

**Smallholder Women Farmers' Experiences Of Climate Change And Empowerment
Strategies In The Upper East Region Of Ghana**

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LIST OF ACRONYMS

AAFORD	Affordable Agricultural Financing for Resilient Rural Development Project
AEO	Agricultural Extension Officer
CARE	Cooperative for Assistance and Relief Everywhere
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CENSODEV	Centre for Social Mobilisation and Sustainable Development
CFSVA	Comprehensive Food Security and Vulnerability Analysis
COVID-19	Coronavirus disease 2019
FBOs	Farm-based organisations
FAW	Fall army worm
FPE	Feminist Political Ecology
FGD	Focus Group Discussion
FGM	Female Genital Mutilation
FAO	Food and Agriculture Organisation of the United Nations
GAD	Gender and Development
GADS	Gender and Agricultural Development Strategy
GASIP	Ghana Agricultural Sector Investment Programme
GMet	Ghana Meteorological Agency

GoG	Government of Ghana
GSS	Ghana Statistical Service
IITA	International Institute of Tropical Agriculture
IPCC	Intergovernmental Panel on Climate Change
KNM	Kassena Nankana Municipality
MoFA	Ministry of Food and Agriculture
MoGCSP	Ministry of Gender, Children, and Social Protection
NGP	National Gender Policy
NGO	Non-governmental Organisation
PRIDE	Promotion of Rural Initiatives and Development Enterprises
SAPs	Structural Adjustment Programmes
SDGS	Sustainable Development Goals
SGs	Savings Groups
SOCO	Ghana Gulf of Guinea Northern Regions Social Cohesion
SSA	Sub-Saharan Africa
SWFs	Smallholder Women Farmers
UN Women	United Nations Programme for Gender Equality and the Empowerment of Women

VSLA Village Savings and Loans Associations

WFP World Food Programme

WID Women in Development

ABSTRACT

Women's empowerment is essential for attaining gender equality, enhancing food security, and fostering sustainable development. Despite Ghana's dedication to gender equality and the empowerment of women in official policies, the gender inequality gap persists across various sectors of the economy, including the agricultural sector. In light of recent insights into the significance of local knowledge in addressing the adverse effects of climate change, this dissertation examines smallholder women farmers' (SWFs) perception of climate change, coping strategies, and their experience of (dis)empowerment in the Ghana Agricultural Sector Investment Programme (GASIP) in the Upper East Region, using feminist political ecology, Kabeer's empowerment framework, and Global Affairs Canada's Gender Equality and Empowerment Measurement (GEM) Toolkit. The study employed key informant interviews, in-depth semi-structured interviews, focus group discussions, and document analysis to understand how SWFs are perceiving and coping with climate change effects, as well as the impact of the GASIP on their (dis)empowerment in Ghana. The findings show empirical evidence that SWFs have observed the changing climate in terms of increasing hot temperatures, erratic rainfall, floods and drought, as well as environmental change, including a decline in soil fertility, invasion of fall armyworm (FAW) and bird pests. Women's vulnerabilities are profoundly interconnected with discriminatory social and patriarchal norms as well as structural barriers and inequalities that marginalise their access to productive agricultural resources such as land, fertiliser, and tractor services. The dissertation also found that women beneficiaries in GASIP mixed-gender farm groups exhibited greater empowerment, 'positive gender impact' than those in women-only farm groups across all six empowerment categories of the GEM tool: economic, knowledge, social, self-confidence, physical security, and children's well-being. The findings underscore the need for the government of Ghana and its development partners to integrate gender transformative strategies in development programmes, paying attention to gender relations and intersectional realities of women's and men's lived experiences, accounting for age, class, ethnicity, race, socio-cultural norms, education, religion, marital status, (dis)ability, and sexual orientation. The government should collaborate with all key stakeholders, including traditional authorities, Tindanas (Earth Priests), state bureaucrats, and donor organisations, to promote the pursuit of women's access to land and other agricultural inputs as a human right and promote effective representation of marginalised voices in current land reform processes and structures to ensure gender equality.

DEDICATION

This dissertation is dedicated to my dearest mother, Ama Mentebea Pobi. I love you, Mum.

God bless you for all your love and sacrifices.

And to women farmers, this one is for you all.

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But thanks be to God! He gives us the victory through our Lord Jesus Christ. (1 Corinthians 15:57)

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CHAPTER ONE: INTRODUCTION

Overview

The introduction chapter sets the context for the research. It begins with an overview of contemporary issues and challenges arising from climate change, highlighting the compounding effects of gender inequalities and geographical disparities that influence vulnerabilities to the impacts of climate change in Ghana. Following this contextualisation, the chapter raises and situates the research questions within the broader context of climate change, access to agricultural resources, and women's empowerment. Finally, this chapter concludes by outlining the structure of the dissertation.

Climate change is a preeminent human and environmental threat of the 21st century (Arora-Jonsson, 2011; Sultana, 2022). The adverse effects of climate change and associated vulnerabilities have developed swiftly, and the escalation of climate-related risks is significantly affecting individuals' livelihoods and overall well-being on a global scale (Adu et al., 2018; Derbile et al., 2016; Sultana, 2022). Recent assessments conducted by the Intergovernmental Panel on Climate Change (IPCC) reveal that the increase in global temperatures, water shortages, and the prevalence of more extreme weather events are anticipated to negatively impact global food security and impede efforts to achieve the Sustainable Development Goals (SDGs), particularly in sub-Saharan Africa (SSA) (IPCC, 2023). The ongoing ramifications of the novel coronavirus (COVID-19), as well as conflicts and wars within and among nations, alongside breaches of national and international trade agreements, have further ravaged agricultural production, compounding the challenges of climate change, poverty, food insecurity, and unsustainable livelihoods of smallholder farmers (Agyei-Holmes et al., 2023; Paudel et al., 2023; Rasul, 2021). These compounding crises have distinctive impacts on specific communities and on men and women in sub-Saharan Africa.

Ghana faces substantial challenges due to the detrimental effects of climate change, which indirectly or directly affect its economy, food security, and sustainable development. The Government of Ghana forecasted a projected annual increase in the mean temperature of up to 0.80 °c by 2020 and 5.40 °c by 2080 across all agroecological zones (Kosoe & Ahmed, 2022). The forecasted temperature also exhibits significant regional variation, with temperatures in the Upper East Region of Ghana anticipated to rise more rapidly than the country's coastal regions. Several studies have substantiated that rural communities and impoverished rural populations have already been experiencing the repercussions of climate change, due to erratic rainfall, rising temperatures, and increased frequency of droughts and floods (Arfasa et al., 2024; Codjoe et al., 2012; Derkyi et al., 2018). Consequently, the Upper East Region is expected to face more adverse impacts of climate change compared to other regions in Ghana (Arfasa et al., 2024). These stressors have implications for farmers' agricultural yield, livelihoods and food security in northern Ghana.

Another reason making the Upper East Region an interesting case study for climate change research is the significant regional disparities (between the North and South) in food security in Ghana. Ghana has recorded a steady improvement in food security, but with conspicuous variations between northern and southern regions, as well as between rural and urban areas. Despite national-level progress, malnutrition, hunger, and food insecurity persist, specifically in northern Ghana, where 90% of families' livelihoods are primarily from the agriculture sector (World Food Programme, 2024).

Even more disturbing is the high prevalence of abject poverty in northern Ghana. Longitudinal research in the 1970s and 1980s by anthropologist Ann Whitehead highlighted the long persistence of poverty in northern Ghana. Among households in the north-east, the research revealed that 62 per cent were in the same poverty category in 1989 as they had been in 1975,

while 13 per cent of households were poorer over the same period (Whitehead, 2006, as cited in Nyantakyi-Frimpong, 2014). For instance, in 2016, spatial inequality worsened, and poverty in the northern regions recorded the highest incidence of extreme poverty at 45.2 %, while extreme poverty declined to zero in Greater Accra in the south in the same period (World Food Programme, 2024)

Agricultural production in northern Ghana is crucial to nutrition, food security, and well-being, and smallholder farmers face the greatest challenges to food production. Around 80% of the population is in the agricultural sector; yet in 2009, one in every five persons was food insecure, while one in every nine children under age five died of malnutrition (Biederlack and Rivers, 2009 as cited in Nyantakyi-Frimpong, 2014). The sad truth and shocking revelation is that in northern Ghana, smallholder farmers in food crop production are those who experience persistent food insecurity and malnutrition (Nyantakyi-Frimpong, 2014). According to the Comprehensive Food Security and Vulnerability Analysis (CFSVA) Ghana in 2020, food insecurity disparities between northern and southern Ghana are pervasive, with the highest prevalence of food insecurity ranging from 23- 49% in the northern regions (with the highest in Upper East Region with 49%) as compared to 4-10% in the southern (CFSVA, 2020). Similarly, the World Food Programme confirms that malnutrition and anaemia (resulting from vitamin and mineral deficiencies) affect more women and children in northern Ghana compared to the south (World Food Programme, 2024).

Despite observable ecological and physical indicators of climate change impacts on food security in northern Ghana, some researchers contend that non-climatic stressors substantially influence the vulnerability of smallholder farmers to hunger (Nyantakyi-Frimpong & Bezner-Kerr, 2015; Antwi-Agyei et al., 2017). Consequently, the adverse impacts of climate change and vulnerability do not affect men and women farmers equally. The most prominent non-

climatic explanations are often linked to gender inequality, largely determined by “deeply ingrained societal norms around gender rights, social positioning and the gender division of labour” (Glazebrook & Tiessen, 2011, p. 249). Socially constructed gendered roles and responsibilities have a significant bearing on the degree of exposure to climate shocks, leading to several patterns of vulnerability to these shocks (IPCC, 2014). This is particularly evident when gender inequalities and social and economic justice are not addressed in development initiatives.

Furthermore, women farmers in northern Ghana encounter unique challenges, as they face a range of interconnected obstacles originating from structural and socio-cultural gender inequalities. These issues serve to further exacerbate the gender disparity in agricultural productivity. These challenges include limited levels of educational attainment, high rates of gender-based violence (Alo et al., 2023) dehumanising and harmful cultural practices that violate human rights, such as female genital mutilation (FGM) (Alhassan & Anyinzaam-Adolipore, 2021; Sakeah et al., 2019), widowhood rites (Ba-an et al., 2022; Djankpa, 2021), restricted participation in both personal and public decision-making processes, and the unequal distribution of time dedicated to domestic and unpaid care responsibilities (Asiedu, 2018). The gender gap in agriculture not only harms women farmers but also compromises the attainment of Sustainable Development Goals (SDGs), particularly: SDG 1. End poverty in all its forms everywhere and 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture (Boudalia et al., 2024; Vercillo, 2021).

Research Problem Statement

Despite Ghana’s dedication to gender equality and the empowerment of women in official policies, a substantial gender inequality gap persists, including within the agricultural sector. For instance, the global gender gap score in 2024 shows Ghana ranked poorly at 88th out of

146 countries, reflecting significant disparities between women and men nationwide, especially among rural populations involved in agriculture (World Economic Forum, 2024). Women are disproportionately affected by the adverse impacts of climate change, which extend beyond agricultural productivity to encompass food and nutritional security, health, water and energy resources, climate-induced disasters, migration, and conflict (Awiti, 2022; Denton, 2002; Pearse, 2017).

In pursuit of development strategies to close the gender inequality gap in agricultural production, governments and international organisations acknowledge that empowering women and girls is crucial to addressing this disparity. Furthermore, women's and girls' empowerment is essential for attaining gender equality, enhancing food security, and fostering sustainable development (Ghale et al., 2018; Onyeaka et al., 2024). It is observed in the academic literature that the empowerment of women and girls is, therefore, not merely a moral prerogative but a practical necessity (Ghale et al., 2018). Furthermore, it is acknowledged that, in recent years, the perception of climate change forms a crucial aspect of the responses and behaviours of households and individuals, especially women, concerning climate issues. This is attributable to the fact that adaptation is linked to the perception of the severity of threats posed by climatic events (Haque et al., 2023; Teye et al., 2015). Lastly, it is observed in the academic literature (Ankrah et al., 2020; Baffour-Ata et al., 2024; Derkyi et al., 2018; Vercillo et al., 2022) and in policy statements (Calvin et al., 2023; Oxfam et al., 2018; Wudil et al., 2022), that access to farmland and agricultural inputs are critical enablers for farmers' mitigation of the adverse effects of climate change.

The nature of gender gap adaptations to climate change must therefore be understood as multidimensional, with attention to the intersectional realities that affect diverse groups of people.

Additionally, the issue of gender inequality has garnered considerable attention. However, development interventions can sometimes have unintended and significant consequences. More often than not, interventions aimed at resolving or alleviating one problem may inadvertently cause new problems or exacerbate existing ones (Kent, 2018). For instance, Kent's (2018) study highlighted the challenges of development interventions such as those targeting women's shea butter industry to improve women's financial income and wellbeing when those interventions did not also address intra-household negotiation and compromises between men and women (such as commercialisation of women's rights over this resource). Instead of empowering poor women, these interventions led to low remuneration and exploitation. Emphasis on women's economic productivity can exacerbate women's triple burden (production, reproduction, and community work) by increasingly already extensive workloads (Kent, 2018; Moser, 1995). Therefore, a narrow focus that considers women's increased economic production within the development process (the Women in Development approach) without a comprehensive understanding of sociocultural and power structures will result in disempowerment and exacerbate gender inequality. The highlighted knowledge gaps arise from inconclusive evidence among feminist scholars regarding the implementation of agricultural development interventions and their impact on women's lived experiences, as well as the overarching goal of achieving gender equality.

This dissertation fills these knowledge gaps by utilising an intersectional lens to examine the perceived effect of climate change on local knowledge among smallholder women farmers (SWFs) in the Upper East Region in Ghana, and how this perceived knowledge influences their farming practices and coping strategies in response to the adverse impacts of climate change. Furthermore, considering a global call for a balanced integration of context-specific and universally applicable indicators to design and evaluate initiatives aimed at women's empowerment (A. Z. Abdu, 2023), this dissertation further examines the impact of a Ghana

Agricultural Sector Investment Programme (GASIP) (Bossen, n.d.; Ministry of Food and Agriculture, n.d.) on beneficiaries, from women-only farm groups and mixed-farm groups, to explore emic meanings of women empowerment, and how the various aspects of the programme promote or impede SWFs' agency and empowerment in Upper East Region in Ghana. This dissertation is the first qualitative study to examine the impact of GASIP on beneficiaries through a gender-intersectional lens in Ghana. Empirical research is necessary to guide the development of culturally appropriate strategies and to inform sustainable development interventions that address women's needs.

Paying attention to the structural nature of gender inequalities and the causes of vulnerabilities to the adverse impact of climate change will contribute to advancing our understanding of systemic and structural challenges to food security and well-being, achieving the SDGs, as well as improving our understanding of women's agency. Moreover, investing in women's empowerment is one of the surest ways to achieve gender equality, poverty eradication, food security, climate justice, and sustainable development (Chant, 2012; Essilfie et al., 2024). Feminist scholars have consistently emphasised the intersection between women's empowerment and their agency, asserting that a woman who controls her economic future possesses autonomy and influence over her life (Chant, 2012; Essilfie et al., 2024; Kabeer, 1996).

This dissertation aims to provide evidence-based knowledge for the Government of Ghana, NGOs, and development agencies to specifically address gendered climate-related vulnerabilities to food insecurity in northern Ghana; to close the gender gap in agricultural production; and to reduce inter-regional disparities. Additional information about the GASIP programme and Ghana's commitments to gender equality and women's empowerment are addressed, respectively, in Chapters 2 and 4.

Three research questions guided this study:

1. How do smallholder women farmers perceive the impact of climate change on their agricultural production, and how are they mitigating it to sustain their livelihoods in the Upper East Region?
2. How are women farmers accessing farmland as a strategy to mitigate the adverse effects of climate change and enhance agricultural production in the Upper East Region?
3. What are the experiences of women beneficiaries regarding the GASIP and its impact on their overall empowerment in economic aspects, knowledge, physical security, self-confidence, social networks, and any other recognised dimensions of women's empowerment?

To examine these questions, I employed a qualitative methodology including semi-structured in-depth interviews, focus group discussions, and document review. Once research was completed and findings were analysed, I considered these findings in relation to the analytical constructs of the broader scholarship in gender and development studies to provide an explanation of climate change vulnerability and the impact of development programme interventions on women's (dis)empowerment.

This dissertation provides evidence indicating that the vulnerabilities resulting from climate and environmental changes impacting smallholder women farmers' agricultural productions in northern Ghana are not inherently intrinsic nor solely attributable to the ongoing climate-related hazards reported (including erratic rainfall, extreme temperatures, floods, and the invasion of pest birds and armyworms), as is traditionally perceived. Instead, these vulnerabilities are profoundly interconnected with discriminatory social and patriarchal norms—structural barriers and inequalities—that marginalise their access to productive

agricultural resources such as land, fertiliser, and tractor services. The findings further demonstrate that, despite the prevalence of structural barriers and inequalities, women's agency, voice, and empowerment also exist and need to be documented, understood and explored in the effort to find solutions.

Definition of Key Terms and Concepts

Several key terms that recur throughout the dissertation are defined in this section.

Climate change means a “change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods” (United Nations Framework Convention on Climate Change, 1992).

Vulnerability is defined by IPCC in relation to climate change as “the degree to which geophysical, biological, and socio-economic systems are susceptible to, and unable to cope with, adverse impacts of climate change” (Schneider et al., 2007, p. 781) This dissertation expands upon this definition and conceptualises vulnerability as the social context of a system exposed to climatic hazards, along with the inherent barriers experienced by individuals concerning their capacity to cope with - and adapt to - climate change hazards.

The term gender relations is a “[s]pecific subset of social relations uniting women and men as social groups in a particular community, including how power – and access to/control over resources – is distributed between the sexes” (European Institute for Gender Equality, 2016)

Gender relation, therefore, is defined as socially constructed, pertaining to how individuals are expected to interact with others and how others relate to them, based on their gender within a particular community (Global Affairs Canada, 2022).

Smallholders “are small-scale farmers, pastoralists, forest keepers, fishers who manage areas varying from less than one hectare to 10 hectares. Smallholders are characterized by family-focused motives such as favouring the stability of the farm household system, using mainly family labour for production and using part of the produce for family consumption” (FAO, 2013, p. 1). This dissertation adopts and extends this definition by further conceptualising smallholders as farmers who have engaged in agricultural production for ten years or more.

Structure of Dissertation

The comprehensive body of work in this dissertation comprises eight (8) chapters that present detailed information on key theoretical, conceptual, and methodological ideas underpinning the research topic; the empirical findings from the field; the analysis, interpretations, and meanings deduced from these findings; and finally, the empirical and practical implications of the research.

Chapter Two offers a comprehensive review of the pertinent literature, relevant theories, and concepts that have informed this dissertation. The chapter begins with a discussion of contemporary issues related to climate change hazards, the perception of climate change, and the increasing gender vulnerabilities caused by structural barriers and inequalities that affect the livelihoods of smallholder farmers. The chapter focuses on gender access to productive agricultural resources, which are used as coping strategies for the adverse impacts of climate change on crop farming. The next section of the chapter addresses development programmes through farm-based organisations (FBOs), focusing on debates about their impact on gender equality and aspects of empowerment. It concludes by outlining the theoretical and conceptual frameworks that underpin the dissertation, drawing on feminist political ecology, the concept of empowerment, and the Gender Equality and Empowerment Measurement (GEM) Tool as analytical lenses to develop a comprehensive theoretical and methodological structure for

understanding the research problems, formulating research questions, and selecting appropriate data collection methods.

Chapter Three lays out the research methodology, explicitly rooted in feminist methodologies and epistemologies. The epistemological underpinnings of feminist standpoint theory are emphasised to justify the research's epistemic prioritisation of marginalised groups, including women. The chapter briefly introduces the research sites and justifies their selection for the study based on their geographic, socio-economic, and demographic characteristics. The chapter next details the data collection process, including the research methods (key informant interviews, in-depth semi-structured interviews, focus group discussions, and document analysis), strategies, and tools employed to collect and analyse the data to meet the research objectives. Considering the necessity of a 'do no harm' commitment within feminist research, this chapter further delineates my procedures for incorporating ethical considerations and the implications of my engagement with research participants, including informed consent, confidentiality, and benefits. I conclude the chapter with a self-reflection on my own positionality as a researcher, through a reflexive review of my personal fieldwork experiences.

In Chapter Four, I present the research content. The chapter provides a contextual overview of Ghana to offer insights into regional disparities concerning economic and social characteristics, as well as gender inequality, thereby facilitating an understanding of the systemic factors that influence agricultural production and the implementation of GASIP.

Chapter Five is the first of three empirical chapters. It presents evidence regarding the perceptions of smallholder women farmers regarding climate and environmental change, as well as the corresponding coping strategies they implement to mitigate perceived climatic hazards to their livelihoods. The chapter further investigates structural barriers, gender inequalities, and women's agency in accessing resources to mitigate the impact of climatic

hazards on their livelihoods. This chapter addresses the first research question of this study: How do smallholder women farmers perceive the impact of climate change on their agricultural production, and how are they mitigating it to sustain their livelihoods in the Upper East Region? The findings presented in this chapter emerge from semi-structured in-depth interviews and focus group discussions.

As the second empirical chapter, Chapter Six of this dissertation addresses the second research question: How are women farmers accessing farmland as a strategy to mitigate the adverse effects of climate change and enhance agricultural production in the Upper East Region? The chapter explores gendered access to land and farms, the ongoing structural barriers and gender inequalities, and women's agency. The chapter concludes by discussing the findings. The findings presented in this chapter emerge from semi-structured in-depth interviews and focus group discussions.

Chapter Seven addresses the final research question: What are the experiences of women beneficiaries regarding the GASIP programme and its impact on their overall empowerment in economic, knowledge, physical security, self-confidence, social networks, and other recognised dimensions of women's empowerment? The chapter introduces the subjective meaning of empowerment as perceived by women beneficiaries in their daily lives. It then explains the impact of GASIP on six identified empowerment indicators, based on the experiences and perceptions of both women and men beneficiaries. The chapter further explores the barriers and support mechanisms for empowerment. It concludes with a discussion of the findings. The findings presented in this chapter are based on semi-structured in-depth interviews and focus group discussions. Chapter Eight provides a conclusion for the dissertation, reflecting on the discussion from each section and summarising this dissertation's empirical, theoretical, and methodological contributions to scholarly knowledge. The

conclusion also presents recommendations for future actions to tackle the structural barriers to gender equality and ensure opportunities for women's empowerment. I conclude this chapter with suggested directions for future research.

