. MoGCSP plays the main role in implementing the gender agenda in Ghana by ensuring strategic coordination and policy creation focused on gender, women's empowerment, children, family and social issues. As part of the Ministry's mandate, it is required to: coordinate programmes and activities related to gender, child and social protection at all levels of development; and facilitate the integration of gender, children and social protection policy issues into the National Development Agenda.

The Ministry has developed the National Gender Policy, which provides a broad framework under which all state institutions and agencies are required to mainstream gender into their plans. The policy also recognizes the importance of addressing gender issues in the context of climatic changes and provides a good entry point for mainstreaming gender into climate change. The Ministry coordinates all gender-related climate actions across all sectors, including the NDC priority sectors, to ensure that women and men are equal beneficiaries.

There are also a number of non-governmental organizations (NGOs) and gender networks promoting gender equality in the area of climate change, disaster risk reduction, women's empowerment, gender parity and gender equality in various sectors. These include ABANTU for Development, Alliance for African Women Initiative, Daasgift Quality Foundation, and Gender Action on Climate Change for Equality and Sustainability. Some of these civil society organizations (CSOs) also operate under umbrella bodies such as the Coalition of NGOs in Water and Sanitation and Ghana Coalition of NGOs in Health. There are also a number of youth CSOs that work on climate change and gender such as the Ghana Youth Climate Coalition, Strategic Youth Network for Development and Youth Volunteers for the Environment.

“ The Ministry of Gender, Children and Social Protection has developed the National Gender Policy, which provides a broad framework under which all state institutions and agencies are required to mainstream gender into their plans. ”

1.4 Integrating perspectives and knowledge of men and women into climate change processes

Climate change affects women and men differently and it is important to integrate the views of both sexes in climate change processes. The seven thematic areas of Ghana's NDCs (GH-NDCs) have critical gender issues that need to be addressed to be able to integrate gender into climate change issues across the sectors. There are different needs for women, men, boys, girls and persons living with disabilities across all the sectors.

In the water sector, climate change has a significant impact on women's economic activities because of the time spent searching for and collecting water for the household during the dry season. Such issues should be considered in community water planning to reduce this burden on women. It is also important to advocate for men's involvement in the search of water for households since a shared responsibility by both men and women will reduce the burden on only women.

The sanitation sector has critical gender issues for women, men, girls, boys and persons living with disabilities. There is a need to provide a household toilet facility for each family, and these facilities should be user-friendly for persons living with disabilities.

In agriculture, the impact of climate change on both men and women needs serious attention, with special focus on women in relation to access to arable land. Women play a very critical role in food production and distribution and it is important to incorporate their views in climate change adaptation planning aimed at addressing food security issues. It is also important to talk to individual household members engaged in agriculture and incorporate their views in decision-making rather than just soliciting for the views of household heads in agricultural settings, who are mostly men.

In the area of health, women play a critical role as primary caregivers at the household level. They provide nutrition for the entire household and care for the sick. The general health needs of women and men are different due to their biological make-up. The reproductive function of women places them at higher risk of certain diseases, and it is important to prioritize such services in health systems planning. The impact of climate change on the general health delivery system needs to be looked at from a gendered angle, by making adequate provisions for the needs of both women and men. Access to health facilities especially in the rainy season is a challenge, and this has serious consequences for pregnant women and children who need health care at such periods.

The transport sector is dominated by men, but highly patronized by women for various economic and social activities. The impact of climate change in the sector affects both men and women in diverse ways. Integrating the views of women and men into the sector's programmes and activities will address the gender issues in the sector. For instance, the transport needs of a market woman are different from that of a public or private service staff member. Lumping together different interest groups and then planning for them is not helpful and does not achieve sustainable results.

“ In the water sector, climate change has a significant impact on women's economic activities because of the time spent searching for and collecting water for the household during the dry season. ”

1.5 Purpose and objectives of the gender mainstreaming toolkit

The purpose of this gender mainstreaming toolkit is to provide guidance to climate change practitioners and professionals working with government at the national and subnational level, NGOs and regional and international organizations in Ghana to integrate gender into their programmes and projects. Specifically, the toolkit is intended to be used more broadly by all climate change practitioners in Ghana. The toolkit outlines why attention to gender is important and how this approach can be mainstreamed throughout climate-change-related work in Ghana. Finally, the toolkit contains practical guidelines for stakeholders, project partners and staff on how to ensure that gender equality issues are integrated in the concept, design, implementation, monitoring and evaluation as well as in results reporting of climate-change-related projects.

1.6 Organization of the toolkit

The gender mainstreaming toolkit is divided into three parts – an introductory section, 10 module sections and a conclusion. The introductory section provides an overview of GH-NDCs and explains the objectives of this toolkit. Module 1 explains the basic concepts in gender and climate, differentiating between gender and sex. This module also provides a general overview of climate change issues in Ghana. It further highlights gender-differentiated vulnerabilities to climate change and the relevance of gender considerations in climate action. Modules 2 to 8 provide sector-specific climate-change-related gender issues in the seven NDC priority sectors (agriculture, energy, health, water, waste, transport, and disaster risk reduction and climate services). Module 9 describes stakeholder engagement and partnerships and provides the practitioner with tools for gender integration in climate change projects. The tools include the gender equality framework, the gender-sensitive stakeholder analysis, the gender-sensitive monitoring and evaluation framework, the guiding questions for assessing gender integration into climate change policies, and the guiding questions for gender analysis. Issues pertaining to coordinating gender and climate change mainstreaming efforts are presented in Module 10.

2 Chapter Two:

BASIC CONCEPTS IN GENDER AND CLIMATE CHANGE: MODULE ONE

2.1 Understanding gender and sex

One's sex refers to the biological differences between men and women. It is determined by genetic and anatomical characteristics. For example, men generally have deeper voices than women and have more skeletal muscles, while women have pregnancies and nurse babies.

One's sex refers to the biological attributes of a person. A person is typically either born a female or a male.

Gender refers to socially construed attributes and roles given to a person because of the person's sex.

Gender has been defined as “the array of socially constructed roles and relationships, personality traits, attitudes, behaviours, values, relative power and influence that society ascribes to the two sexes on a differential basis” (Ghana's National Gender Policy, 2015). It refers to socially construed roles of women and men. It is an acquired identity that is learned, changes over time, and varies widely within and across cultures. For instance, society's perception of roles of men and women has changed significantly compared to 50 years ago. Expectations of women and men in one cultural setting may vary significantly from expectation in another cultural setting. The changes in the roles of women and men in society have resulted from evolving economic conditions, migration, technology, advocacy, conflict and many other factors. Compared to some decades ago, it is now not unusual to find men working in female-dominated fields and vice versa.

Gender is not something that is ascribed only to women, and socially construed roles, expectations and restrictions are placed on both men and women. However, the focus of gender issues is currently mainly on women because women have been marginalized over the years.

2.2 Gender mainstreaming and other basic gender concepts

Gender mainstreaming is the process of assessing the implications of any planned action, including legislation, policies or programmes, in all areas and at all levels for women and men. It is a strategy for making the concerns and experiences of women and men an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal of gender mainstreaming is to achieve gender equality.

Gender equality refers to the state or condition that affords women and men equal enjoyment of human rights, socially valued goods, opportunities and resources, allowing both sexes the same opportunities and potential to contribute to, and benefit from, all spheres of society (economic, political, social, and cultural).

Gender equity means fairness in the treatment of women and men, according to their respective needs in order to eventually achieve gender equality. This may include equal treatment or treatment that is different but which is considered equivalent in terms of rights, benefits, obligations and opportunities. In the development context, a gender equity goal often requires built-in measures to compensate for the historical and social disadvantages that prevent women and men from sharing a level playing field. Equity is a means. Equality is the result.

Gender analysis is the study of differences in the conditions, needs, participation rates, access to resources and development, control of assets, decision-making powers between women and men in their assigned roles, responsibilities and relationships. It is a tool for examining the differences between the roles women and men play, the different levels of power they hold, their differing needs, constraints and opportunities and the impact of these differences on their lives. Essentially, gender analysis provides the necessary data and information to integrate the different needs and concerns of women and men into policies, programmes and projects. It is a starting point for gender mainstreaming. The purpose of conducting a gender analysis therefore is to allow for the development of interventions that address gender inequalities and meet the different needs of women and men.

Gender responsive: Gender responsiveness refers to outcomes that reflect an understanding of gender roles and inequalities and which make an effort to encourage equal participation and equal and fair distribution of benefits. Gender responsiveness is accomplished through gender analysis and gender inclusiveness.

Gender blindness: Is the failure to recognize that the needs of men and women are different. A gender-blind approach assumes that gender is not an influencing factor in projects, programmes or policies.

Gender sensitivity: Gender sensitivity is being aware that women and men have different needs, concerns, constraints, knowledge and experiences as a result of their different roles and responsibilities, levels of access to resources, and their participation in decision-making, which needs to guide any development intervention.

Gender-responsive budgeting is a tool that aims at integrating gender perspectives into the budgeting process. Also referred to as gender-sensitive budgeting, this practice does not entail dividing budgets for women, however it ensures that actions within a policy, project or programme aimed at addressing gender inequalities or women's empowerment are budgeted for to facilitate their implementation.

Practical gender needs are immediate perceived needs such as water, shelter, clothing, basic health care and food. They are based on women's and girls' existing roles (within the gender division of labour) and do not challenge their subordinate position. These needs arise from and reinforce women's and girls' reproductive and productive role.

Strategic gender needs are long-term in nature and often related to structural changes in society. These are identified based on an analysis of women's and girls' subordination in society, and when addressed, should lead to the transformation of the gender division of labour and challenge the power relations between women and men, girls and boys.

2.3 Basic concepts in climate change

Climate change is a long-term change in the average weather patterns in a locality or region. Changes are evident in variations in the pattern and intensity of rainfall, wind and temperature. It may be a natural event resulting from volcanic activity, solar variability or changes in the earth's orbit. Climate change is also caused by human

activities that lead to the emission of greenhouse gases (GHGs) like carbon dioxide into the atmosphere. In more recent times, climate change refers to changes in climate resulting from human activities.

Climate variability refers to the climatic parameter of a region varying from its long-term mean. These changes result from atmospheric and oceanic circulation, caused mostly by differential heating of the sun on earth.

Climate change mitigation refers to efforts to reduce or prevent emission of GHGs. It addresses the root causes of climate change. It can be done through the use of new technologies and renewable energies, through energy efficiency, changing management practices or consumer behaviour. It can be as complex as a plan for a new city, or as simple as improvements to a cookstove design.

Climate change adaptation seeks to lower the risks posed by the consequences of climate change. Adaptation measures can be in the form of infrastructure improvement such as improving the quality of road surfaces to withstand hotter temperatures or as simple as farmers growing drought-resistant varieties of crops.

Climate resilience is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate. Improving climate resilience involves assessing how climate change will create new, or alter current, climate-related risks, and taking steps to better cope with these risks. It refers to the ability to recover from the effects of climate change.

The IPCC defines **climate vulnerability** as the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Climate variability includes all the variations in the climate that last longer than individual weather events.

Climate change refers to those variations that persist for a longer period of time, typically decades or more.

Vulnerability can be determined by exposure to hazards; level of sensitivity to hazards; and the capacity to adapt to these hazards. The vulnerability level of women and men in a community can be high or low depending on the extent to which society has imposed gender restrictions. Adaptation measures can reduce vulnerability.

2.4 Gender differentiated vulnerabilities to climate change

The effects of climate change are expected to worsen existing poverty and exacerbate inequalities, especially for those disadvantaged by gender, age, race, class, and disability.⁴ Climate change and gender inequality are inextricably linked in that they both create obstacles to achieving poverty reduction and development goals.⁵ Different socio-economic groups (women, men, girls, boys, and the elderly) experience varying degrees of climate change vulnerability. Cultural practices and societal norms influence the extent of the vulnerability. Women's role as home keepers limits their control over productive resources, which impacts on their ability to adapt to the challenges of climate change. The role of men as decision-makers and heads grants them easier access to resources. Men are more involved in policy formulation and implementation, leadership and management of resources that enable them to address the threats posed by climate change. In communities

4 Denton, F. (2004). 'Gender and Climate Change: Giving the 'Latecomer' a Head Start.' Institute of Development Studies (IDS) *Bulletin*, 35(3):42–49. Brighton: IDS.

5 Aguilar, L. (2008). *Gender perspectives on climate change, 52nd Session of the Commission on the Status of Women*. New York, 25 February–7 March 2008. Available at: http://www.gdonline.org/resources/Aguilar_CSWgender-climatechange.pdf

where water and energy for cooking are not easily accessible, women and girls are mostly responsible for fetching these from long distances, resulting in increased burden on their productive role. In times of drought, they have to travel longer distances in search of these resources, which might affect school attendance for girls.

The practice of patriarchy in most communities in Ghana and male dominance often increase the dependence of women on men for resources needed to build resilience to climate change. Even in the few communities where a matriarchy system is practised, ultimate power lies with the men. These practices grant men easier access to resources compared to women, which enable them to cope with the effects of climate change. Women are thus more vulnerable to the impact of climate change than men.

Definitions of exposure, sensitivity and adaptive capacity

Exposure: The nature and degree to which a system is exposed to significant climatic variations.

Sensitivity: The degree to which a system is affected, either adversely or beneficially, by climate-related stimuli. The effect may be direct (e.g. a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g. damages caused by an increase in the frequency of coastal flooding due to a rise in the sea level).

Adaptive capacity: The ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

Source: IPCC (2007 WGII Glossary).

2.5 The relevance of gender in climate action

For climate actions to benefit every person in the country, it is necessary for these climate actions to recognize that women, men, girls and boys experience varying levels of impact depending on where they live, how they sustain their livelihoods, the roles they play in their families and communities and their adaptive capacities. Gender-blind climate actions usually tend to benefit the advantaged in society making the marginalized and vulnerable more susceptible to the effects of climate change. They exacerbate gender inequalities and dramatically limit the resilience and adaptive capacity of vulnerable women and men. Options to mitigate losses are often restricted when measures are not deliberately put in place to overcome societal constraints placed on marginalized women and men.

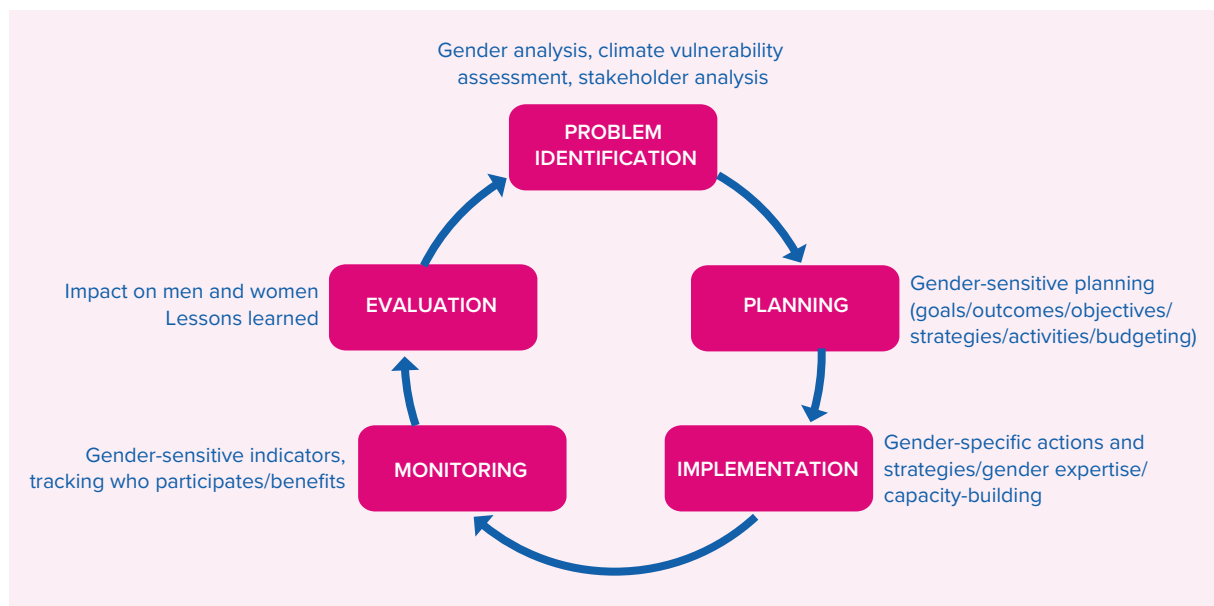
Varying levels of women's and men's exposure, knowledge and experiences, when analysed and integrated into projects, programmes and policies present opportunities for comprehensive climate actions to be developed and implemented to the benefit of all. By virtue of the roles played by women and men in societies, they each possess knowledge on mitigation and adaptation measures that they fall back on to enable them to adapt and harness the opportunities climate change brings. For instance, amid water scarcity, women may have knowledge about managing water at home and at the community level. Men may also have knowledge about managing water for large-scale irrigation. It is therefore beneficial to integrate gender into climate actions to address the differentiated impacts and take advantage of the opportunities to limit the effects of climate change on vulnerable women and men.

In Ghana, women in rural areas, in particular, are more vulnerable to the adverse effects of climate change than men, since they depend primarily on agro-based livelihoods and natural resources that are threatened by climate change. Furthermore, they face social, economic and political barriers that limit their coping capacity. This is because, they are often charged with the responsibility to secure water, food and fuel for cooking, coupled with unequal access to resources and to decision-making processes, while also experiencing limited mobility. This places rural women in a position where they are disproportionately affected by climate change. It is thus important to identify gender-sensitive strategies to respond to the impacts of climate change.