CHAPTER TWO: LITERATURE REVIEW

Introduction

This chapter provides a review of the relevant literature that has shaped the design of this research. The chapter synthesised the nuances of ideologies and empirical evidence on various aspects of the research subject. The chapter begins by presenting the theoretical framework and conceptual lens I utilise for this research: feminist political ecology and Kabeer's empowerment framework. Together, these interconnected frameworks offered a roadmap for the research process and the interpretation of the data that surfaced in this study. In the second section, I narrowed the focus to a discussion of contemporary issues related to climate change, with a specific focus on perceptions of climate change and the compounding gender vulnerabilities to its impacts on SWFs. The final section of this chapter highlights the conceptualisation and measurement of empowerment, as well as the impacts of project interventions on women's empowerment through women-only or mixed farm groups.

Theoretical Frameworks

The theoretical framework employed in this dissertation brings together insights from feminist political ecology (FPE) and the concept of empowerment. I employ the overarching lens of FPE in this dissertation, as it enables a more comprehensive understanding of inequality, empowerment, and agency. In this section, I provide an overview of how FPE and the concept of empowerment inform the study.

Feminist political ecology

Feminist Political Ecology (FPE), an academic field that seeks to understand human-environment interactions, was pioneered by Dianne Rocheleau, Barbara Thomas-Slayter, and Esther Wangari, scholars drawing on insights from political ecology, cultural ecology, and

feminist geography (Rocheleau et al., 1996). FPE emerged from the necessity to integrate feminist disciplines with environmental studies. Scholars within FPE explore how gender interacts with the environment while highlighting how and why women and other marginalised groups face unequal access to - and control over – resources: inequalities that are frequently shaped and reshaped by gendered social relations, systems of power, and positions (Rocheleau et al., 1996; Rocheleau & Nirmal, 2015). FPE uses feminist objectives and practices to explain the unequal distribution of ecological resources and its implications for women’s empowerment, resilience development, and agricultural livelihoods.

FPE challenges assumptions about women’s perceived inherently closer relationship to nature (critiquing ecofeminism) and demonstrates the need for more careful consideration of access to - and control of- resources, the triple burden, and the gender division of labour (Rocheleau, 1995; Moser, 1995; Carr, 2013; Vercillo, 2021). The environment and gender are both constructed based on cultural and social perceptions, which are closely connected to the sexual division of labour, through the intersection of other variables such as class, race, religion, and ethnicity (Kettel 1993 cited Marchand & Parpart, 2003; Carr, 2013; Vercillo, 2021). According to the FPE scholarship, gender is not biological or a signal of women; rather, gender is “the process through which differences based on presumed biological sex are defined, imagined, and become significant in specific contexts” (A. Nightingale, 2006, p. 171). Furthermore, gender is viewed not as a fixed and stable identity, but as an ongoing process through which subjectivities are constituted and performed through discourse and everyday practices (Butler, 1997; A. Nightingale, 2006). Conceptualising gender as relational prevents the essentialisation of women and men in development planning.

Another central concept of FPE in this dissertation is the importance of intersectionality (Mollett & Faria, 2013; Nightingale, 2006; Rocheleau et al., 1996), which is “an approach to

gender that studies the interconnections amongst various dimensions of social relationships and subject formation” (Elmhirst, 2015, p. 523). Intersectionality is a concept that helps us to understand how a person’s socio-political categorisations or axes of power, such as gender, class, disability, ethnicity, religion, and race, as interconnected variables that generate different forms of discrimination and privilege (Collins, 2000; Runyan, 2018). Intersectionality reflects the diversity and the unique identity and experiences of women. Intersectionality illuminates the imbricated and multiple dimensions along which power is distributed and oppression is operationalised (Agarwal, 1992; Crenshaw, 2013).

Drawing on these insights, FPE scholars have expanded the concept by examining how subject identities are (re)produced in and through material ecological relations within specific contexts, with an emphasis on various types of intersectional relations. Some examples include, but are not limited to the following: race (Mollett & Faria, 2013), caste (Nightingale, 2006), biodiversity (Ofosu-Budu & Hanninen, 2020) and livelihood (Carr, 2013). For example, Vercillo’s (2021) study in northern Ghana on gendered farm resources entitlements revealed how women’s dependence on men to farm under agricultural commercialisation, climate change, coupled with women’s weaker entitlement rights to resources, rendered ethnic minority women more vulnerable to land dispossession than women from the dominant ethnic group due to competition for fertile farmlands. She argued that the ways that “intersecting identities shape access to land also complicate understandings of the role of community outsiders who are both the dispossessors of land and those who are intensely vulnerable to dispossession” (Vercillo, 2021, p. 1).

FPE has advanced our understanding of agricultural development and rural restructuring for decades (Hovorka, 2006; D. E. Rocheleau et al., 1996). FPE scholarship is dedicated to challenging patriarchal conceptions and phenomena in ways that foster social and ecological

transformation for women and other marginalised groups (Melotte, 2022; D. E. Rocheleau et al., 1996; Vercillo, 2021). Although women constitute at least 43% of the global agricultural workforce, they are still often excluded from the land management decision-making process, even in instances where they are landowners (Leslie et al., 2019, cited in Melotte, 2022). In regions characterised by patriarchal social structures, men often possess exclusive access to authority over environmental resources such as agriculture and irrigation (Apusigah, 2009; Tsikata & Yaro, 2014; Yaro, 2010).

The extensive body of research on gender and agricultural production in Africa indicates that women farmers do not participate equally with men in opportunities for improved quality of life provided by heightened agricultural commercialisation (C. Doss et al., 2015; Nyantakyi-Frimpong & Bezner Kerr, 2017; Wooten, 2003). Wooten's (2003) research in examining the relationship between gender and commodity production in Central Mali reveals how men have priority in accessing the most lucrative markets and the gender-biased system that places women at a disadvantage, causing them to lose income and an important base for empowerment. In a similar study, development projects aimed at assisting communities in achieving food security often exacerbate existing inequalities in gender relations and environmental degradation in the Gambia. When men landowners faced a threat to their land access, extension agents helped them establish orchards for food security, inadvertently displacing women's gardens (Schroeder, 1997). In these studies and similar studies, FPE has emphasised gender roles, gender inequalities and patriarchy as they intersect with other axes of power in determining access to agricultural resources, as well as the ways in which environmental rights and practices are gendered (Mollett & Faria, 2013; Nightingale, 2006; Rocheleau et al., 1996).

Another significant theme in FPE is the critique of the men-dominated scientific field and the process of establishing epistemology (Sundberg, 2016). FPE scholars evoke silenced voices and critically examine the politics of scientific knowledge production, which often result in their silence. Feminist scholars have highlighted the oppression of women and their marginalisation in scientific practices that eliminate them as knowers, and exclude their experiences or label them as inferior (Haraway, 1994; Harding, 1986). FPE offers an analytical framework to advance the practical, epistemological and procedural basis of political ecology and environmental studies. It does so by exploring new forms of solidarities in knowledge production that account for women's experiences in environmental knowledge, practices and debates, an imperative to achieve social justice and gender equality (Elmhirst, 2011; A. Nightingale, 2006; Sultana, 2021). For example, Syhre & Bruckner (2018) studied the situated knowledge of women engaged in urban agriculture in Nairobi. The women farmers held the responsibility for determining the crops to cultivate in their gardens, owing to their extensive knowledge of African Indigenous Vegetables (AIVs), which represent the most culturally and nutritionally suitable foods for their families (Syhre & Brückner, 2018).

As a framework, FPE draws attention to local agency, recognising the resourcefulness of marginalised women and men in environmental struggles and socio-ecological constraints (Hovorka, 2006; D. E. Rocheleau, 1995). Since the inception of FPE, poststructuralist approaches to power, subjectivity, women's agency, and ecological transformation for women and other marginalised groups have been at the core of the FPE framework (Mollett & Faria, 2013; D. E. Rocheleau et al., 1996). Empirical studies illuminate the nuanced and complex (re)negotiation in which "women are defining and redefining their constraints and seeking out alternative opportunities for empowerment and action" across scales (Hovorka, 2006; D. E. Rocheleau et al., 1996; Syhre & Brückner, 2018). For instance, Hovorka's (2006) empirical study demonstrates how, during agrarian restructuring in Botswana, women farmers adapted

their subjugated gender identities by engaging in poultry farming as a means to resist exclusion from traditional men's oppression in commercial agriculture. Women farmers renegotiated their marginalised position within the commercial urban agricultural sector, despite existing structural constraints, to gain formal land rights and to find indirect access to household necessities, such as water.

I draw on these insights from FPE to examine SWFs' perceptions of climate change, coping strategies, and access to farmland. I focus on understanding how women's situated knowledge in agriculture shape their perception of climate change and adaptation. Additionally, I examine how various axes of difference affect women's access to farmland in the Upper East Region, Ghana. I have chosen to examine the categories that were consciously expressed in my interview and focus group transcripts during fieldwork. The main markers of social identity that are salient in my sample include gender, age, marital status (single, divorced, or married), birth position of the husband, location, and community type (irrigated communities remain a strong marker that also differentiates women). I examine how these categories of difference intersect and, in turn, shape access to land.

Furthermore, this study draws upon a feminist post-structural framework to conceptualise the household as a contested, complex, and political site rather than a traditional, simple unitary system, which assumes the "household to be an unproblematic site, and where resources are assumed to be in a single conjugal fund" (Nyantakyi-Frimpong, 2017, p. 64).

FPE scholarship also urges us to provide a platform for marginalised voices to amplify their experience and influence. In this dissertation, I utilise the framework of FPE to amplify the voices of SWFs in Ghana regarding their perceptions of climate change and coping strategies for addressing its adverse effects.

Empowerment Framework

Empowerment is a multifaceted construct characterised by various terminology and definitions present within the literature (Alkire et al., 2013; Ibrahim & Alkire, 2007; Lombardini et al., 2017; Richardson, 2018). The concept of empowerment is associated with terms such as “agency, autonomy, self-direction, self-determination, liberation, participation, mobilisation and self-confidence” (Ibrahim & Alkire, 2007, p. 6) and is also dynamic, since change is a constant phenomenon in life (Staples, 1990). It is widely acknowledged that through empowerment, individuals and groups become cognizant of unequal power relations, gain control over their lives, and acquire a greater voice to overcome inequality in the home, workplace and community (Global Affairs Canada, 2022).

Various authors highlight that women’s empowerment is a complex and multidimensional process that can be interpreted differently by individuals (Kabeer, 1999; Mosedale, 2005), and progress in specific dimensions does not inherently signify progress across all dimensions (Alkire et al., 2013; Mason, 2005). For instance, women may be empowered in decision-making regarding market transactions, but lack agency at the household level in interactions with their husbands (Mason, 2005). In addition, many authors have argued that the components of women’s empowerment differ distinctly from those associated with other socially marginalised groups. Hence, there is a need for an intersectional lens for policies and initiatives aimed at enhancing women’s development (Alkire et al., 2013; Malhotra et al., 2002; Pratley, 2016).

Turning to the definition of empowerment, many authors define women’s empowerment in different ways, and there are several understandings. For example, Keller and Mbwewe (1991) describe women’s empowerment as “a process whereby women become able to organise themselves to increase their own self-reliance, to assert their independent right to make choices

and to control resources which will assist in challenging and eliminating their own subordination” (Malhotra et al., 2002, p. 6). From the World Bank report 2000/2001, applying to impoverished individuals and marginalised groups like my research participants in Ghana, Narayan-Parker further describes empowerment as “the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives” (Narayan-Parker, 2002, p. 14).

Another prevalent component of empowerment in the literature is the concept of human agency, drawing on Amartya Sen’s (1999) concept of an agent as “someone who acts and brings about change, and whose achievements can be judged in terms of her own values and objectives” (Glennister et al., 2018, p. 4). Primarily drawing from the perspectives of human rights and feminism, these authors’ definitions incorporate the notion that a fundamental shift in perceptions, or ‘inner transformation’, is crucial for the formulation of choices (Malhotra et al., 2002). Particularly, women and girls ought to be able to define their own self-interest and choices, and to perceive themselves not only as capable but also as entitled to exercise them (Kabeer, 2001b; Malhotra et al., 2002; Sen, 1999). Kabeer (2001b) advances this discourse and describes this process as “thinking outside the system” and as challenging the status quo. Kabeer (1998, 2001) provides a valuable definition of empowerment that encapsulates the common elements of various definitions and can be applied across diverse contexts where development interventions are involved. According to Kabeer, empowerment “is about the process by which those who have been denied the ability to make strategic life choices acquire such an ability” (Kabeer, 1999, p. 435).

First, to be empowered, one must have been disempowered. Second, empowerment cannot be conferred by a third party. Instead, those who seek empowerment must actively claim it. Hence, development organisations, such as non-governmental organisations (NGOs), may create

conditions conducive to women's empowerment, but they cannot enforce it. Only women have the capacity to empower themselves to make decisions and advocate for their own interests. Third, while the pursuit of women's empowerment has typically involved collective efforts, empowerment interventions often prioritise individual-level approaches. And finally, empowerment is an ongoing process rather than a product (Kabeer, 2001b; Mosedale, 2005)

Kabeer's definition of empowerment (summarised above) serves as a reference point in my study. Kabeer's definition is particularly compelling because the ability to exercise or expand the capacity of individuals or groups to make choices is inextricably linked to the construct of power. Furthermore, these choices must be assessed within two domains: the extent to which genuine alternatives are available and/or whether there are substantial costs associated with a particular choice; and the consequences of choice – the degree to which choices are strategic life choices and hold value as opposed to choices that are insignificant to an individual. As a result, changes in an individual's ability to make a choice reflect changes in three interrelated dimensions: resources (preconditions), agency (process) and achievement (outcome). I shall now proceed to elucidate the three dimensions of empowerment in detail.

Resources

The first dimension of empowerment is resources. These resources encompass both economic materials and various human and social resources that enable individuals or groups to exercise agency or expand their ability to make choices. Economic resources, which are the more conventional way of understanding resources, include money, as well as access to other resources such as land, agricultural inputs, food, and housing. The multiplicity of social relationships and institutional arrangements that allow an individual to access education, improved knowledge, and skills are considered human and social resources.

Among the three dimensions of empowerment, the resources dimension may initially seem the easiest to measure. Nevertheless, Kabeer draws our attention to the complexity in measuring resources, even when these resources are narrowly defined in material terms, such as access to farmland or fertiliser.

Kabeer posits that empowerment literature often discusses ‘access to resources’ generically, suggesting a relationship between women and resources inherently clarifies the choices available to them. Kabeer emphasises that, resources reflect potential rather than actual choices. The way changes in women’s resources affect their choices depends, in part, on other conditions that influence their decision-making. The distribution of resources is governed by institutional rules and norms that give some actors authority over others in determining access to—and ownership and control of—resources within that institution. As an example, in my research communities, land is owned and inherited by men through patriarchal inheritance norms. Men are endowed with decision-making authority over women’s access to land, which can be in dependency relationships, exploitative terms, or in a dignified way. Hence, Kabeer highlights that empowerment is concerned with the changing dynamics of resource acquisition, as well as an increase in access to resources.

To explain this further, Kabeer cited examples of what women’s access to land translates to within the socio-cultural setting, comparing the northern and southern plains of the Indian sub-continent. Among the Hindus, joint family property is a central tenet of inheritance practices, held in the coparcenary system by men to the exclusion of women. In contrast, Muslim women enjoyed the right to inherit property as individuals. Women’s entitlement over property is depicted in the Indian literature as a *de facto* rather than a *de jure* measure, with little differences between the Hindu and Muslim communities.

It is important to highlight that women's *de facto* entitlement to properties does not automatically enhance women's capacity to make strategic choices. As such, Kabeer (1997, 2001) asserts that the way a woman accesses property is of significant relevance for this element to be measurable. Additionally, in measuring empowerment, Kabeer cautions us to move beyond the simplistic 'access' to resources to define in ways that elucidate the potential for human agency and valued achievement. It is essential to examine the extent to which women's voices are represented regarding the resource in question and whether this influence of resources enables them to transition, as Anbouli (2012) posits, from a marginalised position to a central one. Hence, Kabeer's empowerment theory posits that measuring an individual's control over resources, alongside their access to them, is imperative for deriving meaningful conclusions concerning their degree of empowerment.

Agency

The second dimension of Kabeer's empowerment is agency, which is intrinsically connected to the concept of power. Kabeer defines agency as "the ability to define one's goals and act upon them" (Kabeer, 2001b, p. 21). Agency also includes the meaning, motivation, and purpose that drives the individual's sense of agency. Kabeer asserts that agency can be practised as an individual as well as by collective decision-making in various forms, including bargaining, negotiation, deception, manipulation, subversion, resistance and protest. An important nuance, however, is that agency can have positive and negative meanings in power terms. In this regard, when selecting a decision-making process as an indicator of empowerment, attention must be given to its consequential significance. She cited an example that women being involved in decision-making assigned to them by existing gender division of responsibilities conveys less insight into their power to make choices compared to evidence pertaining to strategic life choices that were previously denied to them.

Positively, in terms of ‘power to’, it signifies individuals’ capacity to define their own life choices, and to pursue their own objectives even in the presence of opposition from others. Conversely, agency may also manifest negatively as ‘power over’, meaning the capacity of an actor or actors to override the agency of others.

The work of Rowlands (1997) provides valuable insights into the operationalising of agency for assessing empowerment through the consideration of four types of power:

1. ‘power to’ the act of working towards one’s goals (creating new possibilities), 2. ‘power within’ the innermost desire to change one’s life (enhancing self-respect and self-acceptance), 3. ‘power with’, collective power or women acting together as agents to challenge existing inequities and improve their well-being (acting in group), 4. ‘power over’ the capacity of an actor or actors to override the agency of others (dominating others).

Empowerment can then be categorised as the process of strengthening one or more of these types of powers (Miedema et al. 2018 as cited in Meinzen-Dick et al., 2019) except ‘power over’ which conveys negative and coercive implications. The idea of ‘power over’ leads to a zero-sum game, such as the idea that an individual’s gain is another’s loss (Mosedale, 2005).

‘Power to’ is often discussed in the literature on agency because it views individuals as agents of change in their own lives (Ibrahim & Alkire, 2007). Empowerment based on ‘power to’ involves individuals gaining access to a comprehensive range of human abilities and potential for transformation (Rowlands, 1997), without undermining the capacity of what is achievable for another person, for instance, learning to read (Mosedale, 2005).

‘Power with’ is not merely the capacity to collaborate with others, but also an awareness of the significance of the collective, particularly when a group tackles a problem collectively, acting

in solidarity and unity (Rowlands, 1997). Oftentimes, this is cultivated through participation in collective actions or groups characterised by cooperation, mutual understanding, and the development of shared values and meanings (Rowlands, 1997). To foster critical thinking capable of challenging discriminatory norms and structural inequalities, women require a platform where innovative ideas can be deliberated and new demands arise (Mosedale, 2005).

‘Power within’ – Power within originating from within begins in the mind and is self-generated when women begin a critical re-evaluation of their lives (Batliwala, 1994)

Power within, for example, refers to assets such as self-esteem and self-confidence. In a sense, all power starts from here—such assets are necessary before anything else can be achieved. The internalization of such feelings of worthlessness is a well-recognized feature of women’s oppression and therefore many development interventions seek to bring about changes at this level. (Mosedale, 2005, p. 250)

Authors concur that these three forms power are interconnected. For instance, ‘power to’ is associated with ‘power with’, as women often increase their ‘power to’ through collaboration and solidarity with others (Rowlands, 1997). Additionally, ‘power to’ is related to ‘power within’, since women often require an enhanced sense of inner strength to feel capable to act (Pane Solis, 2022; Rowlands, 1997).

Achievement

The third dimension of Kabeer’s empowerment is achievement, which is based on Sen’s capabilities approach, emphasising the combination of resources and agency. Kabeer explained achievement as how individuals have been able to transform “prevailing inequalities in resources and agency rather than reinforcing them or leaving them unchallenged” (Kabeer, 2001b, p. 40).

According to Kabeer, achievement focuses on potential inequalities in individuals' ability to make choices, rather than on differences in the choices they pursue. Therefore, when there are gender differences in functioning achievements, it is imperative that we distinguish between differentials that reflect variations in preferences and priorities from those that signify a denial of choice. Kabeer asserts that measuring achievements must therefore be evaluated based on two qualities: achievements which are evidence of women's "greater efficacy as agents within prescribed gender roles and those which are indicative of women as agents of transformation" (Kabeer, 2001b, p. 39).

Kabeer explained her point using two studies. The first is Kishor's (1997) study, which explored the effects of both direct and indirect measures of women's empowerment achievements on two functioning achievements: infant survival rates and infant immunisation. From a multivariate analysis, Kishor (1997) reported that the indirect indicators (of women's empowerment) had a significantly greater influence in determining the value of achievement variables (as a mother) than the direct variable (as a wife) measures did. Kabeer argued that since infant care is women's pre-assigned gender role as mothers in Egypt, improvement in functioning achievement should be considered as increased efficacy in pre-assigned gender roles rather than proof of women's empowerment; thus, they improved at performing their gendered roles but were incapable of transforming discriminatory cultural gender roles.

Kabeer used another example from Zimbabwe, Becker's (1997) study, which explored the implications of women's empowerment on the use of contraception and the take-up of prenatal health care. Becker's findings revealed that the engagement of women in prenatal care is intricately linked to their assertiveness in household decision-making, being literate and being employed. Women with these qualities were able to transform pre-existing gender roles by practising non-routine customary health behaviour. In this case, women's capability to access

prenatal health care is indicative of transformative agency. The evidence of improvement of women's agency leading to a decrease in existing gender inequalities in functional achievements can be regarded as women's empowerment.

Kabeer's empowerment theory offers a robust conceptual and analytical framework for this study, owing to its nuanced deconstruction of choices and the three dimensions of empowerment. Therefore, Kabeer's theory aids in the assessment of the impact of the GASIP on women beneficiaries by considering both tangible and intangible aspects, as well as the interaction between structural inequalities and contextual factors that either promote or hinder their empowerment.