Table 1: Differentiated impact of climate change on women and men

Social roles and responsibilities	Women and men experience climate change impacts differently due to their socially constructed roles and responsibilities. For example, climate change affects the availability of surface water and fuelwood, and as a result, women and girls, who are usually given the task of fetching water and fuelwood, have to cover greater distances to collect the water and fuelwood, increasing their already substantial workload. Drought leading to food shortages affects household food supply. In rural communities where women are engaged in small-scale farming to feed the family, drought means the burden of finding food is increased. Men are usually involved in cash crops and farming on a larger scale; thus, drought affects their ability to earn enough to take care of the family. In addition, the differentiated roles men and women play in the fishing industry mean they experience climate change impacts differently. For example, rising sea levels due to climate change will affect men more as they mostly go fishing at sea; while the energy source used by women to smoke fish, has health impacts on them and has an environmental impact on the climate.
Differentiated access	Women often have more limited rights than men, limited mobility and less access than men to resources, information, and decision-making opportunities. Consequently, they are significantly more vulnerable to the impacts of climate change and have fewer capacities to adapt and diversify their livelihood options.
Dependence on natural resources	The gendered differences in the dependence on natural resources and ecosystem services explain differentiated adaptive capacities and exposure to risk and vulnerability, losses in biodiversity and changes in access to and management of natural resources. Owing to the differentiated roles of women and men in society, their dependence on natural resources also varies. Men's role as breadwinners for their families grants them access to natural resources such as fertile lands and irrigation systems, which increases their ability to build resilience. Women, on the other hand, have limited access to these resources, thus they are impacted more than men. For instance, at the household level where women and girls are directly responsible for fetching water for cooking, climate change impact in the form of drought increases the distances women and girls have to travel to find water.
Mobility	Harsh climatic conditions, especially in communities where the main economic activities depend directly on natural resources, force men who are breadwinners to migrate to seek alternative livelihoods, leaving behind women who take up the responsibility of fending for the family.
Decision-making and leadership	Participation in decision-making processes and access to leading positions and/or power often tilt more in the direction of men than women. Women's voices are not equally represented in political and other decision-making structures, which is reflected in climate policies and practices. Gender mainstreaming efforts in mitigation and adaptation policies and programmes can enhance gender equality, having a general transforming effect. On the other hand, ignoring gender differences within these decision-making processes can increase existing gender inequalities.

Figure 1: Gender mainstreaming in programme cycle



Practical guidance for mainstreaming gender into climate change policy and action using the programme cycle

As women and men experience differentiated impacts of climate change, it is critical to adopt a gender mainstreaming approach in climate action at national and subnational levels, from the design and planning of policies, programmes and projects, to financing, implementation, and monitoring and evaluation.

Objectives of gender mainstreaming

- Reduce gender inequalities that may exist in a given policy/project/programme area
- Ensure women's and men's specific needs are satisfied, that they benefit from the policy/project/programme and that it impacts positively on their lives
- Create conditions for the equitable access of men and women to policy/project/programme resources and benefits
- Create the conditions for equitable participation in policy/project/programme implementation and decision-making processes

1. Programme planning

During programme planning, it is important to consider and include the priorities, needs and other inputs from women and other vulnerable groups. An analysis of the situation of women and men in the context of the policy, project or programme gives a good idea of the gender issues to be addressed and is a starting point for determining the interventions required to address gender inequalities. The results of the gender analysis will inform the project/policy/programme design.

During this stage, stakeholder mapping and consultations to understand the different needs and solicit inputs into project, policy and programme design is critical and must be extensive to include vulnerable women and men. This must include individuals, groups (like women's groups), institutions, governmental bodies and NGOs that will be impacted by or can affect climate change outcomes. There needs to be a wide consultation process which should actively involve women, men, girls and boys. The value of contributions of both men and women in contributing ideas and information as well as taking part in the consultation needs to be highlighted.

Table 2: Gender mainstreaming checklist in the planning phase

Phase	Examples of guiding questions
Problem/issue identification	<ul style="list-style-type: none"> ■ Were men and women involved in identifying the problem or issue and opportunities? ■ Were female and male stakeholders consulted? ■ Were women’s groups consulted?
Conducting a gender analysis	<ul style="list-style-type: none"> ■ What is the gender division of labour in the sector or community of the intended policy/project/programme? ■ What are the roles and responsibilities of men and women? ■ What is the level of participation of men and women in decision-making in the sector? ■ Are women’s needs in the sector the same as those of men? ■ Do women and men have equal access to resources, information and services? If not, what opportunities exist for increasing women’s access to and control of resources and/or benefits? ■ What are the main sources of income for women and men? ■ What are the existing power dynamics? ■ What are the needs, constraints/barriers and knowledge of both women and men?
Possible impacts on women and men	<ul style="list-style-type: none"> ■ Is the programme likely to have same the positive and negative effects on women and men? ■ Might the programme, in general, reduce women’s access to or control of some resources or benefits they currently have? ■ What social, economic and political effects will the programme have on women and men in the short and longer term?
Project and programme design/policy formulation and planning	<ul style="list-style-type: none"> ■ Were male and female stakeholders involved in the design of the project/programme and policy formulation? ■ Were the goals, objectives, outcomes, outputs, and activities informed by the results of the gender and vulnerability assessments? ■ Are the programme objectives explicit on addressing the challenges of gender and climate change? ■ Have both men and women participated in setting those objectives? ■ Who are the target beneficiaries? Do they include marginalized and vulnerable women and men? ■ Are women’s practical and/or strategic needs a specific focus of the programme? ■ What, if any, are the anticipated benefits for women (like skills development, increased productivity or income opportunities)? ■ Has the programme addressed the strategic and practical needs of men and women? ■ Do the programme strategies aim at addressing gender inequalities? ■ Are the goals, objectives, outcomes, outputs and activities gender sensitive? ■ Were gender-sensitive activities budgeted for? ■ If the programme is likely to have some negative effects on women and/or men, has the design taken care of addressing the negative impacts?

2. Programme implementation

Building capacity on gender to implement the climate policy or programme ensures gender is not just considered at the policy or planning stage. Integrating gender in the implementation process requires capable and skilled individuals, who take conscious steps to make sure gender perspectives are identified, assessed and acted on. The involvement of both men and women at all stages of implementation is crucial to ensure the initiative is effective and draws on all available knowledge and skills. Particular attention should be paid to ensure that women are actively involved in decision-making processes and have equal access to benefits, for example, training or income-generating opportunities. In addition, gender-sensitive policy/project/programme implementation strategies must be adopted. Where necessary, programme actions may need to be adapted to overcome cultural constraints that restrict women's participation in implementation and decision-making.

Table 3: Gender mainstreaming checklist in the implementation phase

Phase	Examples of guiding questions
Implementation	<ul style="list-style-type: none"> ■ Are there appropriate opportunities for both women and men to participate in programme management positions? ■ Are men and women participating in the implementation? ■ Are the implementation strategies gender sensitive? ■ Are the staff who are implementing the programme gender aware? If not, is there any plan to train them before implementation begins? ■ Are there mechanisms to ensure that the programme resources benefit both men and women?

3. Programme monitoring, evaluation and reporting

A monitoring and evaluation system ensures that the project is being efficiently implemented, is achieving the set objectives and that the project reaches the intended target group. Gender-responsive monitoring and evaluation is used to reveal whether a programme addresses the different priorities and needs of women and men in climate action and to assess if the set objectives have been achieved and if the programme has an impact on gender relations. The inclusion of explicit gender equality objectives and indicators at the planning stage also strengthens accountability in terms of the tracking of progress made on gender equality issues.

Effective gender-responsive monitoring and evaluation needs to include both qualitative and quantitative data that measures the impact on gender relations. The formulation and use of gender-sensitive indicators and the collection of sex-disaggregated data will facilitate monitoring and evaluation. Without sufficient data, a meaningful analysis of the impact on gender equality is very difficult. This also implies that, at the minimum, all data should be collected, presented and analysed in a sex-disaggregated manner. Effective monitoring and evaluation will inform any modification or additional actions required for the next phase or review of the policy/programme. Best gender practices and gender transformative lessons learned must be documented to guide the design of similar projects in the future.

Table 4: Gender mainstreaming checklist for monitoring, evaluation and reporting

Phase	Examples of guiding questions
Monitoring and evaluation	<ul style="list-style-type: none"> ■ Are women and men involved in the monitoring of progress and impact? ■ Does the monitoring and evaluation framework contain gender-sensitive indicators to track progress in achieving goals and benefits? ■ Is there a system to collect sex-disaggregated data? ■ Is enough sex-disaggregated data collected for gender reporting? ■ Are women and men equally participating in the programme activities? What is the level and quality of their participation? ■ What remedial actions should be incorporated to redress any gender inequalities? ■ What is the project's impact on men and women? ■ Has the programme reduced the inequalities identified by the gender analysis? ■ Have lessons learned been documented to inform the scaling-up and design of similar projects/programmes?
Reporting	<ul style="list-style-type: none"> ■ Is sex-disaggregated data used? ■ Are lessons learned and best and innovative practices related to gender mainstreaming documented? ■ Do photographs or audio-visual materials produced reflect the impact of males and females? ■ Is the language of the report gender sensitive?

3 Chapter Three:

AGRICULTURE, CLIMATE CHANGE AND GENDER: MODULE TWO

Introduction

Agriculture plays a crucial role in the economy of Ghana, and provides the main source of food, income and employment on a formal and informal basis.⁶ Ghana produces a variety of crops including yams, cocoa, grains, kola nuts, timber, oil palms, etc., in different climatic zones ranging from wet forest to dry savannah, which run in east–west bands across Ghana. Agriculture employed 53.6 percent of the total labour force in Ghana in 2013.⁷ Agriculture contributes 54 percent of Ghana’s gross domestic product (GDP), and accounts for over 40 percent of export earnings, while at the same time providing over 90 percent of the country’s food needs.⁸ Ghana’s agriculture is predominantly smallholder, traditional and rain-fed.⁹ In summary, the agriculture sector is the backbone of the Ghanaian economy.¹⁰



6 Food and Agriculture Organization (FAO). (2020). Ghana at a glance. Retrieved from <http://www.fao.org/ghana/fao-in-ghana/ghana-at-a-glance/en/> (accessed on 19 September 2020).

7 Food and Agriculture Policy Decision Analysis. (2016). 'Country Fact sheet on food and agriculture policy trends.' Retrieved from <http://www.fao.org/3/a-i4490e.pdf> (accessed on 19 September 2020).

8 FAO. (2020). Ghana at a glance.

9 Statistics Research and Information Directorate (SRID). (2016). Agriculture in Ghana. Facts and figures (2016) Ministry of Food and Agriculture (MoFA) – SRID. October 2017.

10 MoFA. (2017). MoFA, Ghana. Agricultural sector progress report 2017.

It is expected that climate change in Ghana will have serious consequences for both cash crops and staples.¹¹ This is because such a large part of the economy is dependent on rain-fed agriculture.^{12,13} Climate variability and change pose a threat to future growth and development in Ghana. Rising sea levels, drought, higher temperatures and erratic rainfall negatively affect infrastructure, hydropower production, food security, and coastal and agricultural livelihoods.^{14,15} One quarter of the population lives along the coast in rapidly expanding urban areas like Accra and Cape Coast and are especially vulnerable to flooding and water-borne diseases. The fisheries department, which is part of the agricultural sector, contributes 4.5 percent to GDP. It is another important source of income and nutrition, providing livelihoods for as many as 2.2 million people¹⁶ but is also in grave danger because of climate variability. Though the contribution of agriculture to national GDP has dwindled in recent times because of climate change, the sector's contribution to the economy is still enormous.

Climate-change-related gender issues in the agricultural sector

Gender inequality in the agricultural sector has undermined the achievements of sustainable agricultural development because programmes and projects are not systematically formulated around women's and men's different needs, interests, roles, responsibilities, status and influence in society. Female representation is very low in the agricultural sector, with women making up just 16 percent of the total workforce and only 9.5 percent of women positioned at a high enough status to participate in decision-making.¹⁷ Women are given equal rights under the Constitution of Ghana, yet disparities in education, agricultural activities, employment, and women's health remain prevalent.¹⁸ Although approximately 39 percent of the farm labour force is women,¹⁹ thus constituting the majority of rural small farmers in Ghana,^{20,21} women have much less access to resources such as farmlands, farm inputs, etc., than men in Ghana.²² Moreover, female farmers cannot afford to buy fertilizer, certified seeds or even have access to tractors for timely ploughing of their agricultural lands. This is a very worrying trend for a group that contributes largely to agriculture by providing labour for planting, weeding, harvesting and processing, resulting in 70 percent of food crop production in the country.²³ However, in terms of agricultural time, women are predominantly involved in a large number of cultivation activities (planting, fertilizer application, weeding and harvesting) as well as post-harvest activities (storage, processing and marketing) with the exception of pre-planting activities, such as ploughing, which are often considered quite strenuous for women in most communities in Ghana.²⁴

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- 11 United States Agency for International Development. (2017). 'Climate Risk Profile: Ghana'. Retrieved from <https://www.climatelinks.org/resources/climate-change-risk-profile-ghana> (accessed on 19 September 2020).
- 12 Antwi-Agyei, P., Fraser, E. D., Dougill, A. J., Stringer, L. C. and Simelton, E. (2012). Mapping the vulnerability of crop production to drought in Ghana using rainfall, yield and socio-economic data. *Applied Geography*, 32(2), 324–334.
- 13 Asante, F. A. and Amuakwa-Mensah, F. (2015). 'Climate change and variability in Ghana: Stocktaking.' *Climate*, 3(1), 78–99.
- 14 United States Agency for International Development (USAID). (2017). 'Climate Risk Profile: Ghana'.
- 15 Asante, F. A. and Amuakwa-Mensah, F. (2015). 'Climate change and variability in Ghana: Stocktaking'.
- 16 USAID. (2017). 'Climate Risk Profile: Ghana'.
- 17 Ministry of Food and Agriculture. (2017). Agricultural sector progress report 2017.
- 18 Mahama, T. A. K. and Nkegbe, P. K. (2017). Gender Preference in Primary School Enrolment among Households in Northern Region, Ghana. *Ghana Journal of Development Studies*, 14(1), 60–78.
- 19 Food and Agriculture Organization. (2020). Ghana at a glance.
- 20 Akudugu, M. A. (2011). Rural banks' financial capital and livelihoods development of women farmers in Ghana. *Journal of Enterprising Communities: People and Places in the Global Economy*.
- 21 Drafor, I., Kunze, D. and Al-Hassan, R. (2005). Gender roles in farming systems: An overview using cases from Ghana.
- 22 Awumbila, M. (2006). 'Gender equality and poverty in Ghana: implications for poverty reduction strategies.' *GeoJournal*, 67(2), 149–161.
- 23 Farmerline. (2016). 'The real problems women farmers in Ghana face.' Retrieved from <https://farmerline.co/2016/08/08/the-real-problems-women-farmers-in-ghana-face/#:~:text=Fatawu%20and%20the%20other%20women,%2C%20weeding%2C%20harvesting%20and%20processing%2C> (accessed on 19 September 2020).
- 24 Malapit, H. J. L. and Quisumbing, A. R. (2015). What dimensions of women's empowerment in agriculture matter for nutrition in Ghana? *Food Policy*, 52, 54–63.

Case study 1: Improving food security in northern Ghana

As part of the Ghana Feed the Future Agriculture Policy Support Project sponsored by the United States Agency for International Development (USAID), farming communities in northern Ghana are looking at different adaptation options to improve food security. Climate change impacts such as droughts and floods are exacerbating existing challenges to food security in northern Ghana. Coupled with unsustainable land-use management practices and non-climatic stressors, these impacts have led to a reduction in arable land availability and crop productivity. Many men and young people have migrated to the southern part of Ghana, which also reduces production. To address these issues, farmers in northern Ghana have relied on different adaptation measures to enhance food security in the region. Some of the adaptation options include growing drought-resistant varieties of crops, changing planting dates, crop and livelihood diversification, etc.

The project aimed to assess the overall impacts of interventions on food security in Ghana but principally in the USAID zone of influence. This zone of influence covers the area above Ghana's eighth parallel (latitude 8°N), comprising the three northern regions (Upper East, Upper West and Northern) and the seven northernmost districts of the Brong Ahafo Region (Amanor-Boadu et al., 2013). The project relied on secondary sources of information, mainly published research, project evaluation and other reports, predominantly from international development agencies, government ministries and agencies, and NGOs. However, the poor nature of retrieved data made meta-analysis unfeasible. As a result, the project relied on systematic review, which was augmented with narrative review. Nonetheless, to serve the purpose of the project, interventions were categorized based on five broad strategies (input supply, infrastructure, market access, extension and capacity-building, and postharvest value addition/processing). The major pathways of the interventions to food security were increased production volume or yield, higher incomes, and reduced post-harvest losses. Food security outcome measures related to quantity and quality of available food in the household, change in duration of the hunger period, and levels of food consumption and expenditure on food. All the interventions had a component on extension and capacity-building (including training or education or promotion of technology, access to finance and provision of information). This suggests that access to quality extension services, training and finance is a major intervention logic.