Challenges with Measurements of Women's Empowerment

Several challenges are associated with measuring women's empowerment (Malhotra et al., 2002; Richardson, 2018). To begin with, the conceptualisations of empowerment are multifaceted, which renders the identification and delineation of measurable indicators for assessing women's empowerment quite difficult (Mayoux, 1998). While there is consensus regarding the fundamental components of empowerment, the indicators that constitute this concept may differ across different cultural contexts (Glennerster et al., 2018; Malhotra et al., 2002), and the meaning and values associated with empowerment in one area may not hold relevance in another (Glennerster et al., 2018; Richardson, 2018). For instance, the autonomy of women to independently visit the market serves as a prevalent indicator of agency in many contexts (Ahmed et al., 2009; Al Riyami et al., 2004, as cited in Richardson, 2018). However, in some settings in Bangladesh, visiting the market alone is perceived as a reflection of low social status and can be indicative of the absence of a male presence in the household to undertake market visits, rather than a sign of agency (Kabeer, 2001a).

Furthermore, it is particularly challenging when women's own aims and perceptions of empowerment (emic) do not consistently align with the externally derived criteria for empowerment (etic) that have been established (Doneys et al., 2020; Meinzen-Dick et al., 2019). Additionally, women are not a homogeneous group; consequently, it may not be feasible to identify one or two sets of criteria for women's empowerment that are equally applicable to all women (Ganle et al., 2015). Therefore, externally derived criteria might not comprehensively capture the way women may or may not experience empowerment. In view of this, I concur with Mayoux (1998) that women's own strategies and aims are a fundamental component in elucidating programme outcomes and must be incorporated into any analysis of empowerment. That is why this research explores women's definition of empowerment, or who is an empowered woman.

Another highlighted challenge in the literature is that studies have not incorporated or explained a theoretical framework in the definition and conceptualisation of women's empowerment (Malhotra et al., 2002; Richardson, 2018; Van den Bold et al., 2013). Furthermore, although the distinction between various aspects of empowerment and the mechanisms through which empowerment may function is nuanced, studies frequently neglect to explicitly specify the dimensions of empowerment being measured, as well as the potential pathways through which women's empowerment might occur (Richardson, 2018). For instance, a systematic literature review revealed that evidence regarding the relationship between various aspects of empowerment and intimate partner violence (IPV) is mixed. Some studies conceptualise IPV as a resource influencing agency, while others view it as a component of agency or as a consequence of women's agency. Hence, the studies that explicitly state their conceptualisation of IPV and the proposed mechanisms (some of which may be context-dependent) can contribute to elucidating IPV's role within the empowerment process (Richardson, 2018).

To address this challenge in my research, I utilise a toolkit called the Global Affairs Canada GEM tool (Global Affairs Canada, 2022) and Kabeer's (1999; 2001) empowerment conceptual framework to measure women's empowerment within the GASIP project. The Global Affairs Canada GEM toolkit provides five key indicators of empowerment: economic, knowledge, physical security, self-confidence, and social, as well as other identified indicators from participants. In this research, the added indicator is children's well-being.

Another significant challenge is measuring an individual's ability (agency) to make strategic life choices, because it is often difficult to observe decision-making directly (Glennerster et al., 2018). Since we can often only observe the outcomes of choices and not the real decision-making process itself, it is difficult to determine whether changes in well-being are genuinely the result of women's increased capacity to make choices or not. For example, a study conducted in rural Bangladesh found that a greater number of married women participated in income-generating activities because of an empowerment program, which initially seemed to be an empowering labour market choice. However, in qualitative interviews with a subset of these women, it was revealed that some were working out of severe economic necessity, and many others had restricted autonomy in selecting their income-generating activities. Additionally, women were often confined to working within the domestic sphere (Field et al., 2018). These qualitative findings underscore the significance of examining the context in which women's empowerment indicators are measured. The following section discusses climate change and gendered access to productive resources.

Climate Change and Agricultural Development

Climate change is the most alarming and pivotal environmental issue impacting the discourse on agricultural development (Sedegah et al., 2023). Although the manifestations and effects of climate change and variability have existed for many years, the impacts have now escalated to

a level that necessitates more deliberate and concerted efforts to address them than previously. It is well documented that regions and communities contributing the least to climate change are the most disproportionately burdened and adversely affected by it over the decades and even centuries (Davis & Todd, 2017; Sultana, 2022). A significant consequence of climate change is that between 32 million and 132 million additional individuals may be driven into extreme poverty by 2030 (Jafino et al., 2020).

The IPCC has consistently emphasised that the repercussions of climate change will exacerbate food insecurity, resulting in a decline in agricultural production, particularly in sub-Saharan Africa (SSA) (IPCC report, 2014). According to the IPCC report, climate change will lead to multiple consequences for the livelihoods of smallholder farmers, their household incomes, and the well-being of individuals residing in rural communities that depend on agriculture. (FAO, 2016; Guodaar et al 2021).

Gender and climate change vulnerabilities in SSA

Although ‘gender’ has been recognised as an important factor within development policy since at least the 1970s, there is still a lack of practice to match the rhetoric. Thus, it is not surprising that the gender dimensions of climate change have largely been neglected. This is despite the fact that the effects of climate change are very likely to be gendered [...] The impact of climate change on gender relations has been neglected, due to the ‘gender-blindness’ still afflicting much development policy-making, and the slow response by development agencies to the development challenge presented by climate change. (Nelson et al., 2002, pp. 51–52)

Gender influences the access, allocation, and consumption of resources; how labour is coded, recoded, and the division of labour into productive and reproductive tasks, as well as the discursive definition and fulfilment of social practices and responsibilities (Glazebrook &

Tiessen, 2011; Jerneck, 2018). Feminist researchers in gender and development have argued that there are integral connections between gender inequalities and vulnerabilities to the perception and impacts of climate change (Arora-Jonsson, 2011; Glazebrook & Tiessen, 2011; Jerneck, 2018; Pearse, 2017).

The concept of gender vulnerabilities to the impact of climate change is not an ‘intrinsic or natural’ characteristic of women and girls, but rather serves as an expression of existing gender inequalities and power dynamics within societies worldwide (Denton, 2002; Pearse, 2017). These existing gender inequalities can manifest in many forms of intersecting axes, such as gender, socio-economic status, class, caste, marital status, ethnicity, type of employment, age, location, and more, and can vary over time within the same contextual place (Ankrah et al., 2020; Nyantakyi-Frimpong, 2020).

Denton (2002) argued that while climate change is a general threat to humanity, gender inequality is one among various ‘layers’ of vulnerability to differentiated climate impacts. Nelson et al. (2002) further highlight that the change impacts of drought and increased hazards are context-specific and influenced by normative expectations about women and men. Gender roles and expectations influence climate change, shaping individuals’ perceptions, experiences, and responses to risks and impacts. These vulnerabilities stem from unequal access to resources, cultural practices, limited decision-making authority, social norms, and institutional limitations (Arora-Jonsson, 2011; Denton, 2002). Gender roles are vital in climate change adaptation and mitigation, as men and women in agriculture encounter different impacts (Arora-Jonsson, 2011; Prakash et al., 2022). For instance, during the Asian Tsunami, it was reported that the highest number of fatalities involved were women and children under the age of 15. It has been documented that women in Bangladesh did not leave their houses during floods due to cultural restrictions on women’s mobility; additionally, those who attempted to

leave were unable to swim in the floodwaters (Demetriades and Esplen, 2008, cited in Arora-Jonsson, 2011). Therefore, as feminist researchers, “we need to examine the specific form of vulnerability and discrimination that people face in order to respond to it effectively” (Arora-Jonsson, 2011, p. 746).

Gender inequality is not one homogeneous entity, but a collection of distinct and inter-linked societal problems (Sen, 2001). Inequalities are a pervasive issue globally, significantly pronounced in developing nations where substantial disparities across the gender divide are highly prevalent (SGD report, 2023). Gender inequality in SSA manifests in various dimensions, including education, income, political representation, labour markets, health, access to productive inputs and assets, as well as bargaining power within households, and the division of labour (SDG Report, 2023). In a global monitoring report by UN Women, the authors on gender equality in the 2030 Agenda for Sustainable Development (UN Women, 2018) note that in the SSA region:

- For every 100 men aged 25-34, 127 women within the same age group experience extreme poverty.
- Adolescent girls are more likely to be school dropouts than adolescent boys, with rates of 48.1% compared to 43.6%.
- Women undertake 2.6 times more unpaid care and domestic work compared to men.
- Climate change disproportionately affects women and children, who are 14 times more likely than men to die in a disaster.

Women comprise 75% of the agricultural workforce in SSA (FAO, 2018, cited in Akpa et al., 2024). However, women’s engagement in agriculture is constrained by inadequate access to land, credit, and other productive resources, for various reasons (Akpa et al., 2024; Sen, 2001). For instance, Doss et al. (2015a) examined the situation in ten African countries: Zimbabwe,

Tanzania, Lesotho, Burundi, Burkina Faso, Uganda, Ethiopia, Malawi, Senegal, and Rwanda. The results demonstrate that only 12% of the women own land as sole owners, even though 39% of women own land as groups.

Moreover, women encounter unique pressures and risks associated with climate-induced resource scarcity (Arora-Jonsson, 2011; Pearse, 2017). As climate change has intensified, the scarcity of forests and other natural resources has led women to travel farther to fetch firewood and water, thereby exacerbating their exposure. Empirical studies have demonstrated that fuel and water scarcity are linked with increases in women's and girls' labour time, physical exertion, and their risk of gender-based violence as they are compelled to travel further to fulfil household roles and responsibilities (Ayanlade, 2024; Meyiwa et al., 2014; Singh et al., 2013). Nyantakyi-Frimpong (2020)'s research in Ghana's Upper West Region demonstrates that the intersecting forces of class, gender, age, religion, marital status, and health status expose smallholder farmers' vulnerability during extreme climatic events. The gender inequality in SSA is deeply ingrained in structural obstacles such as discriminatory laws, unequal resource distribution, limited opportunities for wealth creation by women, and a man-dominated power structure, which are supported by antiquated social institutions and cultural alignments (Alwago, 2023; Vercillo, 2021). Unequal power relations between men and women result in their unequal access to environmental resources and opportunities for coping strategies related to climate change and income diversification, indicating that environmental vulnerability and security affect women and men differently (Glazebrook & Tiessen, 2011; Pearse, 2017).

Furthermore, the number of women assuming the role of household heads in SSA is increasing. The growing migration of men for better job opportunities and a form of climate change adaptation in SSA has exacerbated the poverty and climate change vulnerabilities faced by many women in the rural areas (see Barbier et al., 2009; Denton, 2002; Grolle, 2015; Vinke et

al., 2022; Weinreb et al., 2020). For instance, in Burkina Faso, pastoralists (primarily men) chose to migrate from the extremely arid northern region to the southern part of the country, seeking higher rainfall and more fertile land. Some migrated to the Cote D'Ivoire, where many worked on cocoa plantations, leaving their wives' homes to support their households (Barbier et al., 2009). Therefore, the strategies of gendered adaptations to climate change must be understood as multidimensional and reflective of gender relations within specific socioeconomic and cultural contexts, not simply a matter of women's intrinsic vulnerability (Denton, 2002; Pearse, 2017).

Gender Decision-Making and Climate Change Vulnerabilities

Gender inequalities are apparent in official institutional responses to climate change: women are underrepresented in governing agencies, and climate policy can adversely impact groups of women (Denton, 2002; Pearse, 2017). The power dynamics between masculinity and femininity would not be comprehensively understood without attention to unequal gender relations and the invisible hierarchies that are created within them (Agarwal, 2016; D. E. Rocheleau et al., 1996; Sultana, 2021). In recent times, feminist development scholars have demanded a nuanced understanding of gendered relations to natural resources in agricultural development (Jerneck, 2018; Nyantakyi-Frimpong, 2020). For instance, according to the International Union for Conservation of Nature (IUCN) 2020 report, globally, women's representation is less than 25% of all national parliamentarians and 12% of top ministerial positions in environmental-related sectors. Due to their underrepresentation from local to international level, their voices are not heard in natural resources and environmental management. Women's needs, aspirations, and knowledge are mostly disregarded, affecting their resilience to climate change, agency, and empowerment, as well as the loss of relevant knowledge for sustainable environmental management, despite the clarion call for gender

equality in environmental issues (*Gender and the Environment*, 2020; Glazebrook, 2017). Based on this analysis, it means that global environmental institutions still (re)produce gender-blind environmental policies which silence feminist voices and project the knowledge and voices of dominant/authoritative masculinity. Therefore, there is a need to increase women's representation and participation in gender and environmental policies and programme formulation to achieve gender equality. However, this should be done by not merely increasing the number of women in top decision-making positions, but also addressing socio-cultural structures and barriers to women's agency and freedom of expression (Lau et al., 2021). For example, the participation of women in forestry organisations in India and Sweden served to uphold the status quo rather than challenge existing inequalities. The women who were to be included were expected to adhere to rules and regulations over which they perceived they had limited influence (Arora-Jonsson, 2010). Research has proven that giving quotas and providing incentives to increase women's participation in decision-making in environmental development without addressing structural inequality might aggravate existing gender inequality and women's marginalisation (Clayton et al., 2017; Cummins, 2016). This implies that equal numbers of men and women participating in development decision-making are not necessarily evidence of gender equality unless their inclusion is linked to agency for transformation and positive change. In what follows, I unpack perceptions of climate change and their association with farmers' coping strategies and adaptations.

Climate Change Perception

Previously, due to the belief that local perceptions of climate change do not align with the scientific record, the knowledge of climate variability held by local communities was not adequately explored in earlier studies by climate scientists (Teye et al., 2015). Critics of subjective approaches to the measurement of climate and environmental change have argued

that it is challenging to detect climate change based on personal experience accurately (Weber, 2010). It has been increasingly recognised that scientific models which overlook the perceptions of local communities regarding climate change are inadequate. This is because local knowledge can provide valuable insights for designing policies aimed at mitigating the adverse effects of climate change (Teye et al., 2015). Moreover, perception is a significant component of households' and individuals', especially women's, responses and practices in relation to climate, given that adaptation is linked to the perception of the degree of threat posed by climatic occurrences (Haque et al., 2023; Teye et al., 2015). The experience of climate change perception may be influenced among regions, societies, households, location, time period, age, experience, ownership of radio, among others (Byg & Salick, 2009; Karki et al., 2020; Teye et al., 2015; Yaro, 2013b; Yussif Jnr et al., 2024).

In light of recent insights into the significance of local knowledge in addressing climate change, researchers have investigated local farmers' perceptions of climate change variability (West et al., 2008; Yaro, 2013b). West et al. (2008), for instance, examined local perceptions of rainfall trends in Burkina Faso. In Ghana, a study by Yaro (2013) examined the differentiated climate change perceptions and experiences among local and commercial farmers in southern Ghana. These studies were based on different objectives. Several studies on the perception of climate change have not made any systematic attempts to understand how gender intersects with socio-economic status, location, age, and farming experience to shape the vulnerability and perceptions of different categories of women. For example, (Dankelman et al., 2008) study of gender, climate change, and human security in Ghana, Bangladesh, and Senegal observe that in Ghana, women are depicted as a homogeneous group vulnerable to the impacts of climate change.

Given this gap, my main objective is to contribute empirical findings toward understanding how the intersection of diverse social characteristics shapes smallholder women farmers' (SWFs) perceptions regarding changes in climate and the challenges in accessing land, fertiliser and tractor services. Perception is a significant component of households' response and practices in relation to climate, given that adaptation is linked to the perception of the degree of threat posed by climatic occurrences ([Mubaya et al., 2017](#)). Consequently, understanding SWFs' perceptions about the changing climate can contribute to gender-specific design and the successful implementation of adaptation and mitigation policies in agriculture in Ghana. The following section discusses climate change and gendered access to productive resources in Ghana.

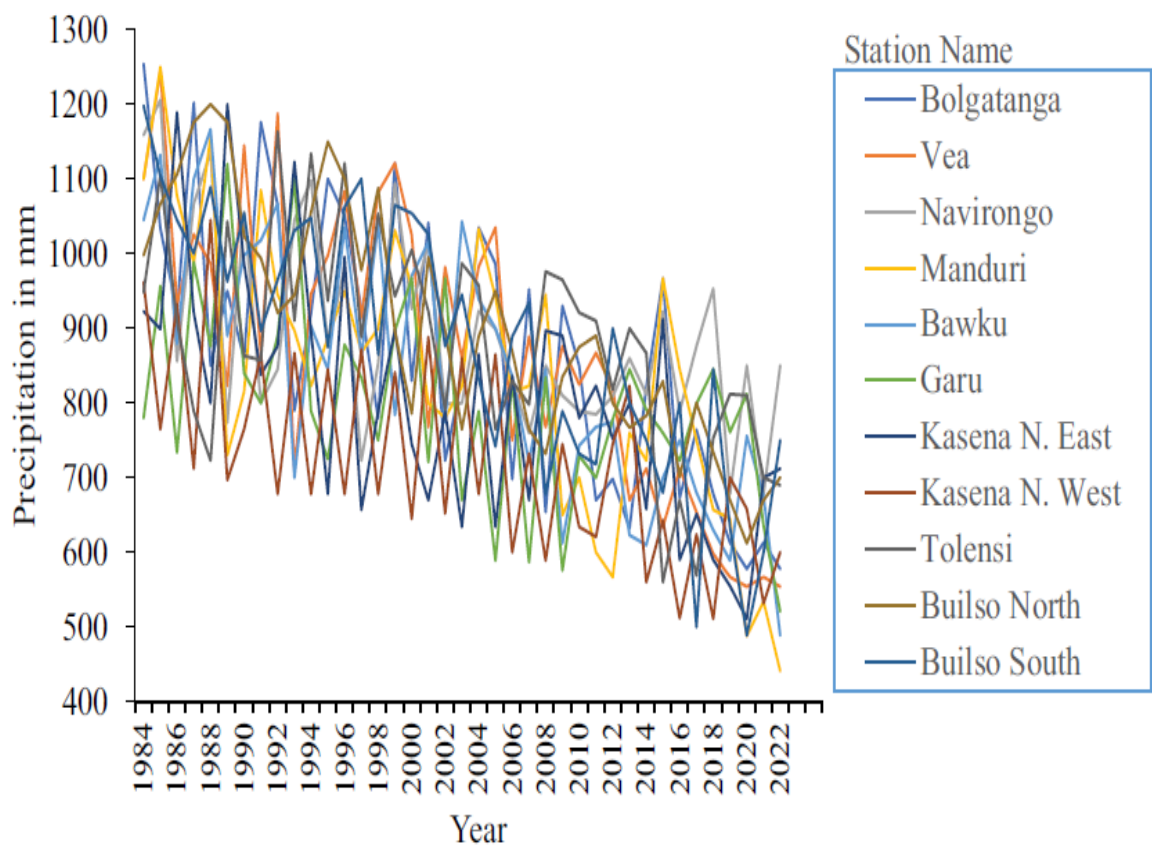
Climate Change Perception in Ghana

Ghana faces significant challenges arising from the detrimental effects of climate change, with northern Ghana expected to face more adverse effects compared to southern Ghana. Several case studies in northern Ghana have documented the perceived climate change stressors affecting both men and women farmers' agricultural production, which include erratic rainfall, drought, flooding, and higher temperatures ([Baffour-Ata et al., 2021](#); [Derbile et al., 2016](#); [Guodaar et al., 2021](#); [Nyantakyi-Frimpong & Bezner-Kerr, 2015](#); [Osman, 2023a](#); [Owusu et al., 2021](#); [Teye et al., 2015](#); [Vercillo, 2018](#); [Wood, 2020](#)). For instance, [Vercillo's \(2018\)](#) study on smallholder farmers' perceptions of climate change and adaptation strategies in northern Ghana revealed that smallholder farmers are exposed to varied climatic stressors, including erratic rainfall, drought, flooding, and higher temperatures. Moreover, flooding is increasingly becoming an annual occurrence due to the opening of the Bagre Dam in neighbouring Burkina Faso, which suffers from excessive rainfall, which invariably results in spillage in most parts

of the Upper East Region (see Akwotajie, 2023; Angbing et al., 2020; Codjoe & Nabie, 2014; Glazebrook, 2011; Osman, 2023a; Tschakert et al., 2010).

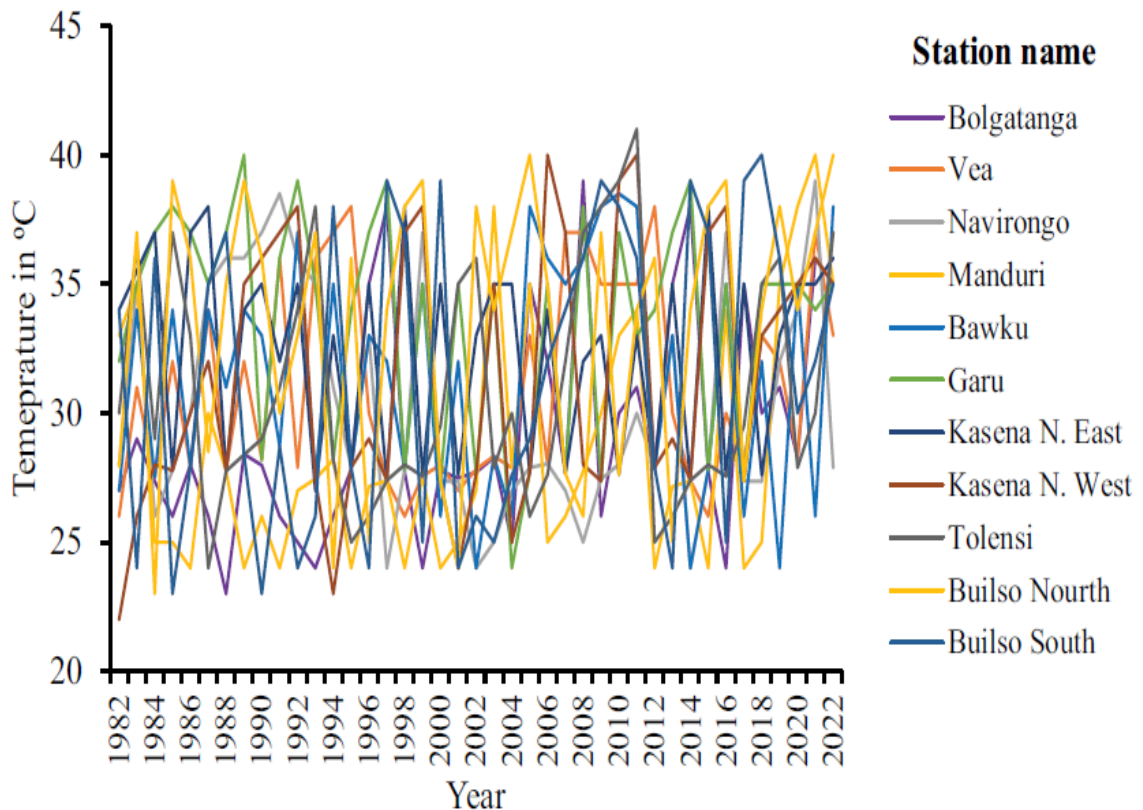
According to a comprehensive assessment of the historical climate data from the Ghana Meteorological Agency (GMet) analysis in the Upper East Region, a 40-year trend between 1982 and 2022 shows annual and seasonal variations in precipitation and temperature in the region, and Arfasa et al. (2024) show that historical temperatures have significantly increased, while historical precipitation has significantly decreased. The figures below (Figures 1 and 2) provide visual representations of changes in precipitation and temperature, respectively, observed in the regions.