Although gender was a key issue in this project, poor availability of data on gender-disaggregated food insecurity at household level meant the project provided a systems perspective on gender differentiation of household food (in)security instead. However, results showed that given similar opportunities and demographic profiles, female-headed households tend to perform worse than their counterparts, the male-headed households, in adopting several adaptation options to enhance food security in the region. In this context, there were many visible and invisible factors that emphasize women's vulnerability in agriculture that invariably contributes to food insecurity in their households in northern Ghana. Some of the factors encompass local social norms and traditions that cannot be captured in a statistical survey (Armah et al., 2011) and are intricately linked to division of labour, intra-household decision-making, and access to or control over natural resources and services (Comprehensive Food Security and Vulnerability Assessment [CFSVA], 2012).

Table 5: Flooding and drought leading to decreased crop productivity

Climate change impact: flooding and drought leading to decreased crop productivity and reduced arable land availability											
Applying a gender lens to the problem	Applying a gender lens to possible adaptation options	Recommended gender-sensitive approaches	Gender-sensitive indicators								
<p>Problem: Flooding and droughts have led to a loss in productive land and reduction in crop productivity</p> <table border="1"> <thead> <tr> <th>Men</th> <th>Women</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> ■ Reduced income levels resulting from low yields ■ The loss in available land and crop productivity contributes to the high migration rates from northern Ghana to secure employment elsewhere. </td> <td> <ul style="list-style-type: none"> ■ Limited access to arable land for food crop cultivation ■ Reduction in agricultural yields will affect household food security. </td> </tr> </tbody> </table>	Men	Women	<ul style="list-style-type: none"> ■ Reduced income levels resulting from low yields ■ The loss in available land and crop productivity contributes to the high migration rates from northern Ghana to secure employment elsewhere. 	<ul style="list-style-type: none"> ■ Limited access to arable land for food crop cultivation ■ Reduction in agricultural yields will affect household food security. 	<p>Solution: Encourage planting of drought-resistant crops and diversification to promote income generation and compensate for reduced crop production</p> <table border="1"> <thead> <tr> <th>Men</th> <th>Women</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> ■ Increase access to resources such as improved technology, irrigation/dams, flood/drought-resistant seeds financing and extension services to increase yield ■ Involve men to gain full community support and reduce migration of young men elsewhere </td> <td> <ul style="list-style-type: none"> ■ Increase access to resources such as improved technology, irrigation/dams, flood/drought-resistant seeds financing and extension services to increase yield ■ Women have traditional knowledge of food conservation that can contribute to adaptation strategies. ■ Involve women along the entire food value chain, including food processing and preservation to reduce post-harvest losses. ■ Increase access to markets </td> </tr> </tbody> </table>	Men	Women	<ul style="list-style-type: none"> ■ Increase access to resources such as improved technology, irrigation/dams, flood/drought-resistant seeds financing and extension services to increase yield ■ Involve men to gain full community support and reduce migration of young men elsewhere 	<ul style="list-style-type: none"> ■ Increase access to resources such as improved technology, irrigation/dams, flood/drought-resistant seeds financing and extension services to increase yield ■ Women have traditional knowledge of food conservation that can contribute to adaptation strategies. ■ Involve women along the entire food value chain, including food processing and preservation to reduce post-harvest losses. ■ Increase access to markets 	<ul style="list-style-type: none"> ■ Opportunities to involve all community members (including women's groups) and share responsibilities for activities, even where these do not align with traditional roles, should be taken. ■ Participatory monitoring and evaluation of project activities is important to ensure that adaptation strategies are contributing to enhanced food security in the region. 	<ul style="list-style-type: none"> ■ Number of men and women participating in agricultural activities, including production and value-addition ■ Crop yields and income generated by men and women ■ Number of women and men accessing improved technology, finance and other resources
Men	Women										
<ul style="list-style-type: none"> ■ Reduced income levels resulting from low yields ■ The loss in available land and crop productivity contributes to the high migration rates from northern Ghana to secure employment elsewhere. 	<ul style="list-style-type: none"> ■ Limited access to arable land for food crop cultivation ■ Reduction in agricultural yields will affect household food security. 										
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4 Chapter Four:

ENERGY SECURITY, GENDER AND CLIMATE CHANGE: MODULE THREE

Introduction

Energy plays a crucial role in economic development and it is essential for alleviating poverty. As a large emitter, responsible for a significant share of historic and current GHGs, the energy sector has become important in the wake of climate change. On the other hand, climate change affects the supply, demand, endowment, infrastructure and transport of energy.

Ghana's energy sources are primarily petroleum, biomass and hydro. Petroleum products, including gasoline, diesel, liquefied petroleum gas and jet fuel, accounted for 47 percent of final energy consumed in 2015. Biomass, in the form of firewood, charcoal and agricultural residue, contributed 40 percent with electricity accounting for only 13 percent.²⁵ Renewable energy in the form of solar, mini-hydro, biogas, wind and sustainable biomass are being integrated into the energy mix. Efforts are being made by the government, development partners, CSOs and other non-governmental institutions to promote its use to achieve the target of a 10-percent increase by the year 2030.



Climate-change-related gender issues in the energy sector

Women and men use energy in various ways. While women are more concerned with fuels for domestic cooking and productive uses (usually small scale),²⁶ men are concerned with energy for large-scale productive uses and entertainment. Experiences and knowledge in use and access to energy therefore vary between women and men. This notwithstanding, energy policies have been formulated on the assumption that all persons will benefit equally. Research has established that energy policies that have not been explicit on targeting women have often resulted in inequalities in energy access for women and men.²⁷ There is a growing recognition that the goal of energy for all will not be achieved both at the international and national levels unless the energy needs of women are better understood and addressed in both policy and action. This will contribute to achieving the GH-NDCs and the Sustainable Energy for All goal, the SDG of achieving universal access to energy by 2030.

In Ghana, women play a key role in the renewable energy sector, in terms of their contact, use and management, which is usually in the primary state. As primary users of energy in households and communities, women have a good knowledge of energy use. Men on the other part of the value chain are more visible in the manufacture and supply of energy services and make decisions on energy policies and use. As primary users of energy, women are exposed to indoor air pollution from traditional biomass fuels, and their negative impacts on the health of women, girls and babies remains a critical issue. In addressing these challenges, the Ministry of Energy, the Energy Commission, the Ghana Alliance on Clean Cookstoves and other CSOs have been promoting energy efficiency and clean cooking solutions in various parts of the country. Most of the interventions have targeted women as users of modern energy. While this is good, it is also important to involve them in all the processes along the energy value chain – for instance as manufacturers, entrepreneurs or employees of the energy supply chain.²⁸ Barriers such as lower literacy; lower access to finance, education, land, and mobility; and the burden of unpaid care work limit women’s access to modern energy. It is therefore necessary to equip institutions to address the limitations that have resulted in inequalities in access to energy.

“ As primary users of energy in households and communities, women have a good knowledge of energy use. Men on the other part of the value chain are more visible in the manufacture and supply of energy services and make decisions on energy policies and use. ”

26 Pascaud, L., Thivillon, T. and Ipe, J. (2014). *Ghana Consumer Segmentation Study*.

27 Energia. (2019).

28 International Renewable Energy Agency (IRENA). (2019). *Renewable Energy: a Gender Perspective*. Abu Dhabi: IRENA.

Case study 1: Solar Lantern Promotion Programme

Under the Solar Lantern Promotion Programme (SLAPP), the Ministry of Energy distributed solar lanterns to off-grid populations nationwide to displace the use of kerosene lanterns.²⁹ The programme targeted two million Ghanaians by the end of 2020. This was aimed at increasing access to modern energy in off-grid communities. The initiative was part of a wider strategy to help replace the traditional kerosene-powered lanterns that were used in rural and off-grid communities. The government provides a 70-percent subsidy for selected solar lantern products promoted under the programme. During periods of load shedding, residents in urban areas like Accra also benefitted. Under the programme, District Chief Executives and Members of Parliament could apply to the Ministry to procure the solar lanterns if there was the need. Applications for the solar lanterns would be reviewed and payments made at subsidized prices for the required number of solar lanterns for onward distribution to beneficiaries.³⁰

Kerosene lanterns are more expensive to use in the long run and emit GHGs into the environment. Kerosene is a non-renewable energy source, has health impacts and increases the risk to diseases such as asthma and cancer. The implemented solar photovoltaic programme reduces the negative impact of kerosene lanterns. It also increases access to electricity for lighting that supports study and business activities at night. Interviewees noted that the Government of Ghana's 2013 removal of subsidies covering more than half the cost of petroleum products affected kerosene consumption by the poor and vulnerable who depend on kerosene as a source of lighting. Solar lantern programmes were subsequently initiated to support access to alternative household lighting methods. The programme, like other government solar lantern programmes, has been perceived as politicized. It has also been criticised for targeting the poor and the vulnerable.³¹

29 Ghana Sustainable Energy for All News, October to December 2016, Vol 3, Issue 4, http://energycom.gov.gh/files/Ghana%20SE4ALL%20Newsletter_Oct-Dec%20'16.pdf

30 <https://www.graphic.com.gh/entertainment/govt-begins-distribution-of-solar-lanterns-to-deprived-households.html#:~:text=So%20far%2C%20the%20Ministry%20of,by%20the%20end%20of%202020.>

31 Bawakyillenuo, S. (2020), Energy Safety Nets: Ghana Case Study, https://www.seforall.org/system/files/2020-05/ESN_Ghana_SEforALL.pdf

Table 6: Case study – Climate change impact: Solar Lantern Promotion Programme

Climate change impact: Solar Lantern Promotion Programme (SLAPP)			
Applying a gender lens to the problem		Applying a gender lens to possible adaptation options	
<p>Problem: Low access to modern energy in off-grid communities in Ghana Environmental and health impact of using kerosene lanterns</p>			
<p>Men</p> <ul style="list-style-type: none"> As heads of households, men have more access to household resources (which could be used as collateral) and make decisions on purchases including household energy use. Toxic emissions from the kerosene lanterns affect the health of men and boys. 		<p>Women</p> <ul style="list-style-type: none"> Decision-making on household energy use and control over household resources usually does not rest with women where the head of household is male. This limits women's access to modern energy. Toxic emissions from the kerosene lanterns affect the health of women and girls. 	
<p>Solution: Subsidised solar lanterns distributed to residents in off-grid communities</p>			
<p>Men</p> <ul style="list-style-type: none"> Facilitate access to financial institutions to support the 30 percent contribution Disseminate information on available financing options Additional functions like radio and a charging port for phones will increase men's access to climate information and improve business communication. 		<p>Women</p> <ul style="list-style-type: none"> Financing of the 30 percent contribution could still be a barrier to women's access to the solar lantern. Women's groups should be supported to facilitate their access to funding, e.g. establishing savings and loans associations or <i>susu</i> (traditional financial intermediary) schemes. Disseminate information on available financing options to women's groups. Additional functions like radio and a charging port for phones will increase women's access to climate information and improve business communication. 	
<p>Recommended gender-sensitive approaches</p> <ul style="list-style-type: none"> Women and men use energy for different purposes so they have different energy needs. This should be taken into consideration in the programme to ensure the practical needs of women and men are met. A gender-sensitive application review process and distribution guidelines should be used to ensure equitable access to the lanterns to reduce perception of political bias. Financing options should be available for payment of the 30 percent from the end users to facilitate access for vulnerable women and men. Awareness raising on the application process and financing options should target women's groups to increase women's access. 		<p>Gender-sensitive indicators</p> <ul style="list-style-type: none"> Number of men and women receiving solar lanterns Duration of time women and men use solar lanterns List of gender-sensitive financing options available to support end user contribution Number of financial institutions providing loans to women and men to cover the 30 percent contribution Number of women's platforms receiving information on application process and financing options 	

Case study 2: Ghana Improved Cookstove Project

The Ministry of Energy with funding under a carbon credit arrangement from Korea East-West Power Company is implementing a five-year project under which there will be an annual distribution of at least 500,000 improved cookstoves (ICSs) in Ghana.³² Under the agreement, the Korean company is required to deploy five million ICSs to end users in Ghana between 2018 and 2022 to help close the access gap for millions of Ghanaians without access to clean energy.³³

Under the project, ICS manufacturers will produce and deliver the stoves to the warehouses. The Ministry of Energy will be responsible for distributing the ICSs from the warehouses to the end users. The Ministry will be responsible for collecting data on users. Other activities under the project are awareness creation on ICSs and the project which will be done in partnership with media and CSOs. There will also be standardization on ICSs, which will be led by the Energy Commission.

The project is intended to help curtail the devastating effects of climate change in relation to the release of polluting black carbon because of incomplete combustion of biomass fuels associated with the use of inefficient cookstoves or open fires. The initiative is intended to contribute to a reduction in disease and health risks posed by open fires and inefficient cooking methods. It will reduce the consequential loss of lives to indoor air pollution, currently accounting for an estimated 18,000 deaths annually in Ghana. It will also help to reduce the fast depletion pace of Ghana's forest cover (which is currently exploited at a rate of about 3 percent per annum) in view of the reduced levels of firewood and charcoal consumption associated with the adoption of improved cooking solutions and practices. The use of these stoves will affect women and girls, in particular, through a reduction in time spent in fetching firewood and cooking. The savings made can now be invested in gainful economic activities by women and in time devoted to studying by the girls, all of which improve their prospects and well-being.³⁴

32 https://cdm.unfccc.int/ProgrammeOfActivities/poa_db/ZYM1P30K5WINT7AFXVEBQJU6CRGO24/view

33 Bawakyillenuo, S. Energy Safety Nets: Ghana Case Study.

34 <https://www.ghanaweb.com/GhanaHomePage/business/GHACCO-lauds-gov-t-on-MOU-with-Korea-to-deploy-500K-improved-cookstoves-to-rural-dwellers-701379>

Table 7: Climate change impact: Ghana Improved Cookstove Project

Climate change impact: Ghana Improved Cookstove Project			
Applying a gender lens to the problem	Applying a gender lens to possible adaptation options	Recommended gender-sensitive approaches	Gender-sensitive indicators
<p>Problem: Deforestation and drought result in difficult access to fuelwood for cooking and heating. Indoor air pollution due to biomass combustion in households results in toxic emissions affecting health and the environment.</p>	<p>Solution: ICSs replacing traditional cookstoves Reduction in amount of fuelwood used in ICSs</p>	<ul style="list-style-type: none"> The provision of ICSs addresses the practical needs of women regarding cooking, which is primarily the role of women. It is important to consider the roles played by women and men along the cookstove value chain. Women should be supported to set up enterprises that manufacture and distribute ICSs and sustainable biomass such as pellets and briquettes for use in the ICS. 	<ul style="list-style-type: none"> Number of men and women receiving capacity-building in the manufacture and distribution of ICSs Number of women and men assisted to set up businesses along the clean cooking value chain List of gender issues incorporated into the standardization process Number of women and men consulted on the design and standardization process of cookstoves
<p>Men</p> <ul style="list-style-type: none"> Difficult access to wood for charcoal production or fuelwood reduces income levels. 	<p>Men</p> <ul style="list-style-type: none"> Majority of ICS manufacturers are men Distributors of cookstoves should receive and use feedback from women on the functionality and quality improvement of the ICS. Men should be targeted in the marketing of ICSs since they make decisions on the type of energy to use and amount of expenditure on modern energy. 	<p>Women</p> <ul style="list-style-type: none"> Time spent in fetching fuel for cooking grows with increasing effect of climate change on availability of fuelwood Indoor air pollution from cooking on traditional stoves affects the health of women and children who are near the cooking area 	
	<p>Men</p> <ul style="list-style-type: none"> As primary end users, women should be targeted in capacity-building in the use and function of ICSs. Women should also be trained and supported in the manufacturing and supply side of the value chain. Standardization process should involve women both as end users and as technical experts. 		

5 Chapter Five:

WATER SECURITY, CLIMATE CHANGE AND GENDER: MODULE FOUR

Introduction

This module highlights the importance of integrating a gender perspective into adaptation strategies on the impacts of climate change on water security in Ghana. While climate change continues to exacerbate water insecurity in Ghana and many parts of the world, the underlying vulnerabilities to water insecurity that are driven by gender are further deepened.

While traditionally gendered roles and access to community resources determine how individuals maintain water security in the face of water scarcity, the impacts of climate change on water scarcity can further increase the burden on those marginalized along gender and social class strata. Women are traditionally responsible for water collection for household use in many parts of Ghana where about 38 percent of the population do not have access to potable water.

Water security is critical to the health and well-being of people around the world, especially among populations experiencing water stresses and rapid urbanization in low- to middle-income countries. The World Bank notes that, currently, 1.6 billion people live in countries and regions with absolute water scarcity, and that



number is expected to rise to 2.8 billion people by 2025.³⁵ In sub-Saharan Africa, more than one quarter of the population take longer than 30 minutes to make one water collection round trip.³⁶ The situation is not different in Ghana, where the 2010 Population and Housing Census report revealed a wide disparity in the main source of drinking water across the regions in the country. Water from rivers and streams constituted the main source of drinking water for 17.4 percent of dwelling units in Northern region, 16.5 percent in Volta region and 16.3 percent in Western region. Recent statistics show some improvement in water provision in Ghana, with 81 percent of its 29 million population having access to safely managed and basic service drinking water.³⁷ According to the Ghana Statistical Service (2018), 21 percent of women compared to 17 percent of men spend about one to three hours per day collecting drinking water when water is absent from their premises. Water insecurity resulting from climate change has been shown to be associated with distress, frustration, embarrassment, and anxiety among individuals, particularly women,³⁸ who spend most of their productive time looking for water for the household. Climate change impacts could erode gains made towards gender equality and sustainable development, particularly among communities where gendered access to resources and cultural norms continue to hinder the capacity of women to engage in adaptation practices to reduce their vulnerability to climate change impacts in various sectors.³⁹

The different gender competing needs for water require the integration of both women's and men's views in water resources management. For some time now, women have been engaged in the water sector, especially in community water and sanitation issues. Women's participation in decision-making in the sector still needs to be pushed. Women play a critical role in household water management and if they are not properly engaged in community water management issues, there will be problems with household water supply, which has implications for sanitation and health at the household level.