Figure 1. Trend analysis of average annual precipitation, 1982–2022.



Source: (Arfasa et al., 2024)

Figure 2. Average annual temperature trend analysis from 1982 to 2022.



Source: (Arfasa et al., 2024)

In analysing precipitation variability, Figure 2 also shows that the average annual precipitation (rainfall) in the Upper East region over the past 40 years exhibits tremendous temporal variability, with sporadic surges, relapses, and retreats. For instance, the region recorded one of its highest annual precipitation levels in 2013 (1001.2mm), after periods of lower precipitation from previous years from 2009 to 2012. However, in the following years, the average precipitation decreased, reaching a low of 502.4 mm in 2016, before increasing again to 914.3 mm in 2018. It is worth noting that this increase is characterised by noticeable fluctuations. The authors further projected that the mean annual temperature would increase substantially, peaking at 1.80°C by 2065. Conversely, precipitation is anticipated to exhibit considerable spatial variability and seasonal dependence. The authors recommended that

policymakers formulate strategies for climate change adaptation, guided by projections of future climate scenarios.

Additionally, studies have linked climate change to outbreaks of diseases such as malaria and Cerebrospinal meningitis (CSM), which affect farmers' health and, consequently, agricultural production and food security (Akanwake et al., 2022; Akyereko et al., 2020; Codjoe & Nabie, 2014). Among other factors, climatic conditions characterised by dry winds, dust storms, high temperature, intensive sunshine, low relative humidity, and poor rainfall significantly reduce the local immunity of the pharynx, thereby increasing the risk of meningitis (Akanwake et al., 2022; Akyereko et al., 2020; Codjoe & Nabie, 2014). For instance, Akanwake et al. (2022) study conducted in Ghana revealed a statistically significant relationship between climate variables and CSM, emphasising that reduced rainfall and high temperatures were profoundly correlated with CSM outbreaks in the Upper East Region (my research region) of Ghana. In Ghana, CSM cases have been recorded in all regions, with the Upper East, Upper West, and Northern Regions falling within the 'African meningitis belt' with high annual meningitis incidence, frequent outbreaks and death (Akanwake et al., 2022). In a cross-sectional study, Akyereko et al. (2020) observed that a total of 2,312 meningitis cases (suspected and confirmed) were recorded from 2016 to 2017, with a median incidence of 15.0 cases/100,000 population (minimum 6.3, maximum 47.8). Median age of cases was 15 years (IQR: 6-31 years). Many (44.2%) of those affected were 10 years and below. Women and girls constituted the largest proportion, at 51.2% and the Kassena-Nankana Municipality (my research area) was the highest hotspot district.

Climate and environmental change have also been associated with the spread or outbreak of the invasion of fall army worm (FAW) (Nboyine et al., 2020). The invasion of FAW in Africa

has significantly diminished crop yields, particularly maize, millet and sorghum, thereby posing a threat to food security, agriculture and livelihoods, particularly in rural communities.

For example, FAW invasion destroyed approximately 6,400 hectares of cocoa farms in Ghana, with potential maize losses in Africa estimated at US\$3 billion (Asare-Nuamah, 2021). In Ghana, the control/management of FAW has primarily been organised by the government through the provision of pesticides to smallholder farmers, as part of the ‘Planting for Food and Jobs’ initiative of the government of Ghana (Asare-Nuamah, 2021). This effort has been implemented nationwide with the support of agriculture extension agents from the Ministry of Food and Agriculture (Asare-Nuamah, 2021). Empirical studies recommend that management of FAW in northern Ghana and regions with comparable agro-ecological conditions should be from emergence to the tasselling stage, along with periods characterised by increased precipitation (Nboyine et al., 2020). Additionally, farmers’ education and integrated management practices should be enhanced (Asare-Nuamah, 2021). In the following section, I discuss gender access to agricultural productive resources and their implications on crop production.

Gender and Agriculture in Ghana

Agriculture employs a significant portion of the population in rural Ghana, particularly women and youth, encompassing both skilled and unskilled labour. Agricultural pursuits are of paramount importance in fostering sustainable development (AAFORD, 2024; N-yanbini & Owusu-Ansah, 2024). While the contribution of women smallholder farmers to agricultural production, national development, and household food security across Sub-Saharan Africa (SSA) has been acknowledged over the years (Apusigah, 2009; Boserup, 1970; Doss et al., 2015; Doss et al., 2018; FAO, 2011), inequality in access to land, agricultural inputs, resources, and training perpetuates women’s vulnerability to the adverse impact of climate change,

contributing to high rates of food insecurity, and poverty (Denton, 2002; Pearse, 2017). Women's access to - and control over - land continues to be a contentious issue within the social, economic and political discourses across SSA. Land is highly valued across all regions of SSA (Schroeder, 1997; Yaro, 2010) as well as a critical enabler to farmers' adaptation to the adverse effects of climate change. For instance, the study of Baffour-Ata et al. (2024) show that critical enablers for farmers' adoption of climate-smart agriculture (CSA) practices were access to weather and climate services (82%), a secure land tenure system (75%), and awareness of the impacts of climate change (68%). The struggle for land among various classes of people continues to garner critical examination aimed at addressing the diverse interests of men and women (Baffour-Ata et al., 2024; Dery, 2015).

Gendered Access to Lands in Ghana

The complexity and flexibility of land rights in West Africa are apparent in my research area in Ghana. In Ghana, access to agricultural land is governed by statutory and customary laws. Although the statutory laws in the constitution provide equal access to all, the customary land tenure, which controls about 80% of land rights, access to - and ownership of - land is predominantly unequal (Lambrecht, 2016). Customary land tenure is a landholding category that governs land according to customary laws and proceedings (World Bank, 2007, as cited in Dery, 2015). The customary land tenure system is not static, but dynamic and changes over time. Under customary law, land is controlled by the traditional or family head of the clan, who assigns portions of land to individuals for temporary or permanent use (Apusigah, 2009; Lambrecht, 2016; Vercillo, 2021; Yokying & Lambrecht, 2020)

Customary land tenure is ingrained in social norms about the roles and responsibilities of men and women (such as household chores, breadwinner, agriculture labour), which influences the gendered division of labour and rights over resources (Apusigah, 2009; Carr, 2013; Nyantakyi-

Frimpong & Bezner-Kerr, 2015; Lambrecht, 2016). This process is also linked to an individual's social identity and acceptance. Women are socialised to conform to cultural norms (community expectations) that limit their negotiating ability and agency (Apusigah, 2009; Carr, 2013). For instance, according to Carr (2013), women who meet the gendered reproductive roles of their family before their own are classified as '*good wives and good women*'. In becoming a *good wife* to fit into society, women are compelled to sacrifice their income that can be used to expand their agricultural production and risk their safety and survival in case of divorce or widowhood (Carr, 2013).

Customary land access in Ghana is either matrilineal (maternal bloodlines) or patrilineal (paternal bloodlines). Southern Ghana is predominantly matrilineal (maternal bloodlines) but no less male-dominated. The custodian of family lands is the *abusuapanin* (lineage head), a man who manages land with lineage members, both men and women (Britwum et al., 2014; Carr, 2013). Women lineage members can obtain land from their fathers, mothers, brothers, and uncles (Britwum et al., 2014). Previous research suggests that women under matrilineal inheritance have more privileges than men concerning land access and control (Benneh et al., 1995). However, one study argues that, although women are recognised in land allotment, their privileges are inferior to those of men, and they are assigned smaller, less fertile agricultural land (Ankrah et al.; 2020; Britwum et al., 2014). Additionally, due to socio-cultural norms and community expectations, women relinquish their right of ownership over land to their husbands. Subsequently, men in matrilineal communities tend to control more land than women (Ankrah et al.; 2020; Britwum et al., 2014). Comparatively, women with matrilineal inheritance enjoy better access to land than women with patrilineal inheritance (Benneh et al., 1995; Quisumbing et al., 1999, cited in Britwum et al., 2014).

Northern Ghana is predominantly patrilineal, where women do not own land. Family lands are allotted to male descendants on inheritance rights, and males further distribute them to their household and extended family (Apusigah, 2009; Vercillo, 2021). The chief and the *Tindana* (Earth Priest) managed community lands and held them in trust for all community members. The patriarchal authority structure placed:

Men as heads of households and boys as potential heads are socialized as providers and thus owners of the production system. This places men and boys in super-ordinate positions. Their assigned roles position them as heirs of household resources, especially land, over which they exercise decision-making concerning production and distribution. Conversely, women and girls as wives or potential wives are socialized into subordinate positions to depend on male members for resources. Positioned as non-heirs, women and girls have no direct inheritance rights under customary arrangements (Apusiga, 2009 p. 53).

Women and girls can only obtain secondary access to agricultural lands mainly from their fathers, husbands or sons and other male relatives (Ankrah et al., 2020; Apusigah, 2009; Bryan & Garner, 2022; N-yanbini & Owusu-Ansah, 2024; Sedegah, 2025; Yaro, 2010).

Marriage and Women's Land Access

In Ghana and other parts of SSA, marriage remains an integral part of society and a sacred rite of passage that elevates men and women into respectable social statuses (Okoli, 2024; Shahadu, 2023). Whereas the prevailing Western perspective regards marriage as an individual affair, in SSA, it is customarily and a collective agreement among families. Marriage serves not only as a source of social identity but also as a practice that guarantees the continuity of a community or lineage established by ancestors (Dery & Bawa, 2019). Normative ideas of masculinities and femininities are profoundly implicated in heteronormative relationships. In Ghana and

parts of SSA, familial roles are integral to women's identities, and they are nurtured to primarily function as good daughters and groomed to excel as good wives and mothers. Even if a woman advances as far as her intellect and energy permit, she continues to be regarded as 'incomplete' and a 'nobody' in the eyes of society (Dery & Bawa, 2019; Okoli, 2024). There are stigmas associated with, firstly, remaining unmarried and, secondly, being a wife without children. Therefore, being married and having children is more empowering for Ghanaian women. For example, Dery and Bawa's (2019) study demonstrates that even when women are empowered to the highest echelons of society, heteronormative marriages remain inherently significant in shaping the lives of typical women as 'complete', 'worthy', and 'meaningful' in society.

In Ghana, marriage involves the payment of bridewealth by the groom's family to the bride's kin, a cultural customary practice that designates the bride as a new member of the groom's family:

Subsequently, control over and protection of the woman is transferred from her agnatic kin to her husband's kin. Indeed, the marriage payment is what gives the groom and his kinsmen customary rights over the bride; the bride and her labour, including reproduction, are all secured by the marriage payment. Thus, the bride has no control over the products of her labour on the farm because they are the proceeds of the man's. (Akurugu, 2017, p. 129)

The payment of bridewealth positions women in a markedly subordinate role to men. For this reason, a woman does not become a member of her husband's lineage through marriage; hence, the rule is that she cannot lay claim to her husband's lineage farms, even if she assisted in making improvements. Indeed, studies in Ghana and throughout Africa have perceived bridewealth as a primary source of women's oppression (Akurugu, 2017; Akurugu et al., 2021;

Dery & Bawa, 2019; Maenetja et al., 2021). In many African societies, including Ghana, there has been gross abuse of the bridewealth tradition because parents and kinsmen of brides are using it to secure their own future by exploiting the groom's family, not considering the consequences for their daughter. The result is that married women are regarded as 'slaves' purchased as property through the customary dowry or bridewealth, to bear children (preferably sons) in order to extend the patriline of the husband and also to provide unpaid labour on the family farm (Akurugu et al., 2021; Dery & Bawa, 2019; Maenetja et al., 2021). This situation makes women more vulnerable to intimate partner (IP) violence (Akurugu et al., 2021). The subordination of women, as well as the violence inflicted upon them as a consequence of the bridewealth payment for marriage across Ghana, requires careful attention. In northern Ghana, marriage has been recognised as one primary source of women gaining access to land under the customary system of land tenure. Thus, wives may gain access to land with their husbands' permission, depending on a cordial relationship (Apushigah, 2009; Dery, 2015; N-yanbini & Owusu-Ansah, 2024; Yaro, 2010). However, in many cases, land given to women is associated with challenges, as women are allotted less fertile lands within a defined period. Women may also be allotted land situated farther from their residences, input, or output markets. This may result in increased labour and transportation costs for women's farms as compared to men's lands that are closer (Van Asselt et al., 2021). Moreover, the lack of control over the land constrains women's capacity to use such lands as collateral for credit, invest in capital-intensive farming to improve soil fertility, modern agriculture, or expand their farm to increase production (Ankrah et al., 2020; Bryan & Garner, 2022; Goldstein & Udry, 2008; Vercillo, 2021; Yokying & Lambrecht, 2020). As an example, Goldstein and Udry's (2008) study demonstrates that in Southern Ghana, where a matrilineal inheritance system is practised and women have better access to land than northern Ghana, the disparity in productivity between

men and women farmers persists because women farmers were less likely to leave their land fallow due to the risk of losing their land if they do not engage in active farming.

As mentioned earlier, sons inherit their father's land; consequently, women also access land through their sons. According to N-yanbini & Owusu-Ansah (2024), due to the 'son power' of inheriting their fathers, women (mothers) take satisfaction in educating their sons to become future patriarchs following their fathers. On the other hand, daughters are trained and socialised to become 'good wives' who serve and submit to their husbands by performing domestic chores and giving birth. Sons, therefore, in future assume responsibilities as heirs and assume ownership of the land with full access and control. In contrast, daughters must maintain cordial relations with male relatives to gain access to land. Upon the death of a husband, widows with no sons lose access to their husband's properties, including land. Studies have demonstrated that widows with only daughters and divorced women may have limited access to land compared to married women because they have lost their marital status, which is associated with land access (Apusiga and N-yanbini & Owusu-Ansah, 2024). This discriminatory training among sons and daughters by mothers inherently reinforces patriarchal structures, perpetuates gender inequality, and impedes women and girls from achieving self-empowerment.

Ogundipe-Leslie (1994: 228) speaks of six mountains sitting on the backs of African women that contribute to their oppression:

The African woman has six mountains sitting on her back: one, oppression from outside in the form of colonialism and neo-colonialism; two, oppression from traditional structures [...]; three, her own backwardness; four, the African man [patriarchal gatekeeper]; five, her color or her race and six, the woman herself because she has internalized all these oppressions (Ogundipe-Leslie, 1994, p. 228).

These six mountains can be regarded as sitting heavily on the backs of girls and women in Ghana. Among the six mountains identified by Ogundipe-Leslie, one that significantly impacts married women across Africa is the oppression from traditional structures, which encompass the family, particularly extended relatives acquired through marriage, patriarchal inheritance system, and traditional practices such as bridewealth and dehumanised widowhood rites.

Women's Challenges to Land Access in Northern Ghana

Access to farmland, agricultural inputs and other productive natural resources for women farmers is essential for ensuring dignified livelihoods and food security for their families and the nation at large. Women encounter more challenges accessing land than men. One challenge women face in accessing land is negotiating from a disadvantaged or vulnerable position (Dery & Bawa, 2019; Sedegah, 2025; Yaro, 2010). As mentioned earlier, women in northern Ghana are excluded from land inheritance and must rely on male relatives to negotiate secondary access. Therefore

Women's access to rural land is without clearcut rules which put them in a vulnerable position. Good interpersonal relationships become very important tools in bargaining for land and subsequent security of tenure. Women only get to use land when men first acquire it and then loan it to them. Since land is inherited and women don't marry within their own families how can they ever own land? If they return from their husband's home as a result of divorce or death of husband, they will be given land to farm, but do not own it. In their husbands homes they are supposed to help in farm operations but can decide to do a little farming on borrowed land. (Yaro, 2010, p. 210)

Women and girls occupy subordinate positions both within the natal family and in the marital household. Therefore, how can a woman (in a subordinate position) negotiate on equal terms with a man (in a superior position) to gain equal access to land? Intra-household negotiations

concerning resources and responsibilities pertinent to land access and food production can be interpreted to “reflect relations along a spectrum of what Sen (1999) calls ‘cooperative bargaining’ and ‘negotiation conflict’ (Vercillo, 2020, p. 236). In the domain of gendered environment, such negotiations are not invariably devoid of altruism and often lead to bargains that undermine gender equality and women’s rights (Apusigah, 2009). Women engage in such negotiations from a position of disadvantage, where their capabilities and limitations are prescribed and presented as non-negotiable by patriarchy and its structures. Consequently, such negotiations serve only to optimise their options within their culturally prescribed roles (Apusigah, 2009).

Studies further indicate that male landholders often sell their land without regard for their traditional custodianship responsibilities. Lands are sold for personal financial benefits, neglecting the subordinate interests of women (Bugri, 2004; Nyari, 2005 cited in Apusigah, 2009). Particularly in irrigated regions such as Tono and Vea in the Upper Region, projects with a male-centric focus have predominantly allocated lands to men, with limited participation from women (Apusiga, 2009).

Moreover, evidence suggests that men leverage their superior land access to control and manipulate women’s agricultural earnings, depriving them of the opportunity to realise their full yield potential (Carr, 2013; Dery, 2015). For example, Dery’s (2015) study in northern Ghana demonstrates that men deliberately deny women access to land to ensure women are continually subject to the control and dictate of the husband. Men perceive women’s control over land in their own capacity as an “encroachment of their masculinities”; hence, men will go to great lengths to sustain the existing patriarchal status quo to protect their hegemonic masculine status and ego (Dery, 2015). In a similar study, Carr (2013) has documented that, since men are responsible for distributing farmlands to other family members through

customary land tenure in Ghana, this has created opportunities for men to manipulate their wives' earnings and influence the type of crops cultivated as well as the size of farms, which are often limited to subsistence levels without surplus. This surplus is significant not only in its own right but also because women can utilise it to finance other activities such as trading, thereby further augmenting their income. The phenomenon of men manipulating women's access to land has negative implications for women's agency, livelihoods, and empowerment. According to evidence provided by Garnett et al. (2018), as cited in Azumah et al. (2022), well-defined land rights motivate farmers to invest in enhancing agricultural productivity on their land. This suggests that the absence of land ownership and the insecurity of land rights may prevent farmers, especially women, from participating in agricultural activities to their full potential.

The second challenge to women's access to land is the further disruption of these family negotiations due to development interventions, climate and environmental change, the commodification of food production, and wider agrarian changes (Nyantakyi-Frimpong & Bezner Kerr, 2017; Vercillo, 2021). There is a growing consensus among different scholars in SSA that agricultural development projects aimed at commercialisation are frequently at the core of resource conflicts, which tend to disproportionately impact women and other marginalised groups (such as migrants and minority ethnic groups) (see Hovorka, 2006; Ofosu-Budu & Hanninen, 2020; Schroeder, 1997; Tsikata & Yaro, 2014; Vercillo, 2021). There are significant consequences associated with the commodification of land transactions.

First, the increasing value of land, as a consequence of high demand and the cash transactions associated with land commodification and the commercialisation of agriculture, has resulted in increasing demand for land. This phenomenon has resulted in heightened land scarcity and led to landlessness among certain landowning families (Bryan & Mekonnen, 2023; Nyantakyi-

Frimpong & Bezner Kerr, 2017; Sedegah, 2025; Yaro, 2010). Secondly, the Commodification of land also provides a fertile ground for the exploitation of poor and marginalised groups in the community, where the rich get richer and the poor become poorer. Such a situation puts marginalised individuals, such as women household heads and other marginalised groups, in a position to make painful choices to feed their families and loved ones, which include working for low wages and sharecropping contracts (Nyantakyi-Frimpong & Bezner Kerr, 2017). Lastly, as agriculture and food production become more commodified, gender roles, norms, and responsibilities associated with production tend to shift, influencing the gendered negotiations concerning the production, provisioning, and preparation of food within households (Vercillo, 2020). As argued by Nyantakyi-Frimpong & Bezner Kerr:

The fulcrum of this self-exploitation is gendered property rights as part of the conjugal contract, with men exerting a far greater monopoly over land resources than had previously been the case. Due to acute land shortages, women's rights to use land as wives, mothers and daughters are becoming insecure, as their vegetable plots are being reclassified as male controlled household fields (Nyantakyi-Frimpong & Bezner Kerr, 2017, p. 421).

Yet, evidence suggests that development interventions often promote approaches for smallholder farmers' production in ways that exclude women and other marginalised groups, though adverse effects are spatially and temporally specific (Bryan & Mekonnen, 2023; A. Nightingale, 2006; Tsikata & Yaro, 2014; Vercillo, 2020). For instance, Tsikata & Yaro (2014) observed that in northern Ghana, credit schemes and marketing contracts for rice and various other crops, facilitated by both the state and private organisations, have contributed to the escalating competition for agricultural land since the 1970s. In a recent study that examines assumptions underlying development policy and practice about the gender relations of farming

and food, Vercillo (2020) observes that even marketing contracts and credit schemes in northern Ghana supported by official donor assistance (ODA) with a focus on vulnerable smallholder women to expand their agricultural production, are inadvertently exacerbating women's workload and generating tensions among couples. Men were found to be neglecting their responsibilities in order to demand more from women's agricultural production, due to the support from ODA and NGOs. With the growing competition for land in northern Ghana, Tsikata and Yaro (2014) suggest that in addressing inequalities, there is the need to pay explicit attention to pre-existing gender disparities in land and "agricultural commercialization – either to prevent or mitigate gender inequalities in project outcomes or, more positively, to enhance gender equitable outcomes" (Tsikata & Yaro, 2014, p. 222). Also, according to Nyantakyi-Frimpong & Bezner Kerr (2017), securing women's land rights necessitates moving beyond formal titling as the only pathway to secure tenure, and acknowledging and supporting the customary tenure system as well.

The Gender Gap

In Ghana, despite the considerable efforts by civil society organisations and NGOs such as Widows and Orphans Movement, Oxfam, and ActionAid Ghana as well as various land policies that delineate rights of access and control over land in Ghana, women's access to - and control of - land, particularly within the Kassena Nankana Municipality (KNM) (focus area of this study), remain persistently contested and marginalised. For example, despite the enactment of the Land Title Registration Law PNDC Law 152 (1986), the Head of Family Accountability Law 114 (1986), and the Intestate Succession Law PNDC Law 111 (1985) by the Ghanaian government—aimed at facilitating and expanding opportunities for women's rights to access their deceased husbands' land and other properties—comprehensive attention to women's land rights remains insufficient within contemporary Ghanaian society. Consequently, women's

prospects for empowerment, socioeconomic improvements, and livelihoods enhancement through secure tenure remain an elusive goal (Dery, 2015; Duncan, 2004).

The United Nations Economic and Social Council Commission on the Status of Women 1998 (as cited in Dery, 2015) acknowledges that such discrimination in gaining access to or legitimately registering land as a genuine asset shared between women and men in an agrarian society constitutes a clear violation of fundamental human rights of the highest order. While challenges in land access experienced by women are predominantly ascribed to longstanding and entrenched patriarchal socio-cultural norms that perpetuate male dominance (Apusigah, 2009; Duncan, 1997; Yaro, 2010); the continued prevalence is also maintained by women's and girls' lack of awareness regarding their land rights and low educational levels (Duncan, 2004; Johnson et al., 2016; Lombardini et al., 2017).

Improving women's secure access to - and control over - land is considered a critical factor in achieving greater gender equality in the agricultural sector (Lambrecht, 2016; Yokying & Lambrecht, 2020). Indeed, a large body of studies on the largely agrarian rural communities in Ghana demonstrates that securing women's access to - and control over - land, and farming inputs play a critical role in enhancing their bargaining power (agency) within the household, and such agency is linked to increased investments in children's nutrition and education, reduction in poverty, and vulnerability (Bryan & Garner, 2022; C. Doss et al., 2015; Kumar & Quisumbing, 2012), and to agricultural development and food security (Ahmed et al., 2016; Apusigah, 2009; Goldstein & Udry, 2008; Lambrecht, 2016; Nyantakyi-Frimpong & Bezner-Kerr, 2015). As an example, research on the impacts of amendments to Ethiopia's family law, which improved women's rights to property upon divorce, showed that children in households where women receive less in divorce settlements perform worse in school compared to children of the same age; "girls fare even worse than boys" in these households (Kumar & Quisumbing,

2012, p. 2487). That being said, it is fair to argue that the consequences of women's lack of access to land may significantly influence women's empowerment outcomes and adversely impact livelihood sustainability within rural communities. This practice undermines livelihood development initiatives, reduces productivity, and substantially affects global food security.

Since gender and land tenure are dynamic, this study examines how women access agricultural land in three communities across the KNM of the Upper East Region of Ghana. It is essential to understand the ongoing land access dynamics experienced by women in order to make informed decisions aimed at addressing these issues. Such understanding is integral to promoting gender equality, women's empowerment, food security, and sustainability among rural farmers. The study, therefore, aims to contribute to the production and sharing of new knowledge that can inform policymakers and feminists regarding the enduring barriers that impede women's access to farmland. Additionally, this study serves as a foundational step for future research initiatives concerning women's land access and rural development in Ghana and beyond. Women's empowerment is recognised as one of the approaches to close the gender gap in agriculture. In the next section, I delve deeper into women's empowerment in Ghana.

Women's Empowerment in the Agricultural Sector in Ghana

Policies and legal framework on gender equality in Ghana

There are several approaches to empowering women within the agricultural sector in Ghana. However, this review concentrates on the primary issues, which include policies and legal frameworks on gender equality, implementation of development programs, formation of FBOs, and savings groups. Each approach is briefly explained below.

Ghana's aims towards achieving gender equality targets are guided by its commitment to International Instruments, the 1992 Constitution and national development frameworks. The

1992 Constitution of Ghana has entrenched provisions that guarantee fundamental human rights and freedom without any form of discrimination (Articles 12-33) for all persons on the basis of social or economic status, among others (National Gender Policy MGE, 2015). The Ministry of Gender, Children, and Social Protection provides leadership in the Government's gender mainstreaming initiatives, operating through a structure of regional departments and integrated Gender Desks in other ministries, departments, and agencies. In 2000, the Ghana government adopted a National Gender Policy (NGP) to promote women's empowerment gender equality and ensure opportunities for all (Addey, 2023; National Gender Policy MGE, 2015). According to Addey (2023), in addition to these targeted outcomes, the NGP further emphasises the commitment to combating inequalities through its objectives focused on addressing disparities in access to healthcare, education, productive resources, and holding of public sector offices. In line with the NGP, the Ministry of Food and Agriculture (MoFA) developed the Gender and Agricultural Development Strategy (GADS I and GADS II) aimed at integrating gender mainstreaming into the agricultural sector to promote gender equality and women's empowerment in Ghana. Key strategies include: 1. Strengthening Institutional Capacity 2. Enhancing Access to Land and Resources 3. Promoting Gender-Sensitive Technologies and 4. Inclusivity in Decision-Making. By addressing these key gender disparities and promoting women's empowerment in the agriculture sector, the policy seeks to improve food security and livelihoods for all Ghanaians (Ministry of Gender, Children and Social Protection, 2015).

Implementation of Development Programmes

One of the areas of growing concern, particularly in SSA contexts, pertains to schemes of women's economic empowerment. Over the past decades, there has been a growing recognition that interventions aimed at improving poor women's financial conditions can have negative,

undesirable consequences on women's wellbeing (Chant, 2016; Kabeer, 2005). Over the years, development practitioners and scholars, enthusiastic about the potential of microfinance to reduce poverty and improve the well-being of women, targeted poor women through microfinance schemes for empowerment (a feature of WID). Organisations such as Grameen Bank, and PRIDE (Promotion of Rural Initiatives and Development Enterprises) gave women loans to scale-up entrepreneurial ventures to improve their economic status and be empowered to challenge gender inequality (Chant, 2016; Kabeer, 2005; Salia et al., 2017). The mode of operation of the microfinance scheme focused only on women's economic growth (ignored gendered reproductive labour), and also failed to challenge socio-cultural gender inequalities, which inhibited the potential of gender transformation for women's empowerment (WID approach) (Kabeer, 2005; Salia et al., 2017). Microfinance can improve women's economic power which can contribute to household livelihood; however, this can also distort gender power dynamics within the household and may lead to an increased risk of women's domestic violence by men in trying to prove their headship (Kabeer, 2005; Salia et al., 2017). As argued by Kabeer (2005), development initiatives through microfinance loans to women without challenging barriers to women's agency created by patriarchy, cultural norms, and other forms of structural inequality would rather disempower women. This phenomenon has led to the 'feminisation of debt', where women end up in huge debts, and in some cases, when unable to pay, women have been reported to have died by suicide (Mayoux 2002 cited in Chant, 2016).

Empirical evidence further indicates that women's participation in empowerment initiatives, such as microfinance programmes, livelihood training, and community leadership initiatives, may increase their workload rather than reduce gender inequalities. Women are often expected to integrate these new economic or social roles alongside their pre-existing domestic and caregiving responsibilities, which are rarely redistributed within households. This phenomenon has been widely documented in feminist scholarship as the "double burden" or "triple burden,"

where women simultaneously manage productive, reproductive, and community responsibilities (Kabeer, 1999; Moser, 1995). Consequently, empowerment initiatives that fail to address household labour dynamics may unintentionally reinforce gendered divisions of labour rather than challenge them.

The WID approach has been widely critiqued for its instrumentalist orientation, particularly its tendency to incorporate women into existing development processes without interrogating the structural conditions that reproduce gender inequality. Early WID interventions focused primarily on improving women's access to resources—such as income, education, and employment—based on the assumption that inclusion alone would yield equitable outcomes (Boserup, 1970; Rathgeber, 1990). However, this approach has been criticised for treating women as a homogeneous category and for failing to address the gendered power relations embedded within households, communities, and institutions (Moser, 1995; Parpart et al., 2000). As a result, WID is often described as an “add women and stir” strategy, where women are integrated into development without fundamentally transforming the socio-cultural and economic structures that sustain their marginalisation (Rathgeber, 1990). Consequently, while WID contributed to making women visible in development discourse, its capacity to achieve substantive gender equality has remained limited.

In response to these shortcomings, the Gender and Development (GAD) approach emerged as a more critical and relational framework that shifts the analytical focus from women as isolated beneficiaries to the broader system of gender relations. GAD emphasises that inequality is socially constructed and maintained through power relations that operate across multiple levels, including the household, market, and state (Parpart et al., 2000; Rathgeber, 1990). Rather than simply integrating women into existing structures, GAD calls for a transformation of the social norms, roles, and institutional arrangements that perpetuate gender disparities (Cornwall, 2016;

Marchand & Parpart, 2003). This shift reflects a broader recognition that development interventions must engage with both women and men, as well as the relational dynamics that shape access to and control over resources.

Therefore, to achieve gender equality, development planning needs to unpack and understand place-specific, intra-household gender divisions of labour and power dynamics, so that development projects do not disrupt domestic duties, generating battles and unequal work burdens among women and men (Apusigah, 2009; Vercillo, 2020).

The Ghana Agricultural Sector Investment Programme (GASIP) is a key programme designed to provide the framework and institutional basis for long-term engagement and supplementary financing to scale investments in value chains in Ghana (Bossen, n.d.; Ministry of Food and Agriculture, n.d.). The programme is being implemented across three components: 1. value chain development 2. rural value chain infrastructure 3. knowledge management, policy support and coordination. MoFA holds the overall responsibility for the implementation of GASIP across the entire nation. The overarching objective of GASIP is to support sustainable poverty reduction in rural Ghana, particularly in the northern regions (my research area), by increasing the flow of technical and financial resources for rural development in response to the needs articulated by smallholder farmers at the village and district levels (Bossen, n.d.; Ministry of Food and Agriculture, n.d.). Therefore, the programme is tailored to meet the specific needs of various villages. Nevertheless, gender indicators have seldom been applied to monitor the progress of national agricultural strategies in shaping policy recommendations.

Farm-Based Organisations (FBOs)

Farm-based organisations (FBOs) are promoted in Ghana by both public and private organisations for agriculture and rural development. The interest is predicated on the assumption that FBOs facilitate cost-effective delivery of extension services, provide farmers

with increased bargaining power in the market, and empower FBO members to influence policies that impact their livelihoods (Salifu et al., 2012). The government of Ghana views the provision of extension services by local institutions to groups as an efficient and economical approach to engaging with farmers. This approach has been promoted through agricultural policies such as GASIP and the Food and Agriculture Sector Development Policy (FASDEP II) (Salifu et al., 2012). The overarching motivation for farmers to organise themselves stems from the social and economic benefits that cooperation is expected to provide (Salifu et al., 2012). As such, many farmers join FBOs voluntarily to obtain technical support from agricultural extension officers (AEO) and benefit from governmental and non-governmental organisation (NGO) projects that provide inputs, loans, and training support to groups rather than individuals (Salifu et al., 2012). They also participate in groups to build social capital and benefit from labour exchange, pooling of resources, and obtain credit through local credit schemes and or formal financial institutions (Salifu et al., 2012). Several feminist studies have demonstrated that understanding gendered processes of work and developing livelihood programmes that promote gender-equitable access to - and control over - resources remain pressing tasks for policymakers (Elson, 1991; Kaaria, Osario, Wagner, & Gallina, 2016, as cited in Basu et al., 2019).

Research on participation in development programmes and women's empowerment can educate us on the possible effects of membership in FBOs. Moreover, other authors suggest that women's participation in development interventions in FBOs constitutes a potential pathway that may contribute to the empowerment of rural women and to closing the gender inequality gap in the agriculture sector (A. Abdu et al., 2022; Meinzen-Dick et al., 2019; Missiame et al., 2023). For instance, Missiame et al.'s (2023) study in Ghana observe that women farmers affiliated with FBOs, on average, attain approximately 63.5% of their potential yield, whereas their men counterparts achieve only about 57.8%. The findings additionally

indicate that women farmers derive the greatest benefit from FBO membership, experiencing a 12% enhancement in their technical efficiency. In addition, the literature shows that agricultural project intervention through FBOs empowers participants with improved knowledge (Eissler et al., 2021; Meinzen-Dick et al., 2019), self-confidence (Daher et al., 2022; Eriksson & Kyhle, 2021), and new social networks (Breza & Chandrasekhar, 2019; Pane Solis, 2022).

Women's participation in development interventions in FBOs is also associated with a reduction in domestic violence and an improvement in gender relations (A. Abdu et al., 2022; Meinzen-Dick et al., 2019). For instance, in Nepal, women in FBOs utilise the support of collective agency and solidarity in solving household problems, including intimate partner violence against women by finding strategies to end the violence, such as community-sanctioned acts of humiliation (Meinzen-Dick et al., 2019).

One strand of debate has been whether women's participation in development interventions in FBOs results in empowerment through the recognition and transformation of gender inequalities, or if their participation exacerbates exploitation as women's work burdens increase due to participatory policies (Adu-Boahen et al., 2024; Basu et al., 2019; Kabeer, 1994; Okoli, 2024). Women generally encounter greater constraints in participating in FBOs compared to men, due to significant opportunity costs and time constraints from overburdening domestic workload, as well as seeking their husband's approval before attending group meetings (Agarwal, 2000; Doney et al., 2020; Meinzen-Dick et al., 2019). For example, a study conducted in Ghana demonstrates that women's participation in FBOs increases their empowerment levels more than for non-members across four domains in the Women's Empowerment in Agriculture Index (WEAI): production, income, resources, and leadership. However, time constraints remain a persistent barrier to their full empowerment. Despite the

advantages of participation in FBOs, time poverty continues to hinder women's empowerment due to the dual burden of farm labour and unpaid domestic work, which are not adequately addressed by development interventions. They recommended that tackling such barriers requires structural responses, including accessible childcare, flexible training schedules, and cultural shifts toward shared domestic responsibilities (Adu-Boahen et al., 2024).

Mixed-Gender FBOs Versus Women-Only FBOs

The literature provides mixed evidence about the impact of mixed-gender FBOs or women-only FBOs on women's empowerment. For instance, a study in South India observed that women's participation in FBOs, regardless of whether it is mixed-gender or women-only, empowers women by enhancing their influence in household decisions (Dohmwirth & Liu, 2020). A growing number of feminist scholars are becoming interested in how the two types enable rural women to overcome gender inequalities in decision-making, resource ownership, and access to - and control over - resources at the household and community level.

To begin, while mixed-gender FBOs can empower women, particularly with accessing agricultural extension services and collective bargaining, a women-only group can enable women to attain greater status, build confidence and foster leadership development (Adlam, 2023). Additionally women-only FBOs provide a safe space for women to build collective agency and resilience among women to overcome systemic and gender-specific inequalities (Adlam, 2023). Collective agency through women-only FBOs has been recognised to hold manifold advantages that strengthen the position of women's livelihood, empowerment, and their well-being (Alemu et al., 2018; Hovorka, 2006; Mwambi et al., 2021; Syhre & Brückner, 2018).

Collective agency in women-only farm groups has been found to overcome gender constraints in access to farm inputs and land. Syhre and Bruckner's (2018) study in Nairobi observed that

urban women farmers' groups overcame gendered constraints in the urban landscape, improving their livelihoods, the well-being of their families, and actively enhancing food sovereignty in the urban sector of Nairobi. Through collective agency, the women farming group succeeded in claiming "access to and control over resources collectively by strictly rejecting any male membership in their group" (Syhre & Brückner, n.d., p. 206). There is also a substantial body of literature on women-only group collective agency that evidences its vital role in natural resource management, protection, and preservation (see Agarwal, 2000; Glazebrook, 2017; Maathai, 2008; D. E. Rocheleau et al., 1996). The agency ('power to' and 'power with') exercised by the women in the aforementioned studies is described as 'resilient contestations,' wherein gender boundaries that would typically exclude women are avoided. Such actions complicate and challenge privilege in the distribution of development benefits (Elmhirst, 2011). Nonetheless, the advantages and disadvantages of women engaging in collective action through groups are mediated by gender relations, class, social norms, gender division of labour, and power structures within the society (Agarwal, 2000).

Secondly, women-only FBOs may enable women to control membership benefits fully (Adlam, 2023). However, in rural India, Dohmwirth & Hanisch (2018) posit that members of women-only FBOs showed less control over dairy income and productive decisions in comparison to unorganised women dairy farmers or members of mixed-gender cooperatives. This adverse effect is attributed to men increasing their control over dairy production when women-only dairy FBOs are formed. Dohmwirth & Hanisch (2018) suggest that FBOs in the dairy sector, which systematically exclude men, may fail to enhance women's empowerment at the household level. This underscores the fact that excluding men from development initiatives through FBOs may reinforce the perception that these programs are predominantly "women's issues" rather than comprehensive societal concerns. Women-only FBO risks alienating men and can provoke backlash in contexts where changing gender roles are

perceived as threatening established forms of men's authority (Connell, 2020; Cornwall & Rivas, 2015). In a related study conducted in Southern Ethiopia, women participating in women-only apple cooperatives show limited bargaining power due to men's control over the apple business (Alemu et al., 2018). Additionally, there are more conflicts between spouses, arguably resulting from an intensified fight over control over household resources, which Alemu et al. (2018) referred to as the 'backlash effect' from husbands (Alemu et al., 2018).

Moreover, the exclusion of men may also undermine the "potential and actual complementarities between men and women in terms of their knowledge and skills", leading to ineffective development programmes and strategies within FBOs to empower women (C. Doss et al., 2018, p. 73). In explaining the limitations of targeting women-only farm groups for development projects to empower women, Dohmwirth and Hanisch (2018) argue that:

First, women in single-sex cooperatives may be 'pushed' by men to participate in an income-generating programme, even if they are not themselves motivated to join. Second, men may feel threatened by the prospect of losing their breadwinner position within the household or village [...] thus, counter traditional forms of and roles within agricultural activities and increase conflicts within the household. Third, women-only dairy cooperatives are established using a top-down approach [...] Finally, women who are supposed to manage women-only cooperatives at the village level often lack adequate education and training. Therefore, due to lack of capacity, they may become marginalized if allocated the role of shadow manager. (Dohmwirth & Hanisch, 2018, p. 689)

A study in Kenya demonstrated that women's membership in dairy producer organisations improved their independent control over production decisions, buying and selling of land and cows, the utilisation of loans, as well as the receipt of dairy

income. They further recommended that women's membership alone cannot eradicate gender disparities; instead, it should be supplemented with other interventions that improve men's and women's awareness of women's empowerment (Mwambi et al., 2021).

However, women may encounter entry barriers that hinder their participation in mixed-gender FBOs. A study conducted by Mwambi et al. (2020) indicate that although the percentage of women and men involved in bargaining and processing dairy producer organisations in Kenya is not significantly different, women are nonetheless excluded from participating in decision-making processes. Other authors further argue that mixed-gender participatory FBOs may marginalise women (Mayoux, 1995; Cornwall, 2003 as cited in Dohmwirth & Hanisch, 2018), particularly in settings where cultural barriers to women and men working together are high, women-only groups may be the most feasible approach to addressing women's needs and enabling their full participation in collective actions and agency (Pandolfelli et al., 2008).

Savings Groups and Women's Empowerment

As mentioned earlier, FBOs are used to pool resources through informal village savings and loans to support members with loans. Poor women are often excluded from household decision-making processes, primarily due to financial constraints rooted in discriminatory traditional roles. This, in turn, results in limited ability to engage in income-generating activities or to access farm inputs, often necessitating reliance on male family members (Bercaw, 2012). It is argued that women rely more heavily on informal networks in comparison to men, since they experience less access to formal institutions and economic assets (Agarwal, 2000; Hossein & Bonsu, 2023).

With the Village Savings and Loans Associations (VSLA) model, a group of farmers meet regularly to both save and access credit from these savings. The focus of this approach is on

fostering savings and asset accumulation, and on providing credit facilities aligned with the borrower's needs and repayment capacity (Hossein & Bonsu, 2023; Kwarteng Amaning & Sarfo-Mensah, 2019). VSLA is commonly referred to as "susu" in Ghana.

Susu literally means "little by little" in Ghana's Twi language. In the same language, it also means "to plan," as in susu biribi. These two meanings together suggest that susu practices implore people to plan for the future: "Little by little," as Ghanaians say. For many in Ghana, joining a susu is a way to make a living, but it is also how ordinary people live, especially women. (Hossein & Bonsu, 2023, p. 110)

There is increasing evidence of the impact of VLSA on rural populations' access to financial services, as well as enhancing incomes and livelihoods. Indeed, participation in informal organised savings mechanisms such as VSLA, may therefore be particularly advantageous for women by equipping them with resources to enhance their financial, physical, social, and emotional well-being (Bercaw, 2012; Hossein & Bonsu, 2023; Kwarteng Amaning & Sarfo-Mensah, 2019). Cooperative for Assistance and Relief Everywhere (CARE) researchers' evaluation of the impact of VSLAs in Ghana, Uganda and Malawi demonstrated a consistent increase in savings as well as access to loans among members across all three nations (Karlan et al., 2017). Additionally, the authors observed that women in the programme obtained a 0.06% (SE = 0.034) increase in their influence on household decision-making, a 3.7% point (SE = 0.014) increase in control over food expenses, and a 2.9% point (SE = 0.015) increase in women with influence on education expenses.

Access to financial services in Ghana contributes to making poor women more confident, assertive, and better equipped to overcome cultural and social inequalities (UN, 2005, as cited in Boachie & Adu-Darko, 2022). One critical aspect of women's empowerment is agency. A comprehensive study conducted in northern Ghana, employing both quantitative and

qualitative methodologies, applied three dimensions of agency adapted from the Women's Empowerment in Agriculture Index (WEAI) to examine the impact of VSAL on women's agency: women's participation and decision making in groups; women's comfort with public speaking; and women's decision making in their households. The findings indicate that women participants of VSLA are more economically and socially active and possess greater autonomy compared to women who did not participate in the savings group (Kwarteng Amaning & Sarfo-Mensah, 2019).

Evidence from the literature proves a mixed impact of VSLA on women's empowerment. Although women's participation in VSLA may provide economic empowerment, in many cases, women remain restricted from claiming all potential benefits due to structures that dictate normative gender roles and power structures (Dohmwirth & Hanisch, 2018; Eriksson & Kyhle, 2021; Roy et al., 2015). Particularly, at the household level, the benefits and their finances and assets derived from the group activities may be diverted to other household members, as observed in programmes targeting livestock-transfers to women in Bangladesh. Although women are the owners of the transferred livestock, new investments mobilised from these resources are primarily owned by men (Roy et al., 2015).