Climate-change-related gender issues in the water sector

Climate change contributes to water scarcity globally. Men and women have different needs for water, and the impact of climate change is deepening women's vulnerability in relation to water resources.⁴⁰ Water for domestic use has become scarce, and women have to travel several miles in search of water for the household. This generally affects women's economic life outside the household, since most of them spend hours every day hauling water for their families from distant sources. In most instances, female members of households perform this function, and this subsequently affects their education and personal development in general. There is also inequality in water supply especially in poor neighbourhoods, and this has resulted in many poor people paying exorbitant prices for water from vendors.⁴¹ In addition, water from these sources is often contaminated, inadequate to meet household needs, and creates health complications for consumers.

35 World Bank Group. (2013). Water and climate change. <http://water.worldbank.org/topics/water-resources-management/waterand-climate-change>

36 https://www.unicef.org/wash/index_watersecurity.html

37 Ghana Statistical Service (GSS). (2018). Multiple Indicator Cluster Survey (MICS 2017/18), Survey Findings Report. Accra, Ghana: GSS.

38 Young, S.L., Boateng, G.O., Jamaluddine, Z., Miller, J.D., Frongillo, E.A., Neilands, T.B., Stoler, J. (2019). The Household Water Insecurity Experiences Scale: Development and validation of a household water insecurity measure for low-income and middle-income countries. *BMJ Glob. Health* 2019, 4e001750.

39 Assan, E., Suvedi, M., Olabisi, L. S. and Bansah, K. J. (2020). Climate change perceptions and challenges to adaptation among smallholder farmers in semi-arid Ghana: A gender analysis. *Journal of Arid Environments*, 182, 104247.

40 Sultana, F. (2018). Gender and water in a changing climate: Challenges and opportunities. In *Water security across the gender divide* (pp. 17–33). Springer, Cham.

41 Amankwaa, E. F., Owusu, A. B., Owusu, G. and Eshun, F. (2014). Accra's poverty trap: Analysing water provision in urban Ghana. *Journal of Social Science for Policy Implications*, 2(2), 69–89.



In Ghana, over five million people do not have access to safe potable water; hence, they have to rely on surface water for drinking and other household uses.⁴² Women are the main suppliers of household water, and they go through all kinds of difficulties when searching for good drinking water for the household. Men, on the other hand, have a key interest in water for agriculture activities and lobby for such projects.

In the area of agriculture, the changing rainfall pattern has affected women in agriculture since most women are unable to afford irrigation services.⁴³ Irrigation facilities are mostly used by men because women have limited access to land around irrigation facilities. They are also faced with the problem of agriculture inputs for their crops because of their low-income levels. Even though women contribute significantly to the agricultural sector, their efforts are not recognized in the way men's are. The multiple needs for water resources by women (domestic and agricultural use) are seriously impacted by climate change. It is therefore critical to consider these specific gender needs in water resources management, and adequately make provisions for women's need for water, by incorporating women's views in water resources management.

⁴² <https://water.org/our-impact/ghana/>

⁴³ Theis, S., Lefore, N., Meinzen-Dick, R. and Bryan, E. (2018). What happens after technology adoption? Gendered aspects of small-scale irrigation technologies in Ethiopia, Ghana, and Tanzania. *Agriculture and Human Values*, 35(3), 671–684.

Case study 1: Highlighting gendered cultural values and social systems that underpin water resource use in Tatale-Sanguli in Northern region, Ghana⁴⁴

Tatale-Sanguli district is in the semi-arid northern savannah development zone of Ghana with some 60,000 inhabitants, 50.4 percent of whom are female. The main sources of water supply are streams, rivers, ponds, dugouts, rainwater, wells and boreholes. There is one short wet season that is followed by a long dry season. During the dry season, water shortage is acute when most of the open water sources dry up. The responsibility of fetching water for household consumption rests mainly on women and girls amid strict gender roles and cultural norms. Furthermore, women are responsible for most of the household chores for which water is required in the home including washing of clothes, cooking and bathing of children and the elderly. There are traditional norms and values that regulate access to and use of water resources. For example, it is a taboo for men to drink water collected by a woman in her menses.

Women spend long hours fetching water for the household. They can spend about two hours per trip to draw about 25 litres of potable water for drinking and cooking. In anticipation of menstruation, some women have to undertake more trips to store enough water to last them for the duration of their periods or to ensure their children make more frequent daily trips to supplement what is available. In the dry season when water is scarce, some men help by transporting some water on their bicycles. In times of prolonged drought, men may migrate down south in search of a temporary job, leaving women to cater for themselves and their households.

This example shows the importance of appreciating the gendered cultural values and social systems that underpin water resource use. A gender analysis should not only look at male-female dichotomies but also take into account specific needs arising from cultural institutions such as taboos, beliefs and practices in order to ensure that no individual or household is excluded, and that projects achieve their intended objectives of ensuring water security for all.

44 Jeil, E. B., Abass, K. and Ganle, J. K. (2020). 'We are free when water is available': Gendered livelihood implications of sporadic water supply in Northern Ghana. *Local Environment*, 25(4), 320–335. <https://theconversation.com/how-water-scarcity-adds-to-womens-burden-in-northern-ghana-138357>

Table 8: Gendered cultural values and social systems that underpin water resource use in Northern region, Ghana

Gendered cultural values and social systems that underpin water resource use in Northern Region, Ghana				Recommended gender-sensitive approaches	Gender-sensitive indicators
Applying a gender lens to the problem		Applying a gender lens to possible solutions		<ul style="list-style-type: none"> Conduct gender analyses of water use and management systems Work with traditional authorities (including queen mothers) to address cultural norms and taboos that restrict women's access to water Continuous monitoring of women's involvement in water availability and use programmes. Engage women in discussions on water use and management Support dialogue on women's indigenous knowledge and experiences on water use and management 	<ul style="list-style-type: none"> Number of men and women in community water governance or management associations Number of men and women who express satisfaction with water intervention programmes (i.e. dams, boreholes, etc.) Number of minutes or hours reduction of labour time spent collecting water
Problem: Scarcity of water during prolonged dry season		Solution: Improved access to water			
Men	Women	Men	Women		
<ul style="list-style-type: none"> Increased labour hours spent on identifying water sources could reduce productivity in other areas. Men migrate in search of temporary jobs. 	<ul style="list-style-type: none"> Restricted access to water even when it is available Labour time spent on fetching water affects time put into other productive areas. Increased physical and mental stress for women Mostly not represented in decision-making in the water sector 	<ul style="list-style-type: none"> Introduce modern technology to identify water sources 	<ul style="list-style-type: none"> Increase water access in communities Reduce labour time spent on collecting water for household use Increase women's participation in community water governance and management 		

Case study 2: Understanding the complex community water governance, land tenure and farming systems from a gender perspective in the Upper East region, Ghana⁴⁵

With limited surface water available and a short wet season followed by a long dry season, the people of Talensi district depend largely on the erratic rainfall patterns for agricultural production. The predominant economic activity in the district is subsistence agriculture that is mainly rain-fed. Household and community drinking water is largely sourced from community boreholes. Over the years, government agencies and international development partners have sought to construct community dams to assist farmers to engage in yearlong farming to ensure sustainable incomes for individuals and their households.

Initial assessments by the Building Research Capacity for Sustainable Water and Food Security in Drylands in Africa (BRECcIA) Project reveal gender-differentiated roles and responsibilities at the community level that determine access to water resources, particularly during the dry periods. In the wet season, dams are filled with water, but farmlands also receive enough moisture so there is less need to rely on the dams then. Households can harvest rainwater as well as have access to the boreholes. During the dry season, when the water is needed for irrigation and watering livestock most, dam-water levels drop rapidly. It is then that the dams are supposed to be beneficial to communities.

The principal assumption for constructing the dams is to make water available during the dry season. This design, however, does not take into consideration the different capacities of men, women, children, the elderly, and people living with disabilities. This fails to incorporate the differential access to dam water due to farming practices and complex land tenure systems. The siting of dams does not consider proximity to farms, as people are not allowed to farm within a certain radius of the dam. The compound farming systems and land ownership practised in the community are not considered. BRECcIA research finds that communal land tenure leaves women at a disadvantage. Land tenure systems make it difficult for women land users to improve access to water. Land rights are usually allocated to male household members and women may benefit from lands allocated to them as wives or members of households where there is a male landowner. Women may therefore lack the resources to fully participate in shared farming systems at the community level to benefit from irrigated dams. In fact, they may not be able to access irrigated lands or prime lands close to the dams if not given them by male landowners.

In addition, the dam water is largely used to provide water for livestock during the dry season and may not provide water for irrigation for both male and female farmers. The community dams rarely have canals leading to farms; and where they do, they are very close to the farms around the dam. Thus, during the dry season, farmers prefer to move their livestock to the dam for watering.

This case study demonstrates the importance of considering complex community water governance, land tenure and farming systems from a gender perspective.

45 Unpublished Building Research Capacity for Sustainable Water and Food Security in Drylands in Africa field report, Regional Institute for Population Studies, University of Ghana.

Table 9: Understanding complex community water governance and tenure systems from a gender perspective

Understanding complex community water governance, land tenure and farming systems from a gender perspective in the Upper East Region, Ghana			
Applying a gender lens to the problem		Applying a gender lens to possible solutions	
<p>Problem: Complex community water governance structure reduces access to water.</p>		<p>Solution: Improved water governance to increase access to water</p>	
<p>Men</p> <ul style="list-style-type: none"> ■ Less water available for year-round agriculture, which will result in decreased crop yield and household income 	<p>Women</p> <ul style="list-style-type: none"> ■ Shortage of water to produce crops for household consumption during dry season results in food insecurity in households. ■ Inequitable access to land means less participation in community water governance, hence, challenges with using water on land remote from the dam site making it impossible for dry-season farming, impacting on household income and livelihoods. ■ Low participation in discussion on irrigation facilities and technologies ■ Low access to irrigation technologies for dry-season farming due to low access to financial resources 	<p>Men</p> <ul style="list-style-type: none"> ■ Increase access to water source and irrigation technology for dry-season farming 	<p>Women</p> <ul style="list-style-type: none"> ■ Increase water access in communities ■ Increase access to water source and irrigation technology for dry-season farming ■ Increase women's participation in community water governance and management
		<p>Recommended gender-sensitive approaches</p> <ul style="list-style-type: none"> ■ Conduct gender analyses of water use and management systems for dry-season farming ■ Support women's involvement in water availability and use for farming programmes ■ Support dialogue on women's indigenous knowledge and experiences on water use and management ■ Support women's access to water and irrigation technologies for dry-season farming 	<p>Gender-sensitive indicators</p> <ul style="list-style-type: none"> ■ Number of men and women in community water governance or management associations ■ Number of men and women who express satisfaction with water intervention programmes (i.e. dams, boreholes, etc.) ■ Percentage change in number of men and women who have access to dams or irrigation facilities for livelihood activities in the dry season ■ Number of women and men who have access to irrigation technologies

6 Chapter Six:

HEALTH, CLIMATE CHANGE AND GENDER: MODULE FIVE

Introduction

This module includes case studies that are relevant for the mainstreaming of gender in the health sector of the GH-NDCs. It is now evident that climate change adversely impacts human health, and a key mediator of or ability to mitigate or adapt to these effects is gender. In Ghana like in many low- and middle-income countries, attitudes, social systems and access to resources, which are key determinants of health, are gendered. In fact, vulnerability to adverse health conditions is determined by gendered physiological, socio-economic and cultural structures. For instance, women may have additional burdens of maternal and reproductive health challenges whereas men may be disproportionately disadvantaged by traditionally masculine hazardous occupations and lifestyles.

Incorporating gender, therefore, can enhance the effectiveness of measures employed in the NDCs to mitigate and adapt to the impacts of climate change on human health in Ghana. Thus, this module seeks to present climate-related health challenges in the light of gendered differences in different contexts of Ghana.

Health impacts of climate change

Climate change affects the health sector in diverse ways. It can have direct impacts on vector-borne diseases and the conditions for other non-communicable diseases as well as impose significant challenges on health-care systems. Increased incidence of diseases because of high temperatures will deteriorate human health. Air pollution due to increased temperature and humidity can worsen allergies and other respiratory diseases, such as asthma.⁴⁶ Increasing temperatures also causes poor air quality that can affect the heart and worsen cardiovascular disease.⁴⁷ When there is an increase in flooding and sea levels rise, water gets contaminated with harmful bacteria, viruses, and chemicals, causing food-borne and water-borne illnesses.⁴⁸ Increased flooding is correlated with increase prevalence of water-related diseases, especially water and vector-borne diseases, which affect millions of poor people each year. This happens because flood water contaminates household drinking water leading to

“ Increased flooding is correlated with increase prevalence of water-related diseases, especially water and vector-borne diseases, which affect millions of poor people each year. ”

46 United Nations Development Programme. (2007). Human Development Report 2007–2008: Fighting Climate Change: Human Solidarity in a Divided World, Palgrave Macmillan, New York.

47 Ibid.

48 Halm, M. (2014). Integrating climate change into the management of priority health risks in Ghana.

increased cases of gastrointestinal diseases. As diseases increase at the household level, women's care giving role for the family also increases as they have the responsibility to care for household members who are sick.⁴⁹

Climate change acts to exacerbate existing patterns of ill health by acting on underlying environmental and sociodemographic vulnerabilities.⁵⁰ The resilience of the public health systems to address this climatic problem is not adequately documented in the literature. A public health system's resilience is concerned with its capacity to maintain health services among vulnerable populations in the process and aftermath of external perturbations. Resilience is different from but integrates the standard public health system properties such as disease prevention (e.g. vaccination coverage), wellness check-ups, and epidemiologic assessment of disease burden.⁵¹ Generally, there are vaguely understood linkages between environmental quality, health planning and equity in the distribution of disease burden and inadequate translation of evidence from health, ecological and social systems into policies towards improved health status.⁵²

Climate change has myriad impacts on the health sector. Climate change can have direct impacts on vector-borne diseases and the conditions for other non-communicable diseases as well as impose significant challenges on health-care systems. Increased incidence of diseases because of high temperatures will deteriorate human health. Air pollution, due to increased temperature and humidity, can worsen allergies and other respiratory diseases, such as asthma.⁵³ Increasing temperatures also cause poor air quality that can affect the heart and worsen cardiovascular disease.⁵⁴ When there is an increase in flooding and sea levels rise, water gets contaminated with harmful bacteria, viruses, and chemicals, causing food-borne and water-borne illnesses.⁵⁵ Floods increasing consistently with climate change may also increase the prevalence of water-related diseases, especially water- and vector-borne diseases, which affect millions of poor people each year.

Climate-change-related gender issues in the health sector

Health is a cross-cutting issue, and problems in other sectors of the economy indirectly affect the sector. Good health cannot be achieved when there is poor nutrition, poor quality of water supply and poor sanitation. Climate change is having a significant effect on other sectors of the economy, thereby worsening the already existing health problems. In some countries in sub-Saharan Africa including Ghana, disease such as cerebrospinal meningitis, bilharzia, heat rashes, respiratory infections, cholera and non-cholera diseases are increasing as a result of climate-related hazards. The World Health Organization (WHO) in 2015 estimated that climate change would cause an additional 250,000 deaths per year, between 2030 and 2050, from cases of malaria, diarrhoea, heat

“ Health is a cross-cutting issue, and problems in other sectors of the economy indirectly affect the sector. ”

49 https://www.un.org/womenwatch/feature/climate_change/downloads/Women_and_Climate_Change_Factsheet.pdf

50 Sheridan, S. C. and Allen, M. J. (2015). Changes in the frequency and intensity of extreme temperature events and human health concerns. *Curr. Clim. Chang. Rep.* 1, 155–162.

51 Walker, B., et al., (2002). Resilience management in social-ecological systems: a working hypothesis for a participatory approach. *Conserv. Ecol.* 6, 14.

52 Dovie, D. B., Dzodzomenyo, M. and Ogunseitan, O. A. (2017). Sensitivity of health sector indicators' response to climate change in Ghana. *Science of the Total Environment*, 574, 837–846.

53 United Nations Development Programme. Human Development Report 2007–2008.

54 Ibid.

55 Halm, M. Integrating climate change.

stress and malnutrition.⁵⁶ Women, children and other vulnerable populations are the most affected because of their low socio-economic status and cultural practices that expose them to the risk of climate-related impacts. In Ghana, women are affected by climate-related health conditions either directly or indirectly because of their role as primary health-care givers at the household level.⁵⁷ They take care of children who are affected by climate-related health conditions such as malaria, diarrhoea, and cerebrospinal meningitis. Additionally, because of their physiological make-up, they are personally exposed to malaria when they are pregnant. In addition, they suffer from mental stress by walking for miles looking for water for the household in times of drought and sometimes go without food when there is not enough food for the household.