Moreover, empirical studies observed that women participating in women's-only VSLA groups encounter problems, such as "increased domestic violence against women[...], lack of women's control over the use of credit [...], and insignificant improvements in women's status within the household" (Dohmwirth & Hanisch, 2018, p. 678).

Drawing from the discussion on the impact of women-only and mixed-group participation in FBOs and SGs, the evidence is mixed on women's empowerment. Understanding the impact of development interventions requires additional research to better understand the outcomes and experiences of SWFs. Therefore, the research in this thesis provides additional empirical

information, filling this knowledge gap by documenting additional areas of consideration for exploring programme impacts from the perspective of SWFs. To do this research, the GEM toolkit was employed and expanded to examine the empowerment impact of GASIP on women-only farm groups and mixed groups by uncovering five categories: economic, knowledge, physical security, self-confidence and social, as well as other identified indicators from participants, including children's wellbeing in northern Ghana. In doing so, this study provides substantive, context-specific evidence regarding the impact of GASIP on the (dis)empowerment of women, from the perspective of SWFs, in Ghana.

Summary: This chapter provides an in-depth review of relevant literature that informs the research. It explores key ideas and debates on the impact of climate change, access to resources, and empowerment through a gender lens, establishing a background for the research questions that frame this work. The chapter also outlines the research's theoretical foundations, namely feminist political ecology, and Kabeer's empowerment framework, which offer a framework for understanding the phenomena under investigation.

CHAPTER 3: METHODOLOGY

This chapter outlines the specifics of the feminist epistemological and methodological approach employed in this research. This study adopts a qualitative research design, guided by the research questions that explore subjective meanings, experiences, and perceptions. This approach allows for context-rich engagement with participants. The chapter provides the data collection methods, including sampling and recruitment procedures, fieldwork practicalities, and the research data analysis process. In the final section, I engage with my own positionality as a researcher through a reflexive review of my personal fieldwork experiences.

Feminist Epistemology and Methodologies

Feminist Epistemologies

Feminist scholars highlight how scientific practices have historically marginalised women, excluding their experiences, denying them epistemic authority, or labelling their knowledge as inferior (Haraway, 1994; Harding, 1986, 2023). Therefore, feminist epistemology emerged as a critique of positivist science, which has historically underprivileged women's participation, representation and authority (Henwood & Pidgeon, 1995) and excluded the possibility that women could be 'agents of knowledge' (Harding, 1987, p. 3). Feminist epistemologies aim to reshape traditional epistemic practices, concepts, and norms to advance women's interests. This necessity arises from the fact that dominant philosophies of science discredit the epistemic authority and cognitive styles of women, marginalise them in social inquiries, produce knowledge and theories that dismiss their activities and interests, and exacerbate unequal power relations (Anderson, 2020; Haraway, 1994; Harding, 2023). Harding (1986) provides a coherent feminist critique of science, arguing that it is not neutral; rather, it is historically and socially engineered and thus value-laden. Since society operates on racist, sexist, and classist

hierarchies, natural science is characterised by the dominant group (male biases) and has advanced its parochial interest over women's needs and aspirations.

In this research, feminist epistemology shaped my understanding of who a knowledge-holder is, what is known, and how it is known (Code, 1991). As previously stated, perceptions of climate change vary due to different exposures to its impacts and gendered access to productive resources for mitigating its adverse effects. The methodology that I have employed here is inspired by the feminist standpoint theory (FST), a tradition of feminist epistemology which emerged as a critique of positivist science, which has historically underprivileged women's representation, participation, and authority (Henwood & Pidgeon, 1995) and ignored the possibility that women could be 'agents of knowledge' (Harding, 2023). FST argues that experiences of marginalisation can become epistemically privileged sites for producing knowledge. In particular, women and other marginalised groups have been traditionally located outside research (Harding, 1991). FST argues that starting research, inquiry, or knowledge production from the lived experiences of these marginalised women and other underrepresented groups will contribute to the generation of knowledge that provides a more accurate account of those lives and can elucidate the challenges posed by the dominant class (Harding, 1991). Additionally, FST can provide 'strong objectivity' as the marginalised groups are more motivated to understand the views or perspectives of those in positions of power (Harding, 1986; Hartsock, 2017). FST posits that the research process (including question formulation, method selection, and data interpretation) from the viewpoint of strong objectivity reveals the relations of power hidden in traditional knowledge production processes.

Feminist thought emphasises that to achieve ethical and transparent research outcomes, researchers must acknowledge that knowledge production is a political process shaped by power dynamics, hence the need for reflexivity (Harding, 1991; Naples, 2003). Reflexivity in

the research process involves analysis of the relationship between the researcher and the researched participants, which stands in contrast to the traditional scientific method, which either dismisses this relationship or endeavours to exert control over it (Harding, 1991). This is why my research process included continuous self-reflexivity regarding how my subjectivity impacted both the process and the results of my research (Pillow, 2003). Engaging in reflexivity serves to validate and legitimise my qualitative research, allowing me to articulate the partiality of my representation in relation to my situatedness, while still maintaining my claims to truth (Anderson, 2020).

In Ghana, SWFs have unique lived experiences because they are marginalised and discriminated against in society, especially in the northern part of Ghana, where patriarchal norms are more deeply entrenched than in the South (Apusigah, 2009; Yaro, 2010). Northern Ghana is a patriarchal society, where women's and girls' voices are often marginalised in decision-making at the household, community, regional, and national levels (Apusigah, 2009; Dery, 2015; Dery & Bawa, 2019; Pearse, 2017). Patriarchal norms have structured communities by power relations that give privileges and opportunities to men (dominant group), and discriminate against women (subordinate groups), generating gender inequality.

In line with standpoint theory, this research aims to amplify the voices and experiences of SWFs who have been marginalised within scientific practices that dismiss their knowledge. The study seeks to understand SWFs' perceptions of climate change, its impact on their livelihoods, and their coping strategies in response to its adverse effects. Notably, their perspectives often differ from those promoted by men, owing to the predominance of patriarchal societal structures in northern Ghana, and their different social and livelihood roles (Haraway, 1994; Harding, 1996; Smith, 2004). In my research, participants were recruited to understand perceptions of climate change and its impact on household food security, with a focus on women, and were

complemented by key informants. The focus on women's voices is particularly significant, considering the bias present in the climate change literature concerning evaluations of climate change perceptions, decision-making, and access to agricultural productive resources. This bias has resulted in knowledge gaps regarding women's experiences and perceptions of climate change. My research aims to address the shortcomings in the climate change and development literature by adopting an intersectional approach in my inquiry. To do so, I recognise SWFs as knowers of their lived experiences of climate change impacts and as active participants in development programmes, factors that are intricately linked to their livelihoods.

In examining the gender impact components of the GASIP programme, I have selected methods aimed at uncovering narratives of struggle and transformation derived from life activities and experiences that are "subversive of the hegemonic account" (Cockburn, 2010, p. 140). For example, Anyidoho & Manuh (2010) posit that the dominant development strategies for women's empowerment by the government, World Bank projects, and other non-governmental organisations (NGOs) in Ghana portray women as voiceless, passive, and in need of help, an approach known as Women and Development (WID). The identity framing of the 'other' reflects the problem of the charity approach to development, which depicts recipients of development programmes as helpless and voiceless, thereby reproducing the binary of *passive recipient/active giver* (Tiessen, 2015). These framings conflict with the principles of my research, which provides a platform for the women beneficiaries of the GASIP to speak for themselves. Programme assessment processes are valuable for capturing the perspectives of change from the viewpoints of institutions and donors, while also contributing to specific funding criteria. Nonetheless, they contribute little to enhancing our understanding of how individual beneficiaries perceive these interventions, let alone how they define changes and impacts. Therefore, my research contrasts with the evaluation work typically conducted by institutions and shifts the focus of voice and the construction of impact and change directly to

those for whom the GASIP programme was designed and implemented, recognising them as knowers of their lived experiences and active participants in development programmes, which is intricately linked to their livelihood and empowerment.

In examining the gender impact components of the GASIP programme, I prioritised the voices of women beneficiaries and included the perspectives of men beneficiaries. Although feminist epistemologies and methodologies largely draw upon women's experiences, I concur with the argument that "women's and men's characteristic social experiences provide different but not equal grounds for reliable knowledge claims" (Harding, 1987, p. 10). This decision was not intended to pursue a path of strict comparison or even challenge women's reported experiences. Instead, I sought a holistic understanding of the gender relational dynamics experienced in their households and communities at the programme level.

Finally, my research recognises that there is no singular women's standpoint and women do not constitute a homogeneous group, as experiences of oppression or privilege differ according to the intersecting socio-political categorisations or axes of power, such as women's marital status, location, class, race, sexual orientation, religion, caste, and education, among others. This approach provides insights into the politics of representation and difference, exposing essentialist and universalist representations of women.

Feminist Methodology

I have established my methodological approach on a solid foundation of feminist epistemology and methodologies to address the research questions posed. Feminist methodology contrasts with the dominant androcentric positivist methodologies within academic disciplines that claim objectivity and neutrality (Wigginton & Lafrance, 2019). Feminist critiques of androcentric and positivist science have spurred the exploration and potential of qualitative methods, thereby introducing new approaches to social science research as well as elucidating how traditional or

mainstream androcentric theories and approaches have obscured ways in which women's lives are lived and have impeded a comprehensive understanding of men's activities and relationships as gendered (Harding, 1987, 2023). Feminist research methodology is distinguished by its application of strategies and interventions that promote the voice, agency, and empowerment of women and girls from diverse backgrounds, as well as all groups subjected to discrimination and marginalisation.

The overarching objective of a feminist approach is to understand and eradicate systemic discrimination rooted in sex, gender identity, and intersecting identity factors such as ethnicity, age, location, disability, religion, education, and marital status, in order to produce knowledge that is not disconnected from the lived experiences of women and other marginalised groups, as well as to facilitate transformative change towards societies that are more equal, flourishing, and peaceful (Global Affairs Canada, 2022).

Adopting a feminist methodology for my research required that I recognise and actively seek to mitigate the power imbalance relationship with my research participants; adopt a flexible approach based on local realities to formulate the research design, questions asked, process of data collection (participatory data collection), as well as acknowledge the influence of my positionality on the entire research process. Moreover, the significance of the intersectional dimensions of lived experiences informed my work to incorporate the perspectives of GASIP participants more comprehensively – acknowledging them as rights holders and agents of change within their communities, rather than merely beneficiaries of development projects (Global Affairs Canada, 2022). Additionally, the research adopts a critical approach by recognising that women face different demands on their time due to the gender division of labour, which may require accommodations to ensure equal participation in data collection. The research also examines the complex structures of women's subordination within the

household and community, including gender relations, responsibilities, cultural norms, and the frameworks that determine access to - and control over - land and agricultural inputs, as well as the impact of GASIP on women's empowerment.

Field Location

I conducted fieldwork in Ghana from July 2023 to January 2024. The geographic scope of my research is northern Ghana, comprising five administrative regions: the Upper West, Upper East, Northeast, Northern, and Savannah regions. The research area focuses on the Upper East Region of Ghana. The Upper East Region is in the northern part of Ghana between latitudes 10° 30' to 11°00' north and longitudes 0° to 1°30' west. The region shares two international boundaries with the Republic of Burkina Faso to the north and Togo to the east. The other boundaries are the Northern Region and Upper West Region to the south and west, respectively. Kassena Nankana Municipality is situated within the semi-arid Sudan Savannah agro-climatic zone. The climatic characteristics include a brief rainy season and an extended dry season. The rainy season occurs from May to September, with average monthly precipitation ranging from 600 to 1300mm. Although the rainfall during this period is substantial, it is of short duration, which can lead to soil erosion. The dry season is characterised by high temperatures during both daytime and nighttime, with maximum temperatures ranging from 38°C to 43°C (Ghana Statistical Service, 2021; Incoom et al., 2020). As a result, livelihoods are highly vulnerable to climatic variability, including erratic rainfall patterns, droughts, and land degradation (Baffour-Ata et al., 2021; Osman, 2023a).

Several factors influenced the geographical focus of my study. First, about 80% of the economically active population engages in agriculture for their livelihood and household food security (Arfasa et al., 2024). The agriculture sector is crucial for their livelihood. With one

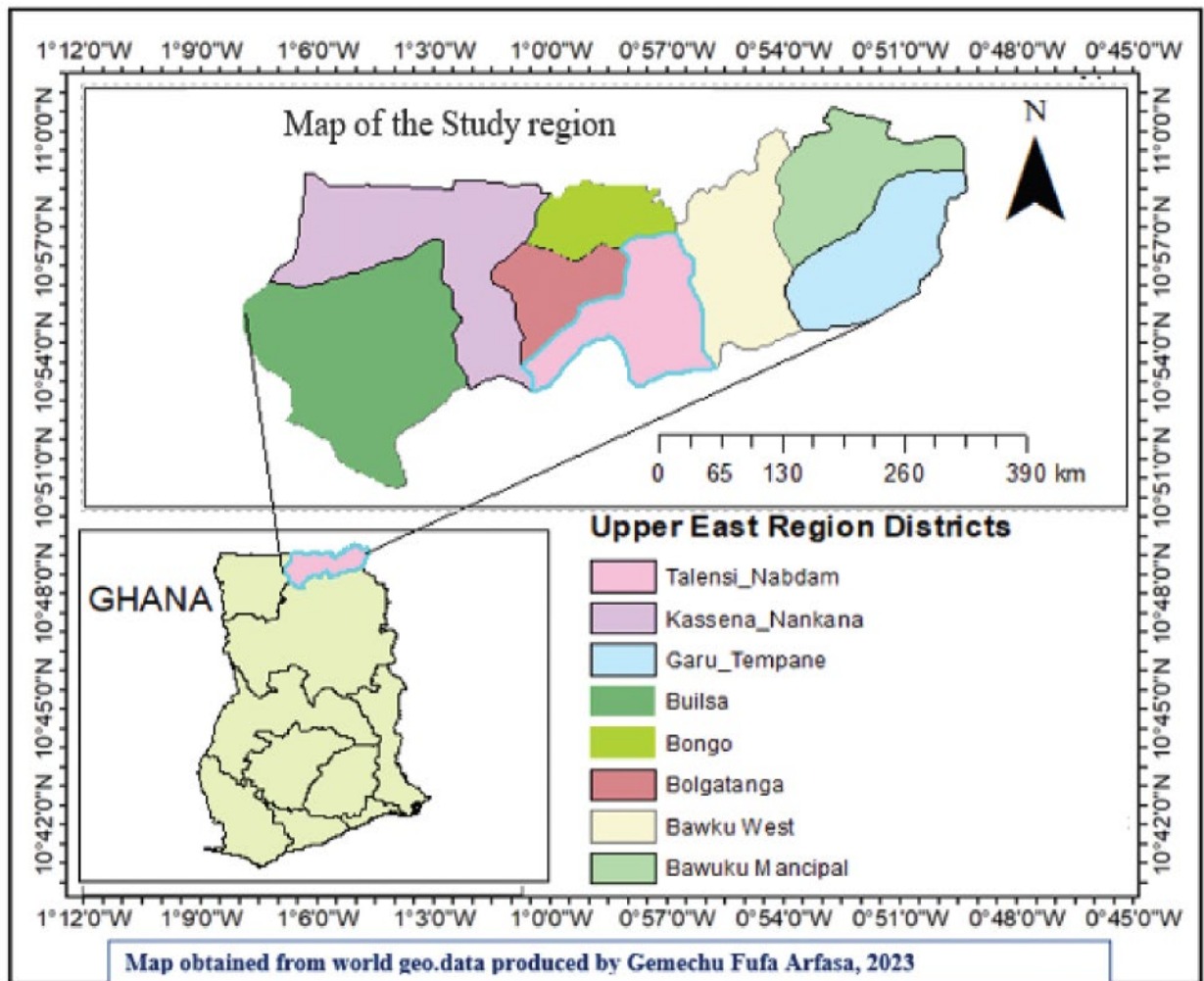
farming season, many households experience undernutrition and poverty during the dry season (Abdulai et al., 2018) in the region.

Beyond primary agriculture, households engage in limited livelihood diversification strategies such as petty trading, artisanal work, seasonal migration, and participation in local markets (Ghana Statistical Service, 2021; Yaro, 2006). Women are disproportionately concentrated in informal economic activities, including shea butter processing, basket weaving, and small-scale trading, reflecting gendered divisions of labour and constrained access to productive resources such as land, credit, and agricultural inputs (Tsikata, 2009). Men, by contrast, are more likely to control land and engage in livestock production or cash crop activities, underscoring entrenched patriarchal land tenure systems in northern Ghana (Yaro, 2010).

The municipality exhibits characteristics of a semi-subsistence economy with low levels of industrialisation and limited formal employment opportunities. Access to key infrastructure—such as irrigation systems, financial services, and market integration remains constrained, reinforcing dependence on climate-sensitive livelihoods (MoFA, 2021). Consequently, seasonal food insecurity and income instability are prevalent, particularly during the pre-harvest “lean season” (FAO, 2023; World Food Programme, 2024).

This economic context is critical for understanding livelihood strategies, gendered access to resources, and adaptive capacities within the study area. The predominance of climate-sensitive livelihoods makes the municipality a relevant site for examining the intersections between gender, vulnerability, and perceptions of climate change.

Figure 3 Map of Ghana showing the Upper East Region.



Source: (Arfasa et al., 2024)

The Upper East Region is a vast area. To narrow down my research sites within the region to allow for an in-depth study of the climate change perception and GASIP impact, I selected communities in the Kassena Nankana Municipality (KNM), where I had knowledge, experience, and existing contacts with the agricultural extension office and NGOs due to schooling and working there for several years.

The administrative capital of the municipality is Navrongo. The municipality covers a total land area of 865 square kilometres. Ethnicity is mainly Nankani, Kasem and Buili. The

population of the Municipality, according to the 2021 population and housing census, stands at 99,895, with 48,658 males and 51,237 females respectively (Ghana Statistical Service, 2021). The census estimated that about 23,176 households reside in the Municipality, with an average household size of approximately 4.1 persons. A household is defined as “constituting a group of people who own the same productive resources, live together and feed from the same pot” (Yaro, 2006, p. 129). Household structures generally consist of groups of individual family rooms arranged in a circular formation with an open space in the centre for family gatherings. These rooms are constructed in circular or rectangular shapes with clay and thatch roofs; however, new types of buildings are emerging across the municipality, made with cement blocks and aluminium roofs. (see Figures 4)

Figure 4. A single household structure made up of a cluster of several individual family houses.



Source: Author’s fieldwork photograph, Punyoro, 2023

The housing structure comprises a storage barn, kitchen, animal pen, and a shaded shed at the entrance to the compound. The compound settlements are predominantly encircled by agricultural fields that are cultivated seasonally and intensively. The communities are characterised by poor roads, poor water supply, and limited electricity supply.

In the municipality, the main economic activities are rain-fed agriculture. Farming is characterised by manual labour and is knowledge-intensive, with limited or no modern technological inputs. Women play an important role in economic growth and poverty reduction through their active engagement in agricultural activities. In addition, most households are food insecure. Ghana Statistical Service (2021) report posits that KNM is also a part of the country where both climate change impacts and structural underdevelopment are acute realities. The process of selecting the final field site of KNM was important as it allowed questions regarding the methodology and overall research design to be raised and clarified. As Lewis appropriately states, “selecting research settings and populations involves identifying those which, by virtue of their relationship with the research questions, can provide the most relevant, comprehensive, and rich information” (Lewis, 2003, p. 49 as cited in Cadesky, 2022).

Moreover, there are three significant reasons why this municipality was selected for the research. First, the municipality has experienced some of the highest incidences of food insecurity, poverty, and perennial drought and flooding in the country. The municipality is considered the most vulnerable to climate change impacts (Arfasa et al., 2024; Glazebrook, 2011), which has serious implications for rain-fed agriculture and food security. Secondly, there are good sources of literature available from the municipal authorities, including literature on agriculture, gender, the environment, and the economy. Lastly, I chose this study site because it contains the community characteristics I sought to examine, including the predominance of SWFs in the population, the hegemony of patriarchal norms, and subsistence

farming for household food security and women's livelihoods. The KNM therefore served as an appropriate research site for the examination of women's access to land, women's perceptions of climate change, and the impact of the GASIP.

Upon arriving in the municipality, I established a base in Navrongo, a strategically advantageous location for expanding my network and conducting multiple background interviews with Department of Food and Agriculture staff, key informants, NGO personnel, and other knowledge holders. Based on my prior knowledge, I had initially considered three research communities in the KNM. However, my initial key informant interviews with the staff (agricultural extension officers, manager, and gender officers) revealed that the GASIP was being implemented at varying degrees across the country, regions, and communities. Within the KNM, the GASIP was implemented through men-only or women-only farm groups in the communities. However, in Punyoro, GASIP is implemented through a mixed-gender farm group. Following consultations with my supervisor, I decided to make changes to the research communities by dropping one community and adding the Punyoro community with a mixed-gender farm group. This necessitated minor modifications to my methodology. The underlying motivation for selecting a community with a mixed-gender farm group was to include a comparative element in the research. The communities were selected with guidance from the GASIP programme officers at the KNM Department of Food and Agriculture in Navrongo.

To narrow my research sites, I selected one community from each of the three zones of the GASIP project: Korania, Punyoro, and Nagtunia. There were local contacts (assembly members and informants) who were willing to assist with my research. All three communities were fairly representative of other communities, sharing a common ethnic makeup, culture, exposure to climate extremes, and food insecurity, as well as agricultural activities, a high

population of subsistence SWFs and GASIP participants, and a similar set of ecological problems.

Nevertheless, all three communities differ in aspects of agricultural infrastructure development, land access, and proximity to agricultural inputs, extension officers, and markets. Korania is the nearest to the municipal capital, Navrongo. Travelling from Navrongo to Korania by motorcycle typically takes approximately 25 minutes. The road from Navrongo is tarred; however, the branch leading into Korania is untarred, rough, and narrow, limiting vehicle access. Consequently, I relied on motorbike services for both myself and my interpreter throughout the fieldwork. During a three-week period in Korania, heavy rains caused the bridge on the short route from Navrongo to Korania to collapse. An alternative route was identified, requiring an average of one hour to reach Korania.

Nagtunia is the farthest of the three communities from Navrongo. The journey from Navrongo to Nagtunia typically takes approximately one hour and 20 minutes along an untarred road with potholes, which becomes exceedingly dusty during dry conditions. My trip to Punyoro by motorbike generally took about 45 minutes from Navrongo.