The vulnerabilities of populations and livelihoods to the impacts of climate change are underlain by existing gender inequalities. These inequalities are brought about by the fact that women and men have different physiological and social needs, roles and responsibilities, livelihood types and unequal access to and control over economic resources and decision-making power. The cultural context within which the health sector operates creates gender inequalities in decision-making within the sector. Women need permission from their male counterparts before they can seek health care from a facility. In addition, the dominance of males in decision-making has affected the health rights of women and children. The development of a gender-sensitive climate resilience screening tool for the health sector with support from the UNDP in 2014⁵⁸ has guided the sector in the implementation of gender-sensitive programmes and activities. However, the increase in prevalence of diseases as a result of climate change will likely aggravate women's caregiving responsibilities for family and community members who are ill.⁵⁹

The impact of higher temperature-related diseases such as cerebrospinal meningitis has been documented to kill both men and women, especially in northern Ghana (WHO, 2014). Cases of cholera, diarrhoea, malaria, malnutrition and heat-related deaths might increase depending on varied climate scenarios. Pregnant women and children are particularly susceptible to malaria, which also contributes to prenatal mortality, low birth weight and maternal anaemia.⁶⁰ The unavailability of household drinking water in dwellings and nearby locations in communities exposes women and children who are responsible for fetching water to water-borne infections such as Guinea worm, onchocerciasis and schistosomiasis, especially when they have to fetch from rivers and lakes.⁶¹

56 World Health Organization. (2015). Climate change and health <http://www.who.int/mediacentre/factsheets/fs266/en/>

57 Ministry of Health, United Nations Development Programme (UNDP) and Global Environment Facility (GEF). (2012). Gender-sensitive climate change communication strategy.

58 Government of Ghana, GEF and UNDP. (2014). Development of a gender-sensitive climate resilience screening tool for the health sector.

59 https://www.un.org/womenwatch/feature/climate_change/downloads/Women_and_Climate_Change_Factsheet.pdf

60 Dampney, P. T. (2007). Climate Change and Women's Livelihoods. In *National Forum on Climate Change. Accra*.

61 Glazebrook, T. (2011). Women and climate change: A case-study from northeast Ghana. *Hypatia*, 26(4), 762–782.

Case study 1: Climate-related disaster and its impact on maternal health in Talensi in the Upper East region⁶²

Climate-related flooding affects maternal health care through its impact on quality of life and access to antenatal and delivery services. Malaria and diarrhoeal disease incidence increase in times of flooding, yet pregnant women are unable to receive the required attention during these times. In the Talensi district of northern Ghana, the main mode of transport is the use of motorbikes that cannot be used once excessive rain has fallen and the Bagre Dam in Burkina Faso to the immediate north has spilled. Hence, women in remote areas with complications during labour or those who have to attend antenatal or postnatal care at a health facility are unable to access it.

During extreme rainfall and floods, traditional birth attendants attend to pregnant women in labour because of restricted access to the community by floodwater. In cases where the woman is haemorrhagic, she must be rushed to the nearest district hospital. The journey by motorbike usually takes 15 to 20 minutes.

However, in times of floods, a motorbike, which is relatively easy to find, takes only about five minutes to get to the community's side of the overflowing water. The woman is then carried shoulder-high by men who wade steadily through to the other side of the water.

There is usually an arrangement via mobile phone with some people on the other side of the flood waters for a motorbike to carry sick people to a health facility when necessary. Reported cases of maternal mortality at the Talensi District Hospital in Tongu have included common preventable causes such as severe anaemia and haemorrhage where a patient would be in need of oxygen and blood. Unfortunately, lives are lost due to such delays in identifying the need to seek professional care and delayed transportation to a health facility. Despite available facilities and efforts by health workers, significant damage is done when patients report late to the facilities.

This case clearly depicts how climate-related disasters affect women's health, particularly their reproductive health, negatively. The implications for men include additional physical burden of caring for women while braving the dangers associated with floods. It is important for health-related NDCs to incorporate gender into climate adaptation to accommodate the dangers women face with regards to maternal mortality. It is important to include men in their partners' reproductive health care for early decision-making for professional health care.

⁶² Unpublished commentary from fieldwork, Building Research Capacity for Sustainable Water and Food Security in Drylands in Africa Project, Regional Institute for Population Studies, University of Ghana.

Table 10: Climate-related disaster and its impact on maternal health

Climate-related disaster and its impact on maternal health			
Applying a gender lens to the problem		Applying a gender lens to possible solutions	
<p>Problem: Limited access to maternal health care resulting from unmotorable roads</p>		<p>Solution: Provision of community health workers (community-based health planning and services) within the Talensi community</p>	
<p>Men</p> <ul style="list-style-type: none"> ■ Indirect effect of loss of contribution by female family member ■ Psychological burden of losing their female counterparts ■ The burden of caring for spouse in the midst of a disaster 	<p>Women</p> <ul style="list-style-type: none"> ■ High cases of preventable maternal mortality ■ Restricted access to health facilities ■ Vulnerability to flood 	<p>Men</p> <ul style="list-style-type: none"> ■ Increased participation of men in women's reproductive health care and decision-making 	<p>Women</p> <ul style="list-style-type: none"> ■ Increase access to community health workers (community-based health planning and services)
		<p>Recommended gender-sensitive approaches</p> <ul style="list-style-type: none"> ■ Conduct gender analyses of health complications due to climate-related disasters ■ Support men's participation in discussions on women's health 	<p>Gender-sensitive indicators</p> <ul style="list-style-type: none"> ■ Reduction in maternal mortality due to improved access to community-based health planning and services ■ Number of women who receive full complement of community-based antenatal care ■ Number of women who are accompanied by partners to receive antenatal care ■ Reduction in disaster-related health complications and mortality by men and women

Case study 2: Gendered differences in climate-related disaster health risk in Accra, Ghana⁶³

Floods impact different segments of urban communities differently. The infamous June 2015 flood disasters occurred concurrently with an explosion from a gas filling station at the Kwame Nkrumah Circle. The disaster was associated with 154 deaths, displacement and loss of properties. The floods left in its wake widespread incidents of cholera and other diarrhoeal infections in the city of Accra. Indeed, it was the worst flooding disaster to have ever occurred in the nation's capital. As with many climate-related human-driven disasters, the implications differed for males and females.

During the flooding, many residents near the disaster site moved to higher ground for safety. While women and children moved to safety, male members of households attempted to salvage some properties and to help control the flood waters or help rescue other people. This put more men in danger of being injured or drowned in flood waters. In fact, according to the government's report based on eyewitness accounts, two men who waded through the floodwaters smoking cigarettes while petrol from the filling station had spilled into the flood waters caused the fire, which led to the subsequent explosion. This is evidence of the danger men put themselves through due to socially ascribed norms of masculinity during disasters. That notwithstanding, women still have an increased psychological and physical burden of continuing their traditional roles as home keepers while continuing to cater to injured men. In cases where the male may be deceased, there is an additional burden on women to become heads of household.

Later, different parts of Accra reported increased incidence of diarrhoeal disease. Again, while diarrhoeal risk was higher for children, women and men face risks of diarrhoeal diseases differently. Women do more cooking and hence are less predisposed to consuming out-of-home cooked foods. Thus, women are less affected by food-borne diarrhoeal diseases compared to men in times of floods.

From this incident, it is evident that men face significant health risk in times of flooding due to traditional scripts of masculinity that exposes them to danger. Appropriate gender-based analyses will interrogate the dangers men and women face due to flooding for appropriate adaptation strategies to be incorporated into the health dimension of NDCs.

63 <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/June-3-disaster-Full-report-made-public-604410>
<https://reliefweb.int/report/ghana/ghana-floods-emergency-plan-action-epoa-mdrgh011>
<https://reliefweb.int/sites/reliefweb.int/files/resources/MDRGH011.pdf>
<https://reliefweb.int/disaster/ep-2014-000116-gha>

Table 11: Gendered differences in climate-related disaster health risk

Gendered differences in climate-related disaster health risk			
Applying a gender lens to the problem	Applying a gender lens to possible solutions		Gender-sensitive indicators
<p>Problem: High risk of injury and death resulting from flood</p>	<p>Solution: Provision of escape routes and early response in times of disaster to increase safety levels</p>		<p>Recommended gender-sensitive approaches</p> <ul style="list-style-type: none"> Conduct gender analyses of injuries and accidents due to climate-related disasters Support men's and women's participation in disaster risk reduction education and programmes
	<p>Men</p> <ul style="list-style-type: none"> Men are more prone to accidents and injuries from floods due to sense of masculinity and lifestyle behaviours 	<p>Men</p> <ul style="list-style-type: none"> Put in place a timely disaster response team of men and women to avoid men exhibiting their masculinity in such situations Educate men on health impacts of flood disaster 	
<p>Men</p> <ul style="list-style-type: none"> Psychological burden of losing male counterparts through disasters Increased burden of caring for sick household members 	<p>Women</p> <ul style="list-style-type: none"> Number of men and women who received education on disaster risk reduction Reduction in injuries and deaths of men and women due to education on disaster risk reduction Number of men and women who receive psychological care services after a flood disaster Number of men and women who have become disaster risk reduction ambassadors in their communities Reduction in post-flooding diarrhoeal disease incidence among the population disaggregated by sex 	<p>Gender-sensitive indicators</p> <ul style="list-style-type: none"> Number of men and women who received education on disaster risk reduction Reduction in injuries and deaths of men and women due to education on disaster risk reduction Number of men and women who receive psychological care services after a flood disaster Number of men and women who have become disaster risk reduction ambassadors in their communities Reduction in post-flooding diarrhoeal disease incidence among the population disaggregated by sex 	

7 Chapter Seven:

WASTE, CLIMATE CHANGE AND GENDER: MODULE SIX

Introduction

The average amount of waste generated per person in Ghana stands at 0.47kg each day. This translates into a daily average of about 12,710 tons of waste.⁶⁴ Increasing waste generation in the country has been attributed to factors such as increased population, increased economic activities and high standard of living, among others. Waste management in Ghana has mainly been in the form of waste disposal in open dumps, wetlands, open-air incineration and landfills.⁶⁵ Only a small amount of the waste is recycled or ends up in a composting site, which contributes to poor sanitation, especially in the country's major towns and cities. This method of waste management leads to GHG emissions into the atmosphere. Carbon emissions from waste was 3.17 MtCO₂e, constituting 7.5 percent of total carbon emission in 2016 (EPA, 2019).



64 Miezah, K., Obiri-Danso K., Kádár, Z. Fei-Baffoe B. and Mensah M.Y. (2015). Municipal solid waste characterization and quantification as a measure towards effective waste management in Ghana. *Waste Management*, 46 (2015), pp. 15–27.

65 Abalo, E. M., Peparah, P., Nyonyo, J., Ampomah-Sarpong, R. and Agyemang-Duah, W. (2018). A Review of the Triple Gains of Waste and the Way Forward for Ghana. *Journal of Renewable Energy*.

Climate-change-related gender issues in the waste sector

Climate-change-related gender issues in the waste sector span the entire value chain from waste generation to disposal and from the household level to the national level. Cleaning, sweeping and waste disposal, which is unpaid, is usually undertaken by women. This often occurs at the household level where waste management is accepted as the role of women. Though men perform this role, it is usually on a temporary basis when women are not available or not in the position to do so.⁶⁶ Men often play a role in bearing the cost of waste disposal in instances where this is paid for.⁶⁷

As managers of waste at the household level, women determine the type of waste generated through the items they purchase for use at home. As part of their childcare roles, women inculcate waste handling habits into children and act as environmental educators.⁶⁸ Decision-making on waste management is often handled by women at the household level, subject to the approval of their male partners.⁶⁹ At the community and national levels, men make these decisions. There is also the lack of inclusion of gender specific designs and gender-sensitive approaches in sanitation education and a tendency to design strategies directed at only women.⁷⁰ This tends to reinforce women's unpaid work and does not position them to make decisions at community and national levels. Unpaid sanitation work will thus continue to fall more heavily on women rather than both men and women sharing equally in sanitation responsibilities.

“ At the community and national levels, men make waste-management decisions. There is also the lack of inclusion of gender specific designs and gender-sensitive approaches in sanitation education and a tendency to design strategies directed at only women. ”

66 Sikweyiya, Y., Addo-Lartey, A. A., Alangea, D. O., Dako-Gyeke, P., Chirwa, E. D., Coker-Appiah, D., and Jewkes, R. (2020). Patriarchy and gender-inequitable attitudes as drivers of intimate partner violence against women in the central region of Ghana. *BMC Public Health* 20, 682.

67 Yin, E. T. and Mariwah, S. (2013). A Socio-Legal Approach: Gender and Domestic Solid Waste Management in Ashaiman, Ghana. *The International Journal of Humanities and Social Studies*.

68 Sikweyiya, Y., et al. Patriarchy and gender-inequitable attitudes.

69 Ibid.

70 Muchangos, L. S. and Vaughter, P. (2019). Gender Mainstreaming in Waste Education Programs: A conceptual framework. *Urban Science*. 3, 29.

Case study 1: Improving livelihoods through plastic waste management in coastal communities of Western region of Ghana⁷¹

The management of plastic waste, particularly in coastal communities, is one of the environmental sanitation challenges in Ghana. The menace is exacerbated by rapid population growth, inadequate financing and poverty. The practice has led to diseases such as cholera, malaria, river blindness, chest infections and other contagious and dangerous ailments. Interventions geared towards improving plastic waste management have public health and climate-change implications.

An integrated sanitation and livelihood improvement intervention programme was piloted in four coastal communities in the Western Region of Ghana by the Daasgift Quality Foundation in 2013. The project highlighted the issues of plastic waste management and described the business model applied to facilitate household income generation through plastic waste management. This contributes directly to the objective of enhancing women's role in effective household and community waste management through livelihood improvement.

The overarching goal of the intervention was to facilitate income generation through plastic waste management and reduce plastic waste pollution in the coastal communities and along the beaches. Initial implementation involved a series of meetings and awareness creation with key stakeholders such as chiefs, assembly members, religious leaders, chief fishermen, environmental health officers and the National Commission for Civic Education to solicit their support for the project.

The project adopted an approach of working through existing institutions at the community level while building their capacity to assume oversight responsibility. Integral to the capacity-building efforts was the piloting of different business models for plastic waste management in the target communities. These models supported local entrepreneurs to manage plastic waste, resulting in the development of sustainable microenterprises based on plastic waste management. The initiative created jobs through the business models and improved the environment.

The objectives of the initiative towards improving livelihood and ensuring environmental cleanliness cannot be fully achieved without women's consideration since they play a significant role at the lowest level of waste management in Ghana. This calls for women's empowerment and consideration of gender issues from national to local levels in order for such relevant interventions to attract representative participation of women.

71 Asmah, G.B., Owusu, A. and Kankam, S. (2013). Improving Livelihoods through Cleanliness in the Coastal Communities of the Western Region of Ghana: Achievements and Lessons Learned. Daasgift Quality Foundation. United States Agency for International Development Integrated Coastal and Fisheries Governance Program for the Western Region of Ghana. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. 16 pp.

Table 12: Improved plastic waste management in coastal communities

Climate change issue: Improved plastic waste management in coastal communities			
Applying a gender lens to the problem		Applying a gender lens to possible adaptation options	
<p>Problem: Poor livelihoods and plastic waste management</p>		<p>Solution: Improved livelihood through business-oriented plastic waste management</p>	
Men	Women	Men	Women
<ul style="list-style-type: none"> High level of interest of men in domestic waste management, which generates income directly More likely to be part of stakeholder consultation and capacity-building on the introduced business models 	<ul style="list-style-type: none"> Women may be excluded from decision-making at the stakeholder consultative level. Less likely to receive training on business models introduced Women are traditionally responsible for waste management at the household level. Most of the waste pickers and scavengers at disposal sites are women. Some women generate income through waste picking and resale to support their families. 	<ul style="list-style-type: none"> Increase men's participation in household and community waste segregation Increase men's access to business opportunities in the waste management value chain as they may generate more money through collecting and reselling of plastic waste Increase men's participation in stakeholder consultation and capacity-building on business models introduced Educate men on waste segregation practices 	<ul style="list-style-type: none"> Increase women's access to business opportunities in the waste management value chain as they may generate more money through collecting and reselling of plastic waste Increase women's participation in stakeholder consultation and capacity-building on business models introduced Educate women on waste segregation practices
		Recommended gender-sensitive approaches	Gender-sensitive indicators
		<ul style="list-style-type: none"> Conduct gender analysis of livelihoods and plastic waste management in the affected communities Ensure men and women are involved in decision-making from the beginning to identify both household and community needs and in the management of the business models Encourage women's participation in capacity-building, and allow them to contribute in the design and implementation of the business models Ensure that structures are in place to increase women's access to financial resources to engage in waste management businesses Participatory and gender-sensitive monitoring approaches of project activities are important to ensure that men and women benefit from the planned programme. 	<ul style="list-style-type: none"> Number of men and women participating in consultations and decision-making processes Number of responses obtained from men and women during consultations Number of men and women whose capacities have been built and who have implemented the introduced business models Income generated by men and women from implementing the introduced business model Quantity of plastic waste collected and sold to recycling companies by men and women

8

Chapter Eight:

TRANSPORT, CLIMATE CHANGE AND GENDER: MODULE SEVEN

Introduction

The transport sector plays a key role in sustaining social and economic development. The sector becomes critical in the midst of disasters when persons affected by flood, fire or other disasters need to evacuate to safety. Depending on geographic location, standards of construction, existing conditions, maintenance capacity, and patterns of use, transport infrastructure is affected by changes in climatic conditions, which affect the ability to facilitate mobility of goods and persons. For instance, a one-degree rise in temperature is likely to cause coastal flooding and potentially affect the design and implementation of road projects (Ministry of Finance and Economic Planning 2010, p.78) or even damage existing roads along the coast.

Climate-change-related gender issues in the transport sector

The mobility pattern and mode of transport for women vary from that of men. As such, changes in climatic conditions on transport systems affect women and men in different ways. Women take more trips, have a wider variety of routes that is often within a more restricted geographical area than men.⁷² Generally, men



72 Maramba, P. and Bamberger, M. (2001). A gender responsive monitoring and evaluation system for rural travel and transport programs in Africa. Sub-Saharan Africa Transport Policy Program (SSATP) (SSATP, the World Bank and Economic Commission for Africa) Working Paper, (55).

make more work-related trips than women, and women make more trips in line with carrying out their domestic responsibilities.⁷³ Regarding ownership of vehicles and transport infrastructure, women have limited ownership compared to men.⁷⁴ For instance, a survey by Ghana Statistical Services revealed that 92 percent of bicycles are owned by males while 3 percent of bicycles were owned by both males and females. Only 5 percent of bicycles were solely owned by females. Women are more affected by increased precipitation, temperature and strong winds, which make pedestrian transport extremely difficult.⁷⁵

Case study 1: Urban Transport Project

Rapid urbanization and motorization in Accra have led to severe traffic congestion in the nation's capital. Mobility of persons is constrained by over-reliance on low-capacity passenger vehicles, inadequate traffic management, heavy dependence on informal public transport services, inadequate non-motorized transport facilities and occupation of roads by hawkers among other factors, leading to severe traffic congestion and contributing to aggressive situations on the roads.⁷⁶ To help address this, the Urban Transport Project was implemented between 2007 and 2012. The aim was to develop the first Bus Rapid Transit (BRT) system in sub-Saharan Africa to achieve greater efficiency and strengthen the urban transport sector's institutional structure. Funding for this project was under an International Development Association credit, a Global Environment Facility grant and later, a French Development Agency credit with counterpart funding coming from the Government of Ghana.

The Project had two objectives: (i) the Project development objective to "improve mobility in areas of participating metropolitan, municipal and district assemblies," and (ii) a global environment objective to "promote a shift to more environmentally sustainable urban transport modes and encourage lower urban transport-related GHG emissions along the pilot BRT corridor in Accra." The project objectives would be attained through a combination of traffic engineering measures, management improvements, regulation of the public transport industry, and implementation of a BRT system. Project institutional activities included building capacity to plan, regulate, coordinate, and monitor urban public transport services.⁷⁷

It was expected that the project would have increased the use of lower-emission transport along the pilot BRT corridor in Accra. The BRT was also expected to have increased the average travel speed for all traffic (due to the avoided number of vehicles). Very few of the project targets were met at the close of the project. The global environment objective of promoting a shift to more environmentally sustainable urban transport modes and lowering GHG emissions was not achieved. The project faced numerous delays due to a number of reasons such as absence of release of counter funding from the government and inadequate collaboration with local stakeholders from the public transport sector over fear of job losses and business opportunities for small-scale public transport operators.⁷⁸ One outcome of the project was the Ayalolo Bus Service. Research on the effect of the Urban Transport Project indicated that females were 2.7 percent less likely to have tried the Ayalolo Bus Service as compared to males. The service is perceived to be for the rich and educated.⁷⁹

73 Adom-Asamoah, G., Amoako, C. and Adarkwa, K. K. (2020). Gender disparities in rural accessibility and mobility in Ghana. *Elsevier*, 49–58.

74 Ibid.

75 <http://asiapacificadapt.net/gender-sourcebook/7-sectoral-modules/7-8-module-h-transport/>

76 UN-HABITAT. (2009). Ghana: Accra Urban Profile, United Nations Human Settlements Programme.

77 Implementation Completion Report Review, independent evaluation group, Urban Transport Project.

78 The World Bank. (2017). Implementation completion and results report Urban Transport Project.

79 Abekah-Nkrumah, G., Asuming, P. O. and Telli, H. (2019). The effects of the introduction of a bus rapid transit system on commuter choices in Ghana, Policy Brief.

Table 13: Climate change impact: Reduction in greenhouse gas emissions from vehicles

Climate change impact: Reduction in greenhouse gas emissions from vehicles									
Applying a gender lens to the problem	Applying a gender lens to possible adaptation options	Recommended gender-sensitive approaches	Gender-sensitive indicators						
<p>Problem: Rapid urbanization and motorization in Accra have led to severe traffic congestion in the nation's capital resulting in high carbon emissions.</p> <table border="0"> <tr> <td style="background-color: #0056b3; color: white; text-align: center;">Men</td> <td> <ul style="list-style-type: none"> ■ Increased commuting time for men and commercial drivers, impacting on income and livelihoods ■ High carbon emissions affect the health of men. ■ Less time for men to undertake productive duties. ■ Interventions are designed with men in the lead, thus women's transport needs are mostly excluded. </td> </tr> <tr> <td style="background-color: #0056b3; color: white; text-align: center;">Women</td> <td> <ul style="list-style-type: none"> ■ High carbon emissions affect the health of women. ■ Traffic congestion increases commuting time, impacting on women's income and livelihoods ■ Less time for women to undertake both productive and reproductive duties ■ Despite being key stakeholders as commuters and users of transport infrastructure, women are not involved in decision-making in the sector. </td> </tr> </table>	Men	<ul style="list-style-type: none"> ■ Increased commuting time for men and commercial drivers, impacting on income and livelihoods ■ High carbon emissions affect the health of men. ■ Less time for men to undertake productive duties. ■ Interventions are designed with men in the lead, thus women's transport needs are mostly excluded. 	Women	<ul style="list-style-type: none"> ■ High carbon emissions affect the health of women. ■ Traffic congestion increases commuting time, impacting on women's income and livelihoods ■ Less time for women to undertake both productive and reproductive duties ■ Despite being key stakeholders as commuters and users of transport infrastructure, women are not involved in decision-making in the sector. 	<p>Solution: Improve mobility and promote a shift to more environmentally sustainable urban transport modes</p> <table border="0"> <tr> <td style="background-color: #e91e63; color: white; text-align: center;">Men</td> <td> <ul style="list-style-type: none"> ■ Shorter commuting time for men ■ Educate men about adopting environmentally sustainable urban transport modes </td> </tr> <tr> <td style="background-color: #e91e63; color: white; text-align: center;">Women</td> <td> <ul style="list-style-type: none"> ■ Educate women about adopting environmentally sustainable urban transport modes ■ Involve women in discussions for the design and adoption of environmentally sustainable urban transport mode </td> </tr> </table>	Men	<ul style="list-style-type: none"> ■ Shorter commuting time for men ■ Educate men about adopting environmentally sustainable urban transport modes 	Women	<ul style="list-style-type: none"> ■ Educate women about adopting environmentally sustainable urban transport modes ■ Involve women in discussions for the design and adoption of environmentally sustainable urban transport mode
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Women	<ul style="list-style-type: none"> ■ High carbon emissions affect the health of women. ■ Traffic congestion increases commuting time, impacting on women's income and livelihoods ■ Less time for women to undertake both productive and reproductive duties ■ Despite being key stakeholders as commuters and users of transport infrastructure, women are not involved in decision-making in the sector. 								
Men	<ul style="list-style-type: none"> ■ Shorter commuting time for men ■ Educate men about adopting environmentally sustainable urban transport modes 								
Women	<ul style="list-style-type: none"> ■ Educate women about adopting environmentally sustainable urban transport modes ■ Involve women in discussions for the design and adoption of environmentally sustainable urban transport mode 								
	<ul style="list-style-type: none"> ■ Ensure that data collected and analysed on use of BRT, commuting time and other factors is disaggregated by sex. ■ Stakeholder consultations should be extensive and include market queens and women's groups. ■ Awareness creation should target women's groups. ■ Capacity-building should target women as technical persons involved in fleet management of the buses, mechanics and employment opportunities in the supply chain of spare parts and emission-monitoring equipment. 	<ul style="list-style-type: none"> ■ Numbers of men and women trained to fix and manage the Ayalolo Bus Service ■ List of adaptive measures adopted by women and men to meet their mobility needs ■ Number of men- and women-led enterprises established along the Ayalolo Bus Service value chain ■ Number of women and men engaged on the design of BRT ■ Number of men and women using BRT ■ Number of women's groups sensitized on the adoption of environmentally sustainable urban transport modes ■ Number of women and men offering services for BRT management 							

Case study 2: Impact Global Emission Solutions Limited Ghana Eco-Transport Programme⁸⁰

The Eco-Transport Programme quantifies carbon reductions, in line with the UNFCCC Clean Development Mechanism principles and is being validated under the Clean Development Mechanism Programme of Activities. Impact Global Emission Solutions Limited authored the revised UNFCCC methodology – AMS-III.BC ‘Combustion efficiency improvements’ – which provides simple measure, report and verify guidelines, adaptable to Nationally Appropriate Mitigation Actions, at both project and country levels.

The Government of Ghana is a major partner in this project, with the UNFCCC Regional Collaboration Centre facilitating the programme coordination. Key stakeholders include MESTI; the Ministry of Transport; the Ghana Road Transport Coordinating Council; the Ministry of Finance; the Ministry of Health; the Ghana Standards Authority; local NGOs; and private sector actors. Project implementation includes:

- Building local capacity and setting policy and emission-reduction objectives
- Providing tools to collect data to measure, report and verify, introduce appropriate policies, and implement real-world drive cycle standards
- Underpinning policy interventions and enforcing the repair of faulty high-emitting vehicles in an equitable and effective way
- Providing access to emission abatement technologies that will reduce vehicle emissions and improve fuel economy

Several workshops were held in the first phase to ensure a common understanding of the process, set programme objectives and understand the requirements and benefits of real-world measure, report and verify processes. The project was undertaken in Accra in collaboration with the Government of Ghana and the support of KfW Development Bank, under carbon market mechanisms. Local stakeholders were consulted on a road map for the implementation of transport emissions baselines and standards and a national plan to monitor, manage and reduce transport emissions. The project was intended to benefit:

- vehicle fleet operators and drivers (public and private) – improved vehicle performance and fuel economy;
- the public – improvement in air quality and public health;
- the private sector – employment opportunities, from the creation of supply chains and emission testing deployment; and
- public authorities – provision of a practical toolbox and cost-effective policy recommendations, enabling the leverage of funding to manage and reduce transport emissions.

80 <http://www.ppmc-transport.org/iges-ghana-eco-transport-program-real-world-transport-emission-monitoring-and-mitigation/>

Table 14: Impact Global Emission Solutions Ghana Eco-Transport Programme

Climate change impact: High carbon emissions from vehicles			
Applying a gender lens to the problem		Applying a gender lens to possible adaptation options	
<p>Problem: Carbon emissions from vehicles have a negative impact on health and the environment.</p>		<p>Solution: Identify, characterize and demonstrate appropriate adaptation procedures that may be implemented to strengthen long-term resilience of rural access</p>	
Men	Women	Men	Women
<ul style="list-style-type: none"> Increases impact of carbon emissions on health of men since they mostly own vehicles 	<ul style="list-style-type: none"> Increases impact of carbon emissions on health of pregnant women, unborn children and infants Women are less involved in decision-making on design and implementation of strategies in the transport sector. 	<ul style="list-style-type: none"> Increase men's knowledge and skills on adaptation transport procedures in line with their mobility needs Increase awareness-raising on the impact of carbon emissions on the health of men 	<ul style="list-style-type: none"> Increase women's knowledge and skills on adaptation transport procedures in line with their mobility needs Increase awareness-raising on the impact of carbon emissions on the health of pregnant women, unborn children and infants Involve women in decision-making on design and implementation of strategies in the transport sector Capacity-building on the design and implementation of climate adaptive road networks for communities should target women.
		Recommended gender-sensitive approaches	Gender-sensitive indicators
		<ul style="list-style-type: none"> Ensure that data collected and analysed on adaptation procedures is disaggregated by sex Data on the transportation needs of women and men should be collected. Communication on research findings should highlight the gender differences in climate change and adaptation procedures adopted by women and men. Capacity-building should target women as technical persons involved in fleet management and employment opportunities in the supply chain of emission-testing tools. Increase men's and women's access to low-carbon emission vehicles 	<ul style="list-style-type: none"> Numbers of men and women trained to design and implement adaptive road network projects List of women's and men's transport needs List of adaptive measures adopted by women and men to meet their mobility needs Number of men and women owning/using low-carbon emission vehicles

Case study 3: Climate adaptation: Risk management and resilience optimisation for vulnerable road access in Africa⁸¹

In order to help address a significant threat to Africa's development due to climate change, the Africa Community Access Partnership, a research programme funded by UKAid, commissioned a project in April 2016 to produce regional guidance on the development of climate resilient rural access in Africa through research- and knowledge-sharing within and between participating countries. The overall project aim is to deliver sustainable enhancement in the capacity of Africa Community Access Partnership partner countries to reduce current and future climate impacts on vulnerable rural infrastructure.

In Ghana, the proportion of gravel and earth roads to tar roads in the network is very high (almost 70 percent), rendering the majority of the road network susceptible to the effects of environmental and weather conditions. Large sections of the network experience periodic surface flooding, thereby increasing their deterioration.⁸² The study covers threats and adaptation for both existing and new infrastructure. It addresses the issues of appropriate and economic methodologies for vulnerability and risk assessments; prioritization of adaptation interventions; and optimization of asset resilience in the context of low-volume rural access roads. In addition, evidence of cost, economic and social benefits to rural communities arising from more resilient rural access will be provided to support wider policy adoption across Africa.

It is recommended that an integrated implementation approach is adopted. For example, ecosystem-based adaptation strategies focusing on environmental or green planning for project roads should be designed and implemented to improve flood and drought management. Climate-change resilient trees can be planted along embankments of all project roads with selected grass and biomaterials. This is a labour-intensive programme supporting female-based employment for gender mainstreaming in the provinces.

81 <http://www.research4cap.org/ral/Arnoldetal-CSIR-Consortium-2018-ClimateAdaptation-GhanaReport-AfCAP-GEN2014C-181221-compressed.pdf>

82 Ghana Institution of Engineers (GhIE). (2016). Ghana Infrastructure Report Card 2016: Roads & Bridges, Electric Power & Potable Water. GhIE: Accra, Ghana.

Table 15: High rate of deterioration of rural roads as a result of increased flooding impedes access

Climate change impact: High rate of deterioration of rural roads as a result of increased flooding impedes access											
Applying a gender lens to the problem	Applying a gender lens to possible adaptation options	Recommended gender-sensitive approaches	Gender-sensitive indicators								
<p>Problem: Damage caused to rural roads limits access within and between communities.</p> <table border="1"> <thead> <tr> <th>Men</th> <th>Women</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> Limited mobility of men affects economic activities like transporting crop harvests to market centres. </td> <td> <ul style="list-style-type: none"> Limited mobility of women to cart their wares, such as farm produce to the market Limited access to maternal and child health facilities and services Women are less involved in decision-making on the design and implementation stages of plans in the transport sector. </td> </tr> </tbody> </table>	Men	Women	<ul style="list-style-type: none"> Limited mobility of men affects economic activities like transporting crop harvests to market centres. 	<ul style="list-style-type: none"> Limited mobility of women to cart their wares, such as farm produce to the market Limited access to maternal and child health facilities and services Women are less involved in decision-making on the design and implementation stages of plans in the transport sector. 	<p>Solution: Identify, characterize and demonstrate appropriate adaptation procedures that may be implemented to strengthen long-term resilience of rural access</p> <table border="1"> <thead> <tr> <th>Men</th> <th>Women</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> Increase men's knowledge and skills on adaptation transport procedures in line with their mobility needs </td> <td> <ul style="list-style-type: none"> Increase women's knowledge and skills on adaptation transport procedures in line with their mobility needs Involve women in capacity-building on the design and implementation of climate adaptive road networks in rural communities </td> </tr> </tbody> </table>	Men	Women	<ul style="list-style-type: none"> Increase men's knowledge and skills on adaptation transport procedures in line with their mobility needs 	<ul style="list-style-type: none"> Increase women's knowledge and skills on adaptation transport procedures in line with their mobility needs Involve women in capacity-building on the design and implementation of climate adaptive road networks in rural communities 	<ul style="list-style-type: none"> Ensure that data collected and analysed on adaptation procedures is disaggregated by sex Data on men's and women's transportation needs in rural areas should be collected. Communication on research findings should highlight the gender differences on the impact of climate change and adaptation procedures adopted by women and men. 	<ul style="list-style-type: none"> Numbers of men and women trained to design and implement adaptive road network projects List of transport needs of rural women and men List of adaptive measures adopted by women and men to meet their mobility needs
Men	Women										
<ul style="list-style-type: none"> Limited mobility of men affects economic activities like transporting crop harvests to market centres. 	<ul style="list-style-type: none"> Limited mobility of women to cart their wares, such as farm produce to the market Limited access to maternal and child health facilities and services Women are less involved in decision-making on the design and implementation stages of plans in the transport sector. 										
Men	Women										
<ul style="list-style-type: none"> Increase men's knowledge and skills on adaptation transport procedures in line with their mobility needs 	<ul style="list-style-type: none"> Increase women's knowledge and skills on adaptation transport procedures in line with their mobility needs Involve women in capacity-building on the design and implementation of climate adaptive road networks in rural communities 										

9 Chapter Nine:

DISASTER RISK REDUCTION, CLIMATE CHANGE AND GENDER: MODULE EIGHT

Introduction

Climate change presents significant challenges to the socio-economic development of Ghana. This is because the country relies heavily on rain-fed agriculture⁸³ and climate delicate sectors such as agriculture and forestry. Climate change is manifested in Ghana through rising temperatures, erratic rainfall patterns, rising sea levels and a high incidence of weather extremes and disasters.⁸⁴ In all the agroecological zones of Ghana, temperatures are estimated to rise between 0.8°C and 5.4°C for the years 2020 and 2080, respectively. Within the same period, average annual rainfall total is estimated to decline by between 1.1 percent and 20.5 percent, but with increasing variability.⁸⁵ The major challenges in all the agroecological zones of Ghana are extreme weather events, including flooding and droughts.