Another difference among the communities is that Korania is located within the Tono irrigational dam operation area and is better resourced for all-year-round farming as well as commercial farming. The remaining two, Punyoro and Nagtunia, have no irrigational dam facility, far from the municipal capital and agricultural office, which provides a useful point of comparison. Moreso, it was only at Punyoro that the GASIP project was implemented with mixed-gender farmer groups. These micro-geographics were salient in comparing whether and how community-level opportunities and constraints shape SWFs' perception and impact of climate change and access to land and agricultural inputs, as well as the impact of the GASIP project on women's empowerment.

Sampling and Recruitment

Prior to travelling to Ghana for data collection, I established contact with the key government and non-governmental organisations directly working at the intersection of climate change, agricultural livelihoods and women's empowerment in KNM, including the local government Department of Food and Agriculture, the gender office in the municipality, agricultural extension officers, SEND-Ghana, ActionAid Ghana, International Institute Of Tropical Agriculture (IITA Ghana Tamale) and Centre for Social Mobilization and Sustainable Development (CENSODEV). I introduced my research and my intention to interview staff members who possess significant knowledge and who are directly working in the communities with women farmers, as well as being involved in the design and implementation of the GASIP. The officials provided helpful advisory support, especially in reviewing my research questions and sampling processes. The KNM Department of Food and Agriculture played a significant role in my recruitment process. Upon arrival in Navrongo, the agriculture extension workers directly involved in the implementation of GASIP linked me to the various assemblymen, the leaders of the GASIP farmer groups in the communities, to facilitate community entry.

Afterwards, the assemblymen and the GASIP farm group leaders assisted me with the community entry and related processes. The community entry involves visiting each community and meeting with community leaders to explain the study's purpose and express interest in engaging with women farmers and GASIP participants. This engagement played a crucial role in developing an understanding of the community's culture, social relationships, and agricultural practices, while also fulfilling customary requirements. Importantly, community entry removed barriers, such as husbands' restrictions, which facilitated the recruitment of women respondents. The blessings and permission from the chief and elders gave me the necessary credibility to conduct my research in the communities. Moreover,

community entry provided an excellent opportunity to establish contacts with key informants, including the chiefs, *Tindana*, and GASIP participants. After obtaining verbal consent from community leaders, I proceeded with sampling and recruiting research participants in each community.

In my study, there were two participant groups who I believed could address my research questions. First, key informants include NGOs involved in agriculture and women's empowerment, *Tindanas*, landowners, agricultural extension officers, and GASIP officers. Second, I was interested in the perspectives and experiences of women and men beneficiaries of the GASIP, as they were best positioned to reveal the specific role the GASIP plays in determining their empowerment. Also, I was interested in women farmers' perceptions of climate change and their access to farmland. Hence, my research population was well-defined, and this largely simplified the sampling process.

The selection of participants utilised a purposive and snowball sampling approach to ensure the representation of diversity among SWFs in terms of age, ethnicity, marital status, education, kinship, and disability. Purposive sampling is a nonprobability sample and selects participants based on their characteristics and the objectives of their involvement in the study. Purposive sampling facilitated the identification and selection of information-rich cases that were experienced, knowledgeable, available and willing to participate in the study, thereby maximising efficiency and validity (Creswell & Creswell, 2017; Guest et al., 2013; Patton, 2002). Furthermore, snowball sampling proved effective in identifying prospective participants through referrals from existing participants, subsequently enabling the identification of additional potential participants based on their knowledge of others and network linkages (Willis, 2006).

Given the KNM Department's role in GASIP implementation, I purposively selected their officers, including agricultural extension and gender officers. I also included NGOs working on gender equality and agricultural empowerment. Chiefs, Tindana, and landowners were selected for their relevance to women's land access. For my second category of participants – beneficiaries - I recruited a total of 33 women beneficiaries across the three communities and eight men from Punyoro for the study to understand their perspectives and experiences with the GASIP regarding women's empowerment and gender relations. An additional 21 SWFs were recruited, seven from each of the three communities, for semi-structured interviews to examine SWFs' access to land, perceptions of climate change, and coping strategies.

While I was initially concerned about recruiting women for my study, I ended up including eight men. As explained earlier, due to Punyoro's distinctive mixed-gender farm group and consultation with my supervisor, I decided to include eight men from Punyoro. I included men to further enrich my work by comparing the experiences of women in mixed-gender to women-only farm groups with the programme. GASIP beneficiaries were recruited with the assistance of agriculture extension officers (AEO) directly involved in the GASIP project. The standpoints and experiences of women were given priority as they needed to be the first to reveal their experiences and realities on their own terms and in their own language (Haraway, 1988; Harding, 1987, 1991). The target participants were SWFs who are beneficiaries of GASIP. The first participants were recruited from the initial community entry meeting and their regular group meeting. The absentees were recruited through a snowball sampling method.

Research participants were recruited to reflect the diverse backgrounds and experiences of women beneficiaries, based on marital status (married, widows, and singles), age (24-66), ethnicity, (dis)ability, location, and education.

Table 1: Study participants disaggregated by age, kinship, marital status and location

	Koriana	Nagtunia	Punyoro
Smallholder women farmers interviews	7	7	7
Smallholder women farmers interview beneficiaries	3	3	3
Smallholder women farmers FGD	8	8	8
TOTAL	18	18	18
Men GASIP beneficiary FGD	-	-	8
Age range			
Elderly > 60 years	5	4	3
60 to 35	8	7	8
Youth < 35	5	7	7
Marital status			
Married	14	15	12
Widowed/ Household head	3	3	5
Singles	1		1
Number with formal education	2	2	1
Women married from different villages	4	3	3
Disability			1

Training Before Data Collection

I am from southern Ghana, and my mother tongue is Twi. However, my years of staying in Navrongo allowed me to learn and speak the Kasem language. To ensure the quality of my research and accurate interpretation, I enlisted the services of a professional interpreter who

was born and raised in the municipality. My understanding of the language was an additional advantage during data collection. I preferred a female interpreter; however, finding one proved challenging due to the unpredictable nature of the interview schedules. Participants often rescheduled interviews to attend to their farming responsibilities during the rainy season or family emergencies. In the research communities, gender norms tend to favour men for work and spending more time away from their families, while restricting women to household and reproductive roles. This resulted in female interpreters declining my offer due to conflicting, irregular schedules and their domestic and gendered reproductive duties. Following the community entry of all three communities, in collaboration with GASIP officers, a team of local knowledge holders was established to tailor the Gender Equality and Empowerment Measurement (GEM) tool to the local context, taking into account language, gender norms, and culture to align with my project's specific objectives and activities. The team comprises the hired professional translator, a researcher and lecturer at UDS, and a key informant (a gender officer at the municipality). The biggest challenge we encountered was translating empowerment into the local language (Kasem). The word 'empowerment' could not be directly used because there were no equivalent terms in the Kasem vocabulary. After much deliberation, the most common phrases were selected and pretested in the communities. Based on the responses, the final phrase '*Ka-taa-jege pempanno*' translates to self-confidence and strength or empowerment in English. Therefore, the phrase '*Ka-taa-jege pempanno*' was chosen and incorporated into the FGD and interview guide. My interpreter was trained to familiarise himself with the research questions, the objectives of the research, and the GEM tool guide, to tailor a local-language version and to become familiar with the types, nature, and wording of the research objectives.

Research Methods

In my research, I adopted a qualitative approach. Data were collected through semi-structured in-depth interviews, focus group discussions, and literature reviews, integrating the Global Affairs Canada's GEM Tool. The GEM tool uses a feminist methodology to provide the strategies needed to evaluate the outcomes/impacts of development programming, revealing the gap between development programmes on paper/theory and their implementation (praxis) impacts on beneficiaries, identifying barriers, and supporting beneficiaries' empowerment in the project environment. Moreover, not only does it put the voices of women and other marginalised groups at the centre, the GEM tool also offers an intersectional lens and a reciprocal approach to data collection (Global Affairs Canada, 2022).

The GEM Tool provides five important categories of empowerment for data analysis: knowledge, economic, physical security, self-confidence, and social, as well as any other category identified by research participants to suit the local context. These categories provide relevant standards for collecting qualitative and descriptive data through participatory focus group discussions and semi-structured interviews. The GEM tool further enriches data collection by providing a gender-impact rating option for research participants to exercise agency in assessing the empowerment impact of a project intervention (see Table 2).

Table 2: Gender Impact Rating Options

No gender impacts	No changes to participants' individual empowerment or gender relations in this category.
Negative gender impacts	Negative or harmful impacts for participants' individual empowerment and gender relations in this category.
Mixed gender impacts	Some positive and some negative changes to participants' individual empowerment and gender relations in this category.
Positive gender impacts	Positive or beneficial changes to participants' individual empowerment and gender relations in this category.

Source: (Global Affairs Canada, 2022)

My choice of a qualitative methodology is inspired by the value that qualitative methodology offers in gaining an in-depth understanding and insight into how people make sense of their world and the experiences they have in the world through close observation, interaction, and dialogue (Creswell & Creswell, 2017; Denzin et al., 2006). Engaging participants in naturalistic inquiry based on their experiences through their stories, behaviours, descriptions, feelings, discourses, and gestures offers them agency, power, freedom, and empowerment to reflect upon and engage with their own opinions, feelings, beliefs, and norms (Bryman, 2004) and more suited to the assumptions of feminist standpoint theory (Haraway, 1988).

Semi-Structured In-Depth Interviews

A semi-structured interview is an interpretive method and a valuable qualitative data collection tool for exploring the attitudes, perceptions, and experiences of the marginalised in their own voice and language. Semi-structured interviews can also provide insight and understanding into complex societal issues through intangible factors such as gender roles, social norms, and

socioeconomic status. This approach utilises the experiences, feelings, and opinions of individuals to gather culturally specific information, helping to understand a particular problem from their perspective, which may be overlooked in statistical analysis (Guest et al., 2013; Willis, 2006). This format allowed for open-ended questions to evolve over the interview process.

I conducted 59 semi-structured, in-depth interviews in English or Kasem over the course of six months of fieldwork. With the consent of participants, interviews were digitally recorded, while notes were taken simultaneously. Each of these interviews took between 40-60 minutes on average. Open-ended questions were asked, focusing on depth rather than breadth in the sample. As Miller & Salkind (2002) argue, “open-ended questions are appropriate and powerful under conditions that require probing of attitude and reaction formations and ascertaining information that is interlocked in a social system or personality structure” (Miller & Salkind, 2002, p. 3)

In total, 29 key informant interviews were conducted. Key informants from the Department of Food and Agriculture were asked questions concerning climate change and farming practices, the overall objectives of GASIP, its implementation, and processes. In addition, the key informants were asked about the government’s policy stance on gender equality and empowerment, and the extent of their integration within the GASIP programme. Key informants were asked questions about gender and women’s empowerment issues in the regions, women’s and men’s access to land, their programme interventions to empower women in these areas, barriers to gender equality and women’s empowerment, and recommendations for gender equality initiatives. Tindanas, chiefs and landowners were asked questions about men’s and women’s access to land, inheritance systems, and cultural norms regarding gender and gender relations.

Table 3: Key informant interviews table

Ministry of Agriculture at the KNM – GASIP officers and agricultural extension officers	18
NGOs in women’s empowerment programmes and agricultural development	6
Gender office (KNM)	1
Landlords	3
Chief	1
Total	29

It is worth noting that GASIP officers were very pleased with the research. They welcomed my research as an opportunity to show their achievements, as well as the support needed to equip the department to empower women farmers and support all farmers in the municipality to improve agricultural production and food security. In particular, they were optimistic that the research findings would motivate the government to extend and improve the GASIP project for longer.

Information from my key informant interviews was complemented by in-depth, semi-structured interviews with women participants. A total of 30 women, 10 from each of the three communities, were interviewed. The interviews took place in various locations within their communities, including farms and community centres. Interviews were conducted in Kasem and the two interviews in Twi were solely conducted by me. Although I have intermediate Kasem language skills, I decided to hire an interpreter for my interviews to ensure I would not misinterpret or miss important information from my respondents. Nevertheless, I initially

communicated in the Kasem language to introduce myself and state the purpose of my research before transitioning to English. My introduction pleased participants as they listened to a southerner speaking their mother tongue, which also fostered trust and rapport between us.

The interpretations were conducted in real-time: I posed questions in English, which were then conveyed to my participants in Kasem; they responded in Kasem, and my interpreter relayed their answers back to me in English. My proficiency in the Kasem language additionally enabled me to oversee the quality of the interpretation services provided. During the interviews, the women were asked questions on their perceptions of climate change and its impact on their farming, coping strategies to the adverse impact of climate change, access to farmland and the impact of GASIP on their empowerment.

The interviews took place before the FGDs were completed. The interviews provided an opportunity for me to familiarise myself with and refine certain concepts and terminology central to the research, such as structural determinants of gender inequality and women's empowerment, including cultural and social norms. Interviews were used as a snowball-style recruitment tool to help identify further research participants. Moreover, the interviews offered preliminary insights into how gendered daily experiences are lived.

Focus Group Discussion

The use of a multi-method approach, permitting triangulation of data, is part of my strategy to maximise credibility, helping ensure the validity and trustworthiness of qualitative data. Therefore, in addition to my interviews, I organised four FGDs with women and men beneficiaries of the GASIP. FGD is a “carefully planned series of discussions, designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment” (Krueger & Casey, 2000, p. 5). The participants in FGD share similarities in certain aspects of their characteristics, experiences, or situation that cause them to feel they all have something

in common, which builds rapport for the success of their discussion; therefore, the data obtained is deeper and richer (Guest et al., 2013, p. 234).

The FGD questions were a slight variation on the interview questions, but they centred on women's access to land and the impact of GASIP on women's empowerment. Participants were also provided with a paper board and asked to draw a representation of what the programme had enabled them to achieve across five key categories of empowerment —economic, knowledge, physical security, self-confidence, and social —and any other category identified by the participant. The exercise was designed to capture the rich details of participants' self-defined experiences of empowerment, as well as identify barriers and supports that either hindered or contributed to a particular outcome. The most fun part was when participants displayed and explained what their drawings represented. They chose the best drawer as their queen and applauded her. While having fun, the exercises also build rapport and foster bonding among the group.

In comparison with the interviews, I observed that in FGDs, women were more vocal and expressive about the questions of access to land and activities of the GASIP project on their gender relations and empowerment, providing more context and depth to their experiences and standpoints. Participants' responses opened critical conversations, allowing others to elaborate on their views, build on each other's responses, and generate further reactions, debates, and clarifications. During the sessions, men were not physically present. The interpretations of gender norms, gender roles and practices reinforce the fact that patriarchal societal norms and power structures deeply permeate women's (and men's) consciousness, behaviour, and how people make sense of their lives (Westkott, 1979).

Figure 5. Focus group discussion session in Korania with women displaying their drawings.



Source: Author's fieldwork photograph, Korania 2023.

Data Sorting and Analytical Framework

The data analysis process began with transcribing interviews and FGDs. The transcribed data were analysed and examined through thematic analysis. The analysis process involved carefully reading the interview and focus group discussion transcripts several times to become familiar with the data set. The generation of the first order codes was a deductive and inductive process. The responses were manually coded using Microsoft Excel.

The data is further sorted to identify keywords or phrases. This process involved meticulously reading and re-reading the interviews and FGDs multiple times until tags become apparent. Next, these tags were categorised into key themes, which will be distinguished by colour coding, which is described as baskets within which segments of the text are placed (Marshall

& Rossman, 2014). For each code, theme, and category derived from the analysis, multiple quotes from the transcripts that substantiated their validity were included.

The themes that emerged from the initial coding were multiple and interrelated. Some of the themes included: (1) participants reflections on the changes in climate for the past 10 years; (2) women's access to land through their fathers and husband, (3) challenges of access to land and its impact on livelihoods; (4) the meaning of empowerment; (5) GASIP impact on gender relations at home; (6) GASIP impact on economic, social, self-confidence, knowledge, physical security and children's wellbeing; (7) barriers to empowerment; and (8) supports for empowerment.

There were additional themes, including access to fertiliser and tractor services, as well as cultural and patriarchal norms, and their connection to men's and women's access to agricultural productive resources and gender relations within households. The thematic analysis approach is instrumental in identifying, exploring, and analysing patterns (themes) within qualitative data and generating a comprehensive, nuanced, and intricate account of the collected data (Clarke et al., 2015).

Data Collection Ethics and Validity

The research was guided by ethical principles at every stage to reduce harms and increase benefits while respecting the privacy, autonomy, and dignity of all research participants (Harrison, 2006). Prior to conducting field work, all the fieldwork procedures, including the sampling of participants, obtaining consent, and data analysis, were reviewed and approved by the University of Ottawa Office of Research and Integrity. During data collection, I prioritised duly informing my research participants of my research's purpose, aims, methods, social location, plans for dissemination, rights to anonymity, and the possibility for participants to opt out of the discussion at any time. Both written and verbal informed consent forms were used.

Research participants were given the opportunity to exercise their agency in their interactions with me, the researcher, rather than me dictating the course of the interview in all respects.

Also, ethics-related considerations include the importance of respecting the time and safety of all participants; therefore, participants were encouraged to choose their preferred time to avoid disrupting their daily schedules, particularly their economic activities, and gendered reproductive responsibilities. Overall, I embraced a feminist ethic of care and was mindful of my obligation to care for my research participants by engaging with them respectfully and empathetically. I respected their standpoints to be heard on their own terms in their own capacity. Participants were also encouraged to exercise agency by choosing their pseudonyms rather than having pseudonyms passively assigned to them by the researcher (Lewis, 2016).

Although there was no financial compensation for participation in the study, I tried to minimise inconvenience by reimbursing participation-related costs based on personal factors. Participants were offered snacks and water as a refreshment during the interviews and focus group discussions.

Moreover, I endeavoured to facilitate a collaborative research approach to engage my participants in the knowledge production process, beyond merely extracting information that I deemed significant (Apeniik & Parpart, 2006). As an example, Kabeer's (1999) empowerment framework and the Gender Equality and Empowerment Measurement Tool were designed to help me define empowerment and understand the impact of GASIP on beneficiaries' empowerment. First, I did not want to impose the definition or meaning of empowerment on them. Hence, I sought their input to acknowledge their capacity as co-producers and the validity of their knowledge by asking the open-ended question, "How would you describe an empowered woman?" in the one-on-one interviews and FGDs. Also, participants were asked to contribute to other categories of the impact of GASIP that were not included in the five

empowerment categories of the GEM Tool. These strategies helped to understand aspects of empowerment that are most important to them and to refine the research to better reflect their contextual realities and preferences. For instance, some participants describe empowerment as having patience and the capacity to remain in an abusive marriage to care for their children and secure their future; thus, they prioritise their children's needs over their own well-being, which contradicts Kabeer's conceptualisation of empowerment adopted in the study.

To safeguard participant confidentiality, I ensured that all physical documents, including my research journal and interview notes, were consistently stored in a locked filing cabinet when not in use. Additionally, all digital data, including transcripts, was secured on a password-protected laptop. Furthermore, my translator and transcriber have signed a confidentiality agreement to ensure that all research information and data are handled with the utmost confidentiality. Finally, all key informants were given the choice to disclose their identities, including their names, positions, and organisation's name, or to remain anonymous, identified solely by their organisation.

Another important ethical consideration that guided my research is the practice of reflexivity, which is a point of consensus in feminist research (Cook & Fonow, 1986; Harding, 1991; Naples, 2007). Reflexivity is a "form of critical thinking which aims to articulate the contexts that shape the processes of doing research and subsequently the knowledge produced" (Lazard & McAvoy, 2020, p. 160). While reflexivity has faced criticism as potentially being a superficial and egotistic act by researchers (Finlay, 2002), as a feminist researcher, I believe it is essential to reflect, not merely for self-examination, but also to examine how my positionality has inevitably influenced the research process and outcomes.

Although it was unfeasible for me to consider all the ways in which my social position, along with power differentials and inequalities, my desire for reflexivity influenced every aspect of

my research, from design to analysis. While it was impossible for me to account for every way my power differentials, social location, and the inequalities affected every aspect of my research — from design to analysis, I was conscious of the influence of my presence and positionality on the entire research process. One of the main contributions of feminist research is its unearthing of the ethical and theoretical dilemmas associated with positionality and hierarchies that are inherently created during an interview process. In feminist scholarship, the researcher is required to explicitly identify their subject position in their research and be mindful of their position throughout the research process to recognise their partial perspective and the influence of bias in their work (Hesse-Biber et al., 2004). In the following section, I will apply the analytical lens to myself to evaluate my positionality and critically examine my own role in the research.

Positionality

In accordance with the feminist research methodologies and epistemologies to which this research – and I, as the researcher – are committed, it is essential to situate myself within the research context, considering my own ethnicity, education, history, class, gender, geographical location, cultural background and experiences to reflect upon how the various aspects of my identity have influenced the research process (Bryman, 2016). As Scheyvens et al. (2013) posit, the fundamental ethical issue in development studies research is the power relations between the researcher and the research subjects or participants. They highlight that the nature of development studies research implies that researchers will be in a position of power in relation to their participants (Scheyvens et al., 2003). Therefore, it is essential for any feminist researcher to reflect on questions of ownership of knowledge and experiences, or as Harding eponymously asks, “[w]hose science? Whose knowledge?” (Harding, 1991).

In response to these critical questions and considerations, I must initially acknowledge and analyse my positionality. Who am I?

I am a Ghanaian, Black, and international student completing a PhD at a Canadian university and conducting research in Ghana. I am an insider in Ghana by virtue of my upbringing and an outsider by virtue of my Western education and training. All these positions and identities impact the nature of my observations and the interpretations I assign. Prior to relocating to Canada for my graduate studies, I had internalised the norms, values, and behavioural customs of Ghanaian society, as I had been born and raised there. Specifically, I have spent part of my life in Navrongo (the municipal administrative town of my research communities) and part in southern Ghana, and I am familiar with the municipality's unique socio-cultural norms, political, economic, agricultural, weather, and geographical landscape.

I spent my formative years in Navrongo with my mother, Ama Mantebea, a smallholder farmer, petty trader, and single mother of five children who worked hard to feed, clothe, and educate her family. As the firstborn, I witnessed first-hand how women, especially single mothers in northern Ghana, struggle and the challenges they encounter as farmers, including access to farmlands and other productive agricultural resources for their livelihood and the well-being of their children.