Floods affect more people in Ghana than any other natural disaster.⁸⁶ The immediate impacts of floods in Ghana are the loss of lives, destruction of properties and livelihoods, and destruction of infrastructure,



83 Antwi-Agyei, P., Fraser, E. D., Dougill, A. J., Stringer, L. C. and Simelton, E. (2012). Mapping the vulnerability of crop production to drought in Ghana using rainfall, yield and socio-economic data. *Applied Geography*, 32(2), 324–334.

84 United Nations Development Programme. (2012). National Climate Change Adaptation Strategy. Retrieved from https://www.adaptation-undp.org/sites/default/files/downloads/ghana_national_climate_change_adaptation_strategy_nccas.pdf (accessed on 19 September 2020).

85 Ibid.

86 Rain, D., Engstrom, R., Ludlow, C. and Antos, S. (2011). Accra Ghana: A city vulnerable to flooding and drought-induced migration. Case study prepared for cities and climate Change: Global Report on Human Settlements, 2011, 1–21.

including roads, all of which render many people homeless.⁸⁷ For instance, the 2007 flooding in northern Ghana and 2015 floods in Ghana rendered many people homeless, destroyed infrastructure and resulted in the loss of many lives.⁸⁸ Apart from floods, there are other disasters such as droughts, bushfires, health epidemics, earth tremors and infestations of pests and parasites.⁸⁹ For instance, in 1983, the dry conditions from three years of drought along with an extended harmattan (season with dry winds) led to extensive bush fires in the north of the country. USAID reported that up to 35 percent of total food production was destroyed in certain regions.^{90,91} Similarly, 5,489 fire outbreaks were recorded in the country, resulting in a total economic loss of US\$ 6,834,424 in 2013 (United Nations Office for Disaster Risk Reduction).⁹² The impact of these disasters is exacerbated by weak early warning systems, slow response mechanisms, poorly planned infrastructure development, and high levels of poverty.⁹³

Climate-change-related gender issues in the disaster risk reduction sector

The impacts of disasters differ among individuals and societies, depending on the level of exposure; the level of vulnerability; and the capacity to reduce, adapt to, and recover from the potential negative consequences.⁹⁴ Statistics on past disasters from governments and international organizations indicate that women, children, the elderly, and people living with disabilities are the most affected.^{95,96,97} In Ghana, women's vulnerability to natural disasters has been attributed to their inadequate access to economic resources in general and, in particular, lower levels of access to education and information that would allow them to read and act upon disaster warnings.⁹⁸ Women also tend to live by, and work closely with, natural resources and geographical features that are most affected by disasters and shocks. This is also worsened by cultural norms, which sometimes limit women's ability to make snap decisions in disaster situations. Additionally, in some cases, the clothes they wear and/or their unpaid care work (of children, the sick and/or the elderly) and household responsibilities may restrict their range of movement to escape disasters (particularly water-related hazards).⁹⁹

87 Mensah, H. and Ahadzie, D. K. (2020). Causes, impacts and coping strategies of floods in Ghana: a systematic review. *SN Applied Sciences*, 2, 1–13.

88 Asumadu-Sarkodie, S., Owusu, P. A. and Rufangura, P. (2015). Impact analysis of flood in Accra, Ghana. *Advances in Applied Science Research*.

89 National Disaster Management Organisation. (2012). Ghana's Disaster Profile. Available online: <http://www.nadmo.gov.gh/index.php/ghana-disaster-profile> (accessed on 19 September 2020).

90 Dei, G. J. (1988). Coping with the effects of the 1982–83 drought in Ghana. The view from the village. *Africa Development/ Afrique et Développement*, 107–122.

91 United States Agency for International Development (USAID). (1984) Ghana – food shortage. Office of U.S. Foreign Disaster Assistance. Disaster Case Report. USAID, Washington, DC.

92 United Nations Office for Disaster Risk Reduction. (2020). Disaster risk profile – Ghana. Retrieved from <https://www.undrr.org/publication/disaster-risk-profile-ghana> (accessed on 19 September 2020).

93 Apronti, P., Osamu, S., Otsuki, K. and Kranjac-Berisavljevic, G. (2015). Education for disaster risk reduction (DRR): linking theory with practice in Ghana's basic schools. *Sustainability* 7 (7): 9160–9186.

94 Kelman, I. (2011). Understanding vulnerability to understand disasters. Canadian Disaster Management Textbook, Canada: Canadian Risk and Hazards Network (cap. 7).

95 Tarazona, M. and Gallegos, J. (2011). Recent Trends in Disaster Impacts on Child Welfare and Development 1999–2009. Global Assessment Report on Disaster Risk Reduction. London, United Kingdom: Children in a Changing Climate.

96 Save the Children. (2007). Legacy of disasters: the impact of climate change on children. London, UK: Save The Children UK

97 Enarson, E. P. (2000). Gender and natural disasters. Geneva: International Labour Organization.

98 Aboagye, D. (2012). Living with familiar hazards: Flood experiences and human vulnerability in Accra, Ghana. *Articulo-Journal of Urban Research*.

99 Habtezion, S. (2016). Gender, climate change adaptation and disaster risk reduction, 41. Retrieved from http://www.undp.org/content/dam/undp/library/gender/Gender and Environment/Training Modules/Gender_Climate_Change_Training Module 2 Adaptation DRR.pdf

Case study 1: Floods in Accra and northern Ghana

Accra, the capital of Ghana, has been selected as a case study due to its long history of flood hazards¹⁰⁰ (Douglas et al., 2008; Amoako and Frimpong Boamah, 2015) and rapid informal urbanization (Yeboah, 2003; Karley, 2009). Flooding has been a major issue in Accra since the early 1930s (Karley, 2009), with significant flood disasters recorded in 1973, 1986, 1995, 1999, 2001, 2002, 2010 and 2011¹⁰¹ and a devastating occurrence in June 2015 that killed over 150 residents (Amoako, 2016). Flooding in Accra has been broadly attributed to intensive rainfall and poor management of storm water; uncontrolled urbanization and slum development in flood zones; and impacts of climate variability and change (Amoako and Frimpong Boamah, 2015). Floods in Accra cause wide-ranging and serious damage to houses, roads and bridges. Accra floods result from heavy continuous rainfall (Gomda, 2015). Other causes of these floods are a result of the improper settlement planning in Accra, choked gutters that block the drainage system and a few other human factors. The floods result in heavy traffic on the roads in the city and also a halt in commercial activities as markets are flooded and workers get trapped (Amoako, 2016). At least 25 people died from the June 2015 flooding directly, while a petrol station explosion caused by the flooding killed at least 200 more people (Amoako, 2016). Furthermore, flooding in the Upper East Region, Upper West Region, and Northern Region in 2007 affected 332,600 people and caused the death of 56 according to the government (United Nations Country Team [UNCT], 2007). Some 35,000 houses, 1,500 kilometres of road and 1,000 hectares of crops were destroyed (UNCT, 2007). Verification visits by the Upper East Region Ghana Education Service office revealed that a total of 39 classrooms had collapsed (UNCT, 2007).

Several projects have been put in place to address these varying factors causing floods in Accra and northern Ghana using the locally based risk management approach. Disaster risk reduction is more likely to be sustainable when projects start by addressing local development issues and integrating risk management into existing development initiatives. Locally based risk management supports communities to manage and reduce disaster risk, as well as foresee and control the emergence of new risks. This is done through work on local governance, and community planning and preparedness, as well as through individual participation and motivation. For instance, the Community Resilience through Early Warning Project was established in 2013 under the partnership of the UNDP and the Government of Ghana through the National Disaster Management Organisation with funding support from the Norwegian Government to deliver some of the key components of the Ghana Plan of Action for Disaster Risk Reduction and Climate Change Adaptation programme 2005–2015. Through the implementation of hazard mapping, early warning, and vulnerability assessment and reduction, the project aimed to achieve (i) a reduction of economic and human losses and damages from priority disasters, and (ii) establishment of effective early warning and communication for priority hazards to reduce disaster risks in 10 pilot sites. The project developed the first ever multi-hazard early warning system (EWS) and an EWS Master Plan for Ghana. In addition, early warning communication equipment was procured and installed at the National Disaster Management Organisation headquarters and in 20 subnational offices. Additionally, flood and drought hazard, vulnerability and risk maps at current (2010) and future scenarios (2050) have been developed for the entire country and the 10 pilot districts. Over 30 young professionals from the National Disaster Management Organisation, the Water Resource Commission and the Hydrological Service Department, comprising men and women (gender sensitive), have been trained in conducting risk assessment and updating of risk maps and effective EWS operations. Seven automated weather stations have been installed to provide highly accurate forecasts and provide real time meteorological information to the EWS (UNDP, 2020).

100 Rain, D., et al. (2011). Accra Ghana: A city vulnerable to flooding.

101 Ibid.

Table 16: Increasing severity of floods affecting livelihoods and safety – case studies from Accra and northern regions of Ghana

Climate change impact: Increasing severity of floods, which affects the livelihoods and safety of people living in flood prone areas											
Applying a gender lens to the problem	Applying a gender lens to possible adaptation options	Recommended gender-sensitive approaches	Gender-sensitive indicators								
<p>Problem: Damage caused to homes and livelihoods by floods</p> <table border="0"> <tr> <td style="background-color: #004a87; color: white; padding: 5px;">Men</td> <td style="padding: 5px;"> <ul style="list-style-type: none"> ■ Homes and belongings lost due to flood damage ■ Crops and livestock destroyed, leading to lost income sources </td> <td style="background-color: #004a87; color: white; padding: 5px;">Women</td> <td style="padding: 5px;"> <ul style="list-style-type: none"> ■ Homes and belongings lost due to flood damage ■ Unpaid domestic work increased to clean homes and care for displaced and injured family members ■ Women have less access to information on weather warnings, partly due to low ownership of mobile phones. ■ Women may have different perspectives but are often excluded from consultative and decision-making processes. </td> </tr> </table>	Men	<ul style="list-style-type: none"> ■ Homes and belongings lost due to flood damage ■ Crops and livestock destroyed, leading to lost income sources 	Women	<ul style="list-style-type: none"> ■ Homes and belongings lost due to flood damage ■ Unpaid domestic work increased to clean homes and care for displaced and injured family members ■ Women have less access to information on weather warnings, partly due to low ownership of mobile phones. ■ Women may have different perspectives but are often excluded from consultative and decision-making processes. 	<p>Solution: Introduction of early warning system (EWS)</p> <table border="0"> <tr> <td style="background-color: #004a87; color: white; padding: 5px;">Men</td> <td style="padding: 5px;"> <ul style="list-style-type: none"> ■ Men can be trained to install, operate and maintain flood EWSs. </td> <td style="background-color: #004a87; color: white; padding: 5px;">Women</td> <td style="padding: 5px;"> <ul style="list-style-type: none"> ■ Women can be trained to install, operate and maintain flood EWSs. ■ Increase women's access to information on relevant weather warnings/ weather events </td> </tr> </table>	Men	<ul style="list-style-type: none"> ■ Men can be trained to install, operate and maintain flood EWSs. 	Women	<ul style="list-style-type: none"> ■ Women can be trained to install, operate and maintain flood EWSs. ■ Increase women's access to information on relevant weather warnings/ weather events 	<ul style="list-style-type: none"> ■ Ensure that equal numbers of men and women are trained and have access to EWS technology and protocols ■ Map out the planned local coverage of warnings to track whether all men and women receive the warnings ■ Debrief with community discussions after each flood, on the effectiveness of the EWS operation, with extensive feedback and suggestions for improvement gathered from both women and men ■ Establish mechanisms and practices that ensure that both men and women can voice their concerns, and perspectives are taken on board 	<ul style="list-style-type: none"> ■ Numbers of men and women trained to install and operate EWS equipment ■ Numbers of men and women with access to mobile phones and other technology relevant to EWSs ■ Percentage of male and female local population who receive the warning on time (based on prevention simulations and post-event reports) ■ Number of men and women represented on EWS steering committees ■ Planning documents separately identify priorities and issues of concern raised by men and women
Men	<ul style="list-style-type: none"> ■ Homes and belongings lost due to flood damage ■ Crops and livestock destroyed, leading to lost income sources 	Women	<ul style="list-style-type: none"> ■ Homes and belongings lost due to flood damage ■ Unpaid domestic work increased to clean homes and care for displaced and injured family members ■ Women have less access to information on weather warnings, partly due to low ownership of mobile phones. ■ Women may have different perspectives but are often excluded from consultative and decision-making processes. 								
Men	<ul style="list-style-type: none"> ■ Men can be trained to install, operate and maintain flood EWSs. 	Women	<ul style="list-style-type: none"> ■ Women can be trained to install, operate and maintain flood EWSs. ■ Increase women's access to information on relevant weather warnings/ weather events 								

Source: Adopted from UN Women (2015)

10 Chapter Ten:

TOOLS FOR GENDER INTEGRATION IN CLIMATE CHANGE PROJECTS: MODULE NINE

10.1 Stakeholder engagement and partnerships

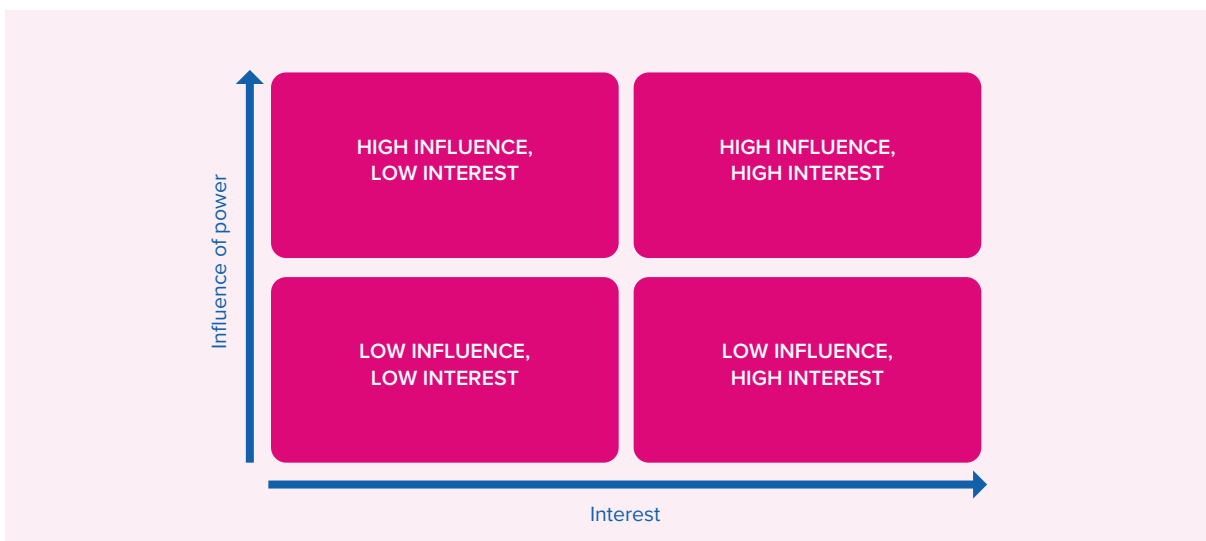
To ensure that men and women are involved in climate action processes, gender-sensitive stakeholder engagement and partnership is critical. Stakeholders are critical players in the mainstreaming of gender into climate because of the multiplier effect of climate change on several sectors. It is therefore important to engage stakeholders from the planning stage of a programme through to implementation and evaluation. This helps to ensure partnership and sustainability of programmes after a project’s lifespan. Stakeholders must be engaged throughout all stages of the project cycle, but most importantly this should be undertaken at the outset of a project in the design phase.

There are steps in engaging stakeholders for programmes and these are outlined as follows.

First, **stakeholder identification**: This is an exercise that helps identify all stakeholders working in gender and climate change. These stakeholders could be public institutions, private institutions, CSOs, NGOs and individuals within communities and organizations. The selection of a stakeholder is based on previous and current work that the stakeholder is doing related to gender and climate change.

Second, **stakeholder mapping**: Stakeholder mapping is about understanding who key decision makers and actors are, but also about identifying the institutions and people that do not have much influence but have an interest in coordinating gender and climate mainstreaming efforts. At this stage, some importance is attached to the influence and interest of the institutions and individuals identified as stakeholders. It also provides an opportunity on how to engage each of the stakeholders and at what stage of the programme that each of them will be relevant. It also offers some management skills by helping to identify which stakeholders can work together, and then pinpointing those that cannot be put on the same task. Figure 2 provides an example of a

Figure 2: Stakeholder mapping



stakeholder mapping chart. The 'interest' identifies the various categories of stakeholders working in gender and climate change. Specifically, the stakeholder mapping helps to identify four groups of stakeholders – low influence and low interest stakeholders; high influence and low interest stakeholders; low influence and high interest stakeholders; and high influence and high interest stakeholders.

Stakeholder mapping and analysis is critical for three phases in the project cycle:

- **Design phase:** In this phase of the project, a detailed gender-sensitive stakeholder analysis, involving all key stakeholders, will help shape the development of strategic actions and inform risk analysis.
- **Implementation phase:** This phase helps identify who, how and when female and male stakeholders should be involved in project activities.
- **Monitoring and evaluation phase:** This phase serves as a reminder, providing a benchmark against which projects can monitor and evaluate the effectiveness of their engagement with both female and male stakeholders.

The benefits of gender-sensitive stakeholder mapping include: identifying and understanding the positions and interests of all programme stakeholders; building commitment to and ownership of the programme among communities and individuals; strategic partnering; identifying potential risks to achieving programme goals (which is important for effective risk mitigation strategies); identifying the stakeholders who actively support, are blind to or oppose gender equality; and supporting accountability.

Conducting stakeholder mapping and analysis

There are a number of ways to undertake a gender-sensitive stakeholder analysis. Workshops, focus groups and interviews are three common approaches. During the course of the project cycle, all three methods can be used, matching the technique to the evolving needs of the project. There are essential steps in gender-sensitive stakeholder analysis. They include: (i) identifying the key female and male stakeholders and their interests (positive or negative) in the project; (ii) assessing the influence of, importance of, and level of impact upon each female and male stakeholder; and (iii) identifying how best to engage female and male stakeholders.

Guiding questions for stakeholder mapping and analysis

1	Who is directly responsible for decisions on issues important to the project (W/M)?
2	Who holds positions of responsibility in interested organizations (W/M)?
3	Who is influential in the project area (both thematic and geographic areas) (W/M)?
4	Who will be affected by the project (W/M)?
5	Who will promote/support the project, provided that they are involved (W/M)?
6	Who will obstruct/hinder the project if they are not involved (W/M)?
7	Who has not been involved up to now but should have been (W/M)?
8	Who has been involved in the area (thematic or geographic) in the past (W/M)?
9	Who has the capacity to contribute to gender equality in the project?
10	Who has the capacity to hinder efforts at gender equality in the project?

Finally, forming partnerships with stakeholders helps to implement programmes in a sustainable manner. In addition, it helps to avoid conflicts and duplications of projects through effective coordination of programmes.

10.2 Gender-sensitive monitoring and evaluation framework

What is monitoring and evaluation?

Monitoring is the systematic process of collecting, analysing and using information to track a programme's progress towards reaching its objectives and to guide management decisions. Monitoring usually focuses on processes, such as when and where activities occur, who delivers them and how many people or entities they reach.

Evaluation is the systematic assessment of an activity, project, programme, strategy, policy, topic, theme, sector, operational area or institution's performance. Evaluation focuses on expected and achieved accomplishments, examining the results chain (inputs, activities, outputs, outcomes and impacts), processes, contextual factors and causality in order to understand achievements or the lack of achievements. Evaluation aims at determining the relevance, impact, effectiveness, efficiency and sustainability of interventions and the contributions of the intervention to the results achieved.

What is a gender-sensitive monitoring and evaluation framework?

Gender-sensitive monitoring and evaluation:

- helps assess whether the project's planned activities are achieving gender equality goals;
- provides feedback on how the activities affect the various groups of beneficiaries, including women and men, disaggregated by age, ethnicity, caste, education, employment and geographical location; and
- measures and evaluates gender-related changes over time, showing how far and in what ways the gender equality objectives are being achieved.

Why gender-sensitive monitoring and evaluation?

- To assess the extent to which programmes and projects are meeting (or have met) their gender equality objectives.
- Gender-sensitive monitoring and evaluation is necessary for states because they are required to monitor the progress towards gender-equality goals.
- Gender-sensitive monitoring and evaluation can help monitor the reduction of the gender gap, which prevents all men and women from enjoying equal rights and improving their well-being.
- To know to what extent programmes affect women and men of different socio-economic groups.

When is the right time for gender-sensitive monitoring and evaluation?

It must start at the early stage of the project identification, and continue throughout the project cycle. Starting after project implementation would be too late.

What are the two key features of gender-sensitive monitoring and evaluation?

It is based on a gendered participatory approach.

In a gendered participatory approach, beneficiaries (women, men and community leaders) and different stakeholders actively participate in the monitoring and evaluation, for example, by contributing to the identification of gender-sensitive indicators.

When local people participate in the formulation of gender-sensitive indicators, they can measure their own progress and monitor changes against indicators that they have identified themselves.

It uses gender-sensitive indicators.

An indicator can be described as a reference point against which changes over time can be assessed.

A gender-sensitive indicator measures gender-related changes over time; that is the situation of men and women and the resulting gap between women and men.

Gender-sensitive indicators require the production of data that is disaggregated by sex, age, ethnicity and other socio-economic variables relevant to the project or programming context.

With a **gender-responsive indicator** we are trying to reflect an understanding of gender roles and inequalities to encourage equal participation, including equal and fair distribution of benefits. A **gender-responsive indicator** requires that activities are first designed to reflect an understanding of inequalities and gender roles, before it can measure equal and fair distribution of benefits.

Gender indicators can be based on (i) quantitative, sex-disaggregated statistical data – facts and figures; or (ii) qualitative changes – for example, judgements and feelings or perception.

Quantitative indicators focus on sex-disaggregated data and its change over time.

Some examples are the:

- changes in the proportion of adult population owning an asset (e.g. technology), by sex;
- numbers of men and women who participated in a particular initiative related to climate action in the sector;
- average number of hours spent on paid and unpaid work in the sector combined (total work burden) by sex; and
- number and percentage of personnel in sectoral institutions (government departments or units) who receive training on addressing climate change and gender in the sector.

Qualitative indicators are based on descriptive information.

Some examples are the:

- perceptions or opinions of women and men of the impacts of having forests under community-based protection;
- attitudes and behaviour towards the uptake of an initiative of change in the sector by sex;
- growth in knowledge and skills on climate change in the sector by sex;
- self-reliance and confidence to continue the initiative in the sector by sex; and
- confidence, independence or self-esteem of women and men in the sector to address climate change.

In projects and programmes, and for policies, different types of indicators may be required. These include those that measure: impact, outcome, output and input.

Impact indicators measure the achievement of the overall goal of the climate change initiative or policy. Impact indicators could include measurement of changes in attitudes, confidence and a sense of empowerment to continue with the climate change initiatives in the sector of focus.

Outcome indicators measure whether the programme is achieving the expected effects and changes in the short, intermediate, and long term.

Output indicators measure the more immediate results of the implementation of an activity such as the number of people trained.

Input indicators measure resources needed for the implementation of an activity or intervention such as human resources, materials, financial resources, etc.

11 Chapter Eleven:

COORDINATING GENDER AND CLIMATE CHANGE MAINSTREAMING EFFORTS: MODULE TEN

Effective coordination is critical for the successful integration of gender and climate change issues into various sectors, programmes and activities. Mainstreaming gender and climate change into various sector programmes and activities has not been effective due to poor coordination, limited technical capacity, lack of sex-disaggregated data and inadequate technical and financial resources across the various sectors. Every sector has its core mandate and climate change; however, there are cross-sectoral issues that are better addressed with coordination and collaboration among sectors. For example, issues in the transport and disaster risk sectors have an impact on the health sector.

The MoGCSP is the ministry responsible for coordinating all gender mainstreaming initiatives across sectors in the country. Coordination and collaboration through an effective mechanism will promote cross learning, sharing of experience, best practices and lessons learned across sectors for the achievement of the national objective of ensuring that women and men benefit from and contribute to climate action.

In addition, effective coordination and collaboration will promote efficient use of resources as these would prevent duplication and promote the use of technical expertise available across sectors. Funding is required to effectively promote gender equality; a cross-sectoral approach to resources mobilization will be more effective.

Finally, the key institutions responsible for gender and climate change mainstreaming should be adequately resourced to be able to institute effective monitoring exercises across all sectors to help identify problems and provide solutions to them.

Gender budgeting

Gender budgeting is an approach to achieve equality between women, men, girls, boys and people living with disabilities by focusing on how public resources are collected and spent. It is an approach to budgeting that can improve budgeting when fiscal policies and administrative procedures are structured to address gender inequality. It can create a situation where equal priority is placed on the needs of women, men, boys, girls and the vulnerable in terms of allocation and distribution of resources at all levels. The national budget should be gender-sensitive and gender budgeting should be incorporated at all levels of the local governance structure – metropolitan, municipal, and district assembly plans.

Gender budgeting is important because it allows for inclusive and sustainable growth. There are, however, critical factors that are essential for effective gender budgeting. These are: political will and political leadership; high-level commitment of public administrative institutions; improved technical capacity of civil servants; civil society involvement; and sex-disaggregated data. For gender issues to be properly addressed in a budget, it is important to do budget tagging at the implementation stage. When properly done, one can say that **gender budgeting is good budgeting**.

(Source: Stotsky, 2016)

Glossary

Climate change	A long-term change in the average weather patterns in a locality or region. Changes are evident in variations in the pattern and intensity of rainfall, wind and temperature.
Climate change adaptation	Seeks to lower the risks posed by the consequences of climate change. Adaptation measures can be in the form of infrastructure improvement such as improving the quality of road surfaces to withstand hotter temperatures or as simple as farmers growing drought-resistant varieties of crops.
Climate change mitigation	Efforts to reduce or prevent emission of GHGs. It addresses the root causes of climate change. It can be done through the use of new technologies and renewable energies, through energy efficiency, changing management practices or consumer behaviour.
Climate resilience	This refers to the ability to recover from the effects of climate change. It is the ability to anticipate, prepare for, and respond to hazardous events, trends or disturbances related to climate.
Climate variability	The climatic parameter of a region varying from its long-term mean. These changes result from atmospheric and oceanic circulation, caused mostly by differential heating of the sun on earth.
Climate vulnerability	The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
Community managing role	This refers to activities primarily undertaken by women at the community level, as an extension of their reproductive role, to ensure the provision and maintenance of scarce resources for collective consumption such as water, health care and education. This is often voluntary unpaid work undertaken during 'free' time.
Community politics role	This refers to activities undertaken primarily by men at the community level, organizing at the formal political level, often within the framework of national politics. This work may be paid directly and/or result in increased power and status for men.
Gender	Culturally-/socially-based expectations of the roles and behaviours of men and women. The term distinguishes the socially constructed from the biologically determined aspects of being male and female. Unlike the biology of sex, gender roles and behaviours, and the relations between women and men (gender relations) can change over time, even if aspects of these roles originated in the biological differences between sexes.
Gender analysis	This is an analytic social science tool that is used to identify, understand and explain gaps between males and females that exist in households, communities and countries, and the relevance of gender norms and power relations in a specific context.
Gender awareness	A general understanding of socially determined differences between women and men based on learned behaviour, which affect their ability to access and control resources. This awareness needs to be applied through gender analysis into projects, programmes and policies.
Gender blindness	The failure to recognize that the needs of men and women are different. A gender-blind approach assumes that gender is not an influencing factor in projects, programmes or policies.

Gender-disaggregated data	This refers to a process of data collection and analysis that focuses on issues of particular roles and positions within society. Statistics on household distance from water or fuel, for example, have different implications for women and men since it is usually women who spend time collecting those necessities. In addition, the gender disaggregation of data such as household income, food consumption, malnutrition rates, etc. can be useful to demonstrate inequalities.
Gender discrimination	This occurs when individuals are treated differently on the basis of their sex. This affects both women and men. For example, when a woman is paid less for the same work as a man, this gender discrimination leads to women being disproportionately represented among the poor, the less educated, the underpaid, the assaulted and the powerless.
Gender disparity	This occurs when women and men, girls and boys, have different access to resources, services or rights because of their gender. For example, in a number of countries (especially in sub-Saharan Africa) women lack an independent right to own land or property, or to conduct/own a business. In addition, women often have less access to resources such as legal information and financial resources. While women and girls bear the most direct burden of these inequalities, inevitably the costs harm everyone in society. Among the poor, these disparities contribute to significant risk and vulnerability in the face of family or personal crisis and during economic hardships, including those arising from climate change.
Gender division of labour	This term refers to the division of paid and unpaid work between women and men in the private and public sphere (European Commission, 2004). It concerns the allocation of the tasks and responsibilities of men and women at home, at work and in society according to patterns of work that are felt to be acceptable in a particular place and time.
Gender equality	Giving women and men the same entitlements to all aspects of human development, including economic, social, cultural, civil and political rights. It requires that women and men are given the same level of respect and opportunities to make choices and power to shape the outcomes of these choices.
Gender equity	Fairness of treatment for women and men, according to their respective needs. This may include equal treatment or treatment that is different but which is considered equivalent in terms of rights, benefits, obligations and opportunities. In the development context, a gender equity goal often requires built-in measures to compensate for the historical and social disadvantages of women. Equity is a means to achieve equality.
Gender gap	This is a measure of gender inequality. It is a useful social development indicator. For example, the 'gender gap' between boys and girls can be measured in terms of the educational levels achieved.
Gender mainstreaming	The process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal of gender mainstreaming is to achieve gender equality.
Gender needs assessment	The identification and analysis of the needs of men and women and the impact an intervention is likely to have on these men and women.

Gender perspective	<p>This term means several things:</p> <ul style="list-style-type: none"> ■ A differentiation is made between the needs and priorities of men and women ■ The views and ideas of both women and men are taken seriously ■ The implications of decisions on the situation of women relative to men are considered: who will gain and who will lose ■ Action is taken to address inequalities or imbalance between men and women
Gender responsiveness	<p>Outcomes that reflect an understanding of gender roles and inequalities and that make an effort to encourage equal participation and equal and fair distribution of benefits. Gender responsiveness is accomplished through gender analysis and gender inclusiveness.</p>
Gender roles	<p>Gender roles are defined by society and are different for women and men. For example, in some societies men are expected to farm, while in others it is the responsibility of women. Traditional gender roles often mean that women have multiple responsibilities in the home, the workplace and the community while men's roles are most often focused in the workplace and community and not as much in the home. The roles that men and women play are influenced by the cultural and sometimes religious norms of the society, their social status in that society, other people's expectations and the image the individual wants to develop for him/herself. Changes in gender roles often occur in response to change in economic, natural or political circumstances, including development efforts.</p> <p>Both women and men play multiple roles in society. The gender roles of women may be identified as reproductive, productive and community managing roles, while men's roles are often categorized as either productive or involved in community politics. Men are often able to focus on a particular productive role, and play their multiple roles sequentially. Women, in contrast, must often play their roles simultaneously and balance competing claims on time for each of these roles.</p>
Gender sensitivity	<p>Being aware that women and men have different needs, concerns, constraints, knowledge and experiences as a result of their different roles and responsibilities, levels of access to resources, and their participation in decision-making, which needs to guide any development intervention.</p>
Gender stereotype	<p>A stereotype is formed when men or women are persistently attributed certain characteristics or roles, thereby creating the belief that these are invariably linked to gender. Gender stereotyping reinforces gender inequality by portraying assumptions and conditions that maintain the inequality as biologically or culturally fixed. For example, it is a stereotype that all women are more nurturing and therefore should be responsible for childcare.</p>
Gender-responsive budgeting	<p>A tool that aims to integrate gender perspectives into the budgeting process. Also referred to as gender-sensitive budgeting, this practice does not entail dividing budgets for women; however, it ensures that actions within a policy, project or programme aimed at addressing gender inequalities or women's empowerment are budgeted to facilitate their implementation.</p>
Matriarchy	<p>This term refers to a form of social organization in a culture or a specific community in which descent and inheritance are traced through the female line of a family. Globally, the prevalence of matriarchal societies is less than that of patriarchal ones, but some do exist in West Africa, i.e. the Ashanti and Akan in Ghana.</p>

Patriarchy	This term refers to a form of social organization, prevalent in most societies globally and in Africa, in which descent and inheritance are traced through the male line of a family. The term 'patriarchy' is also used in the social development sector to connote the tendency for male ownership and control over resources in patriarchal societies, which is made possible by the exclusion and subjugation of women's position in society. Thus, patriarchy is viewed as a social system that underpins and sustains gender discrimination. Patriarchy is maintained by an assertion of male superiority that claims to be based on biological differences between women and men, cultural values or religious doctrines.
Practical gender needs	These are immediate perceived needs such as water, shelter, clothing, basic health care and food. In the case of women, they are based on women's and girls' existing roles (within the gender division of labour) and do not challenge their subordinate position. These needs arise from and reinforce women's and girls' reproductive and productive role.
Productive role	This refers to work done by both women and men for payment in cash or kind. It includes both market production with an exchange value, and subsistence/home production with an actual use value, but a potential exchange value. For example, in agriculture, productive activities include planting, animal husbandry and gardening done by farmers themselves or for other people as employees.
Sex	The biological attributes of a person. Typically, a person is either born a female or a male.
Strategic gender needs	These are long-term in nature and often related to structural changes in society. These are identified based on an analysis of women's and girls' subordination in society, and when addressed, should lead to the transformation of the gender division of labour and challenge the power relations between women and men, girls and boys.
Women's empowerment	The process in which women reflect upon their reality and question the reasons for their situation in society. It includes developing alternative options and taking opportunities to address existing inequalities. It enables women to live their lives to their full potential based on their own choices while respecting their rights as human beings.

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