These experiences exposed me to the realities of women's struggles and difficulties, and their impacts on the well-being of their children. Being the first-born, I played a vital role in assisting my mother on the farm, in trading, and in caring for my siblings while juggling schooling and a witness to - my mother's struggles as a smallholder farmer in Navrongo created a consciousness of gender discrimination, and power dynamics at the household, community, and national level to the access to - and control of - productive resources for livelihoods. Furthermore, I have worked for years with women's groups in my community and the Centre

for the Development of People (CEDEP), an NGO that works to empower marginalised and vulnerable groups to advocate for their rights and influence policy for sustainable human development. These experiences have significantly shaped my understanding and active participation in advocacy for gender equality and the empowerment of women's programmes.

Although I grew up in Navrongo (northern Ghana), I am a native of the southern part of Ghana, so I cannot claim to be knowledgeable about all the municipality's beliefs, culture, norms, language and practices, which are central to the research communities (Nagtunia, Punyoro, and Korania). In addition, my approximately four years in Canada as an international student and as a frontline worker for an NGO (Cornerstone Housing for Women) dedicated to empowering, providing housing, and supporting women and other gender-diverse individuals in Ottawa have also meant that I have been socialised into Canadian society both consciously and unconsciously through my educational training, professional and work experience, and other lived experiences.

In the literature, there is a critical discussion about the desirability and liabilities of conducting fieldwork as an insider versus an outsider (Adu-Ampong & Adams, 2020; Hellowell, 2006). Evidently, my identity in relation to the field and my research participants was that of an 'insider' and an 'outsider'. I navigated the dual roles of 'insider' and 'outsider' as I negotiated the power dynamics during my research. On one side, my insider positionality stems from my Ghanaian citizenship and my knowledge of my research participants based on gender, lived experiences, language (their local Kasem), and, in some cases, religion and age (Hellowell, 2006). Moreover, I had a broad social and professional network in Navrongo that facilitated my access to the research site, participants, and relevant documents for my research. For instance, the Assemblyman in Korania, the head of the gender department in the district

agriculture office and three staff of NGOs I interviewed were either classmates from Navrongo Secondary School (Navasco) or the University for Development Studies (UDS).

An insider/cultural knowledge advantage gave me greater ease of access, rapport, empathy, and understanding because I was familiar with the experiences, values, consciousness and institutions within my research context. On the other hand, I also assumed an outsider positionality due to my extended absence from the municipality and later Ghana and my return to the field as a researcher affiliated with a foreign university. Although I shared membership in social groups with my research participants, significant differences remained in their identities and experiences, influenced by factors such as ethnicity, economic class, educational level, age, geographical location, and religion. An outsider position with a research setting may ensure multiple cultural reference points as well as provide space to detect patterns insiders may overlook in their communities (Adu-Ampong & Adams, 2020; Berger, 2015). Therefore, my positionality proved to be dynamic, fluid, and situational in the research field (Mason-Bish, 2019).

In this research, my choice was motivated by a desire to understand the experiences and perceptions of a marginalised group with which I could identify across various identity constructs. Mitigating the pitfalls of the insider's position, I consciously aimed to define my field as an artificial space where I was to conduct research for a period of time (Katz, 1994). Additionally, I strived to set aside my preconceived notions before each interview and FGDs, as well as during my data analysis, so that the data could speak for itself.

In Ghanaian society, Ghanaians admire Ghanaians who return from abroad. The nickname given is *Bogga* (a wealthy person). My outsider identity as a Canadian university student and resident in Canada surfaced in my fieldwork. My research participants saw me as someone in a privileged position compared to themselves, which I believed meant that I received a special

welcome even from Key informants. For instance, some key informants inquired about the process of getting admission to Canadian universities and scholarships for themselves or a family member. I was pleased to share any helpful information I had in this regard; however, this might have unintentionally reinforced the power imbalance, as they not only regarded me as *Bogga* with links, but also looked up to me for this favour. Additionally, this may have also affected their responses during the interviews.

Also, in the communities, my identity as a Canadian university student came to play. As previously mentioned, the KNM is a patriarchal society where women and girls are considered inferior to men, and their roles are confined to the domestic sphere as cooks, cleaners, and caregivers. Hence, the sight of a Ghanaian woman who is a researcher, a foreign student, and married served as an inspiring and empowering experience for most of the women respondents. They perceived me as a role model who has challenged the prevailing beliefs of patriarchal societies that marginalise and deprive women and girls of equal opportunities to flourish. To the women, I depicted what (Pini, 2002) describes as making the invisible visible to women. I believe that this accounted for comments from the women, such as: “I hope my daughters become like you”, “I did not go to school, but I am making sure to educate all my children”, and “I believe my daughters too will travel abroad and take me too”. Furthermore, during the focus group discussions, the women felt more at ease expressing their views than if the researcher had been a man. They responded confidently to questions about gender relations, division of labour, and the impact of GASIP. Furthermore, the FGDs resembled a gathering of women deliberating on their well-being and empowerment issues, during which we bonded over our shared experiences as women.

In contrast, conducting focus groups with men proved more challenging. My identity as a Canadian university student granted me entry into male-dominated spaces and was taken

seriously, but at the same time, there were these little remnants of patriarchal norms that still crept in. I sensed tension, as if my presence disrupted masculine authority and intruded into men's affairs. While I attempted to navigate these encounters by negotiating a 'patriarchal bargain' (Kandiyoti, 1988), challenges persisted that a male researcher would likely not face. For instance, at the end of the session, when asked for respondents' comments, a participant asked, "Will you marry me?" When I replied, I am married. They felt surprised, which was followed by questions such as "How is your husband feeding?", "Who does the house chores now that you have travelled?", and "Your husband is trying oh!".

I believe they regarded me as a 'bad wife' who does not understand her responsibilities as a woman since a man has paid dowry to make her his housewife. As a 'good wife', the expectation is that a wife belongs only to the domestic sphere, such as cooking, cleaning, and caregiving, but not in the public sphere, which is the preserve of men. Also, I felt their disappointment and concern at seeing a Ghanaian married woman travel alone away from home for months, conducting research from one community to another without her husband's protection. To them, I was like a lost sheep in the jungle (vulnerable), ready to be eaten by a lion.

Although such remarks came across as genuine concern and as jokes, they represent unwelcome behaviours that often make women researchers vulnerable to emotional risks (Chiswell & Wheeler, 2016). Moreover, such harmful gender stereotypes can limit women's personal development and career paths, contributing to gender inequalities and discrimination in our societies.

My experience as a woman researcher engaging with men respondents in the highly patriarchal society of KNM exemplifies various facets of researcher positionality and safety concerns, which have received limited attention within discussions on agrarian research and development

(Osman, 2023b). On the bright side, these interactions have enlightened me to recognise how researcher positionalities might shape research encounters and to understand how to mitigate risks in my future fieldwork.

In sum, this chapter has outlined the research setting in KNM and described the feminist epistemological and methodological approaches applied. These included qualitative data collection tools (focus groups, interviews, and document analysis), thematic analysis, and attention to ethics, reflexivity, and positionality. The next chapter presents the research content, followed by the findings, foregrounding the voices and lived experiences of SWFs.

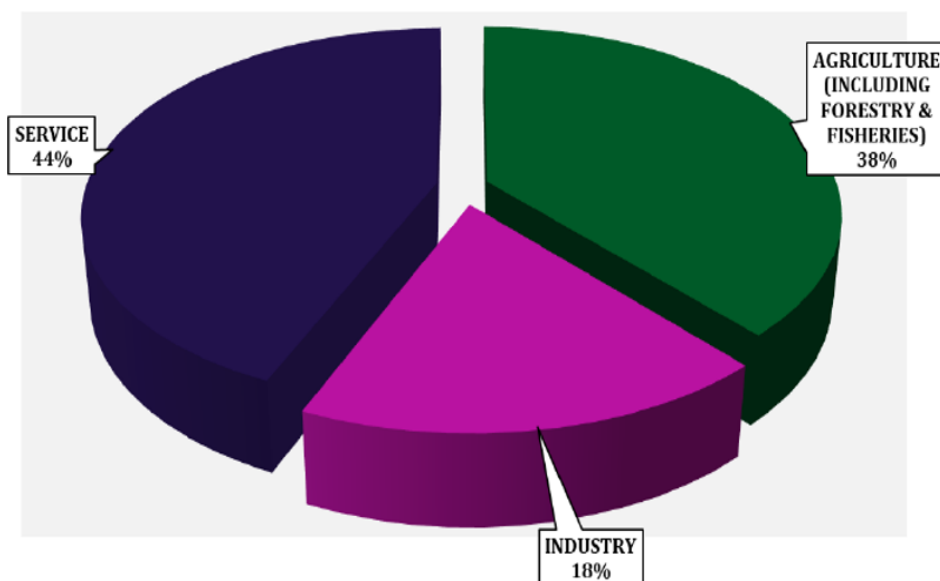
CHAPTER 4: RESEARCH CONTEXT

The purpose of this chapter is to provide a contextual snapshot of Ghana, the country in which this research was conducted. This chapter sheds light on regional disparities in economic and social characteristics, as well as gender inequality, to facilitate understanding of the systemic factors that shape agricultural production and the implementation of GASIP.

Overview of Ghana's Agricultural Sector

Ghana is a lower-middle-income country with an estimated population of 30 million, situated on Africa's west coast. The Ghanaian economy is generally divided into three primary sectors: Agriculture (including Forestry and Fishing), Industry, and Services. The agriculture sector contributes approximately 38.3% to total employment, while the Services and Industry sectors account for 43.5% and 18.2%, respectively. This indicates that agriculture is the second largest employer, subsequent to the Services sector (MoFA, 2021).

Figure 6: Share of total labour force by sector (persons 15 and older) in Ghana



Source: (MoFA, 2021)

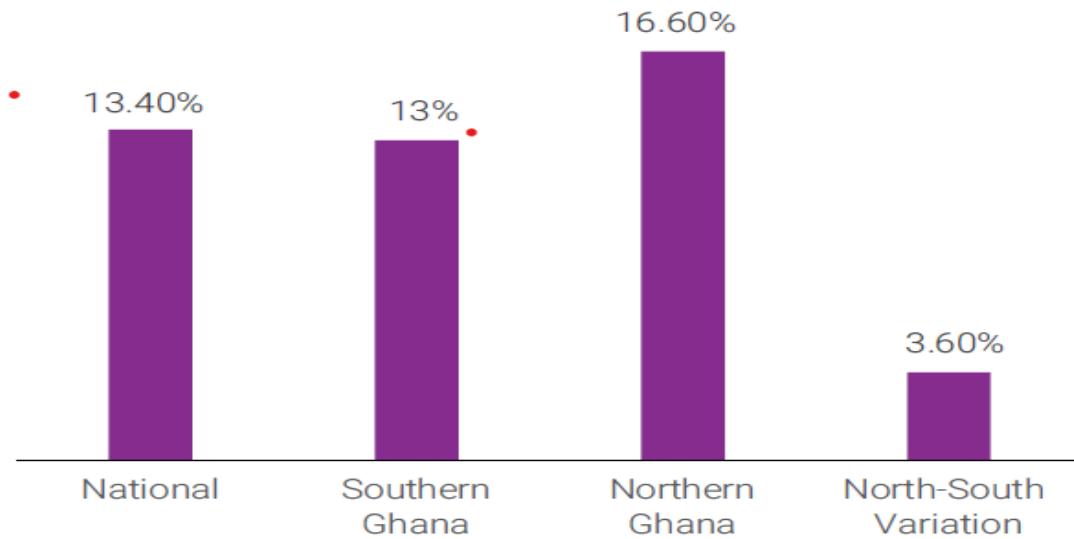
Ghana has a total land area of about 23.85 million hectares, with 13 million hectares dedicated to agriculture. Agriculture makes a significant contribution, accounting for about 21% of Ghana's gross domestic product (GDP) in 2013 but dropped to 19.09% in 2020. Agriculture in Ghana predominantly operates on a smallholder basis, accounting for approximately 90% of the nation's food production, despite the existence of a limited number of large-scale farms. The majority of these smallholders are among the poorest households (MoFA, 2021). The farming system is primarily traditional, characterised by slash-and-burn practices, with hoes and cutlasses as the primary tools, and minimal mechanisation (MoFA, 2021). Crop production is primarily dependent on rainfall and is hindered by limited access to efficient markets for agricultural products.

Despite the agricultural sector's significant contribution to the economy, the country continues to face numerous challenges, including malnutrition, micronutrient deficiency, rural poverty, and a gender yield gap. It is estimated that approximately 3.5 million individuals, predominantly rural residents and smallholder farmers, accounting for about 15% of the Ghanaian population, are either food insecure or vulnerable to food insecurity (Darfour and Rosentrater, 2016 as cited in Abokyi, 2021).

Regional (North and South) Disparities in Ghana

There are significant disparities in infrastructure development between the northern and southern regions. For example, in 2016, only 13% of households in northern Ghana had access to flush toilets, compared to 86% in the Greater Accra region. Similarly, in the same year, 49% of households in the Upper East Region had access to electricity, whereas 94% in the Greater Accra Region did, illustrating a substantial difference of 45% (Ghana Statistical Service, 2021).

Figure. 7. Unemployment Rates in Northern Versus Southern Ghana, 2022



Source: (SOCO, 2023)

Moreover, there is a greater variation in unemployment rates between the south and the north. As shown in Figure 7 above, the difference in unemployment rates among youth (aged 15-35) in Ghana between the northern and southern regions is 3.60 % (SOCO, 2022). Among other things, the reasons for the huge development disparity between the north and south include Ghana's geography, characterised by marked climate change, neoliberal development policies, and colonialism (Nyantakyi-Frimpong, 2014; Yaro, 2013a).

Historically, during the period of British colonial rule, agriculture—specifically cocoa and timber—and mining were identified as the most lucrative resources. Consequently, the British colonial authorities invested significantly to enhance Britain's economic prospects. To promote the exportation of these profitable resources, infrastructure such as harbours, railroads, and road networks were constructed in the southern territories, whereas the northern territories received minimal infrastructural development (Vercillo, 2018).

A significant feature of Ghana's colonial political economy under British rule was that the north served as a labour reserve to work on cocoa plantations, mines, railways, and road infrastructure in the south. The colonial administrators implemented a system of migratory labour (active men) from the north to the south to facilitate the massive exploitation of Ghana's natural resources by the colonial masters (Abdul-Korah, 2004, cited in Nyantakyi-Frimpong, 2014). This system of labour recruitment deprived the north of its active labour force, affecting agricultural production, food security, and economic development. Ghana, just like other African countries, gained independence from colonialism and enslavement with a dysfunctional economy and financial constraints.

The oscillation of the developmental Ghana economy in the 1960s and 1970s led to a huge debt crisis which ushered in the Structural Adjustment Programmes (SAPs) (Akolgo, 2023). Ghana's government contracted an economic recovery loan of over \$1.4 billion from the World Bank and the International Monetary Fund to manage the debt distress (Pearce, 1992, p. 15). The loan conditionalities particularly affected the Ghanaian agricultural sector with intensive restructuring, including the removal of subsidies for agricultural inputs (insecticides, seeds and fertilisers) (Hutchful, 2002). The loan conditionalities also included massive support for commercial farmers and the neglect of smallholder farmers' production, which forced many smallholders out of farming because they could not buy agricultural inputs and also could not compete with highly subsidised and cheap imports from Europe, Asia, and North America (Hutchful, 2002). Today, the historical colonial political-economic structures (which sidelined and stifled development in the north), coupled with the impacts of SAPs are still lingering in northern Ghana (Yaro, 2013).

Regarding geography, farmers in southern Ghana, situated in the forest region, benefit from two rainy seasons, allowing them to engage in agricultural activities for extended periods

throughout the year. Conversely, farmers in northern Ghana experience only a single rainy season. northern Ghana falls within the Sudanian zone, a savanna region situated between the semi-arid Sahel to the north and the humid Guinean Forests to the south (Magin, 2018 as cited in Wood, 2020). In common with neighbouring Sahelian countries, the north is experiencing increasingly severe droughts and climatic variability, with important implications for agriculture and food security (Glazebrook, 2011). For instance, in 2007, after a long drought in the north, the region experienced a heavy rainy season in August of the same year, worsened by neighbouring country Burkina Faso opening its dams in response to its own constraints in containing the massive downpour. In the Upper East Region (the research location), farmers lost their livelihoods, 31 people were killed, and about 100,000 were left homeless (Ghana Home Page 2007 as cited in Glazebrook, 2011).

Gender Equality in Ghana

Violence against women and children represents a global crisis that crosses national borders, impacting individuals and societies regardless of ethnicity, culture, class, race, age, socio-economic background, political views, or religious beliefs. This issue is widespread, deeply rooted, and has serious consequences for the well-being of those affected (Shahadu, 2023). Like other countries in SSA, domestic violence tends to be condoned under certain cultural practices and religious beliefs, particularly when the violence takes place within the house. Domestic violence thus remains a significant hidden form of violence in Ghana and elsewhere, which undermines women's and girls' empowerment.

It is noteworthy that, owing to Ghana's political commitment to gender equality and empowering women, the country has subsequently signed and ratified several international conventions, protocols, and treaties, including the 1979 Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), which requires all member states to act

with due diligence to prevent violations of women's rights, investigate and punish acts of violence that occur, and provide assistance and compensation to victims of DV. Ghana has also signed the UN Declaration on the 1993 Elimination of Violence against Women (DEVAW). Additionally, on the international front, Ghana is a signatory of the Beijing Declaration and Platform for Action; the Commonwealth Plan of Action on Gender Equality (CPoA, 2005 - 2015); the Millennium Development Goals (MDGs); and, among more recent, the International Women's Day Celebration and the Sustainable Development Goals (SDGs) introduced in 2015.

At the regional level, Ghana is a signatory to the African Charter on Human and People's Rights, signed in 1989; the Protocol to the African Charter of Human and People's Rights (PACHPR), signed in 2003 and ratified in 2007; the African Women's Decade (AWD) African Union Day of the Child; the Plan of Action on Ageing, promulgated in Madrid, Spain, in 2002; and the African Union Policy Framework and Plan of Action on Ageing, 2002, among other agreements (Shahadu, 2023).

Furthermore, in accordance with its international and regional commitments, various laws and policies have been enacted by different state agencies and departments, all aimed at promoting gender equality, empowering women and girls, and fostering economic and sustainable development in Ghana. The 1992 Constitution of Ghana has entrenched provisions that guarantee Fundamental Human Rights and freedom without any form of discrimination (Articles 12-33) for all persons on the basis of social or economic status, among others (National Gender Policy MGE, 2015). The government's commitment to gender equality was further translated into concrete actions through the establishment of the Ministry of Gender, Children and Social Protection and the integration of gender dimensions into government planning policies. The Ministry of Gender, Children, and Social Protection provides leadership in the Government's gender mainstreaming initiatives, operating through a structure of regional

departments and integrated Gender Desks in other ministries, departments, and agencies. In 2000, the Ghana government adopted a National Gender Policy (NGP) to promote women's empowerment, gender equality, and ensure opportunities for all (Ministry of Gender, Children and Social Protection, 2015).

To aggressively tackle gender inequality and the promotion of the welfare of women and girls, the government of Ghana improved the legal environment through the enactment of statutes, including *the Domestic Violence Act, 2007 (Act 732)*. The parliament of Ghana, on 21st February 2007, passed the *Domestic Violence Act (Act 732)* to provide protection from violence specifically for women, children and for connected purposes. The Domestic Violence Act criminalises domestic violence and advocates prosecution of abusers and protection of, and provision of services, for victims. Among other objectives, the policy ensures the safety and empowerment of victims/survivors (Ministry of Gender, Children and Social Protection, 2015).

Other policies include the Human Trafficking Act, 2005 (Act 694); the Children's Act, 1998 (Act 560); the Disability Act, 2006 (Act 715); the Matrimonial Causes Act, 1971 (Act 367); and the Whistleblowers Act, 2006 (Act 720). There are other legislations passed that deal with harmful traditional practices (such as female genital cutting and widowhood rights) and women's political participation to enhance gender equality, which will be discussed further in the next section.

According to Shahadu (2023), the government of Ghana's decision to endorse these commitments represented the preliminary measures undertaken by the government to increase awareness of various forms of abuse and violations that had previously been neither recognised nor acknowledged by Ghanaian society. It also signified the emergence of a partnership between grassroots feminisms and transnational actors, a collaboration that expedited women's advocacy networks and elevated gender equality to an international level of prominence.

The Reality of Gender Inequalities in Ghana

The previous section outlines Ghana's dedication to gender equality and women's empowerment as essential for economic and sustainable development. The preceding section outlines the gender inequality gaps in Ghana and highlights the need for interventions and programmes to address these gaps.

Some progress has been made in Ghana's women's rights. For instance, education is one of the most crucial drivers of economic development, and the unequal distribution of educational opportunities and outcomes can result in the intergenerational transfer of unequal opportunities (Afoakwah et al., 2023). According to data on gender parity collected by Equal Measures 2030, Ghana ranked 7th among all SSA countries in 2019 in terms of gender parity in education, with a score of 61% (Neltoft, 2021). Ghana has experienced a transformation and significant improvement in girls' access to education over the past decades (Afoakwah et al., 2023). However, despite nearly achieving complete gender parity in primary and secondary education enrolment in 2019, girls remain underrepresented in specific subjects, and many still do not complete their education (Neltoft, 2021).

Moreover, on July 30, 2024, Ghana's members of parliament voted unanimously to pass the Affirmative Action Gender Equity Bill. The Bill aims to redress the inequalities women face in politics, the private sector, health and education. Even with the recent initiative through the Affirmative Action Bill in Ghana, which aims to guarantee a minimum of 40% representation of women in public office (Asiedu, 2018), the proportion of women within Ghana's parliament illustrates the extent of gender inequality at the apex of political power. As of February 2024, women occupied merely 14.6% of parliamentary seats (K. Quaye, 2024).

In 2018, 10.2% of women aged 15-49 years reported experiencing physical and/or sexual violence perpetrated by a current or former intimate partner within the previous 12 months.

Women of reproductive age (15-49 years) often face barriers concerning their sexual and reproductive health and rights. Despite some progress, in 2017, merely 40.4% of women had their family planning requirements met through modern methods (K. Quaye, 2024)

Furthermore, the Government of Ghana outlawed Female Genital Mutilation (FGM) through an amendment to the criminal code in 1994, yet girls and women in Ghana are subjected to endure this agony and dehumanising practice in Ghana, particularly in northern Ghana (the area of my research), where it remains prevalent due to the Islamic religion, traditions, customs, and patriarchy that sustains the practice (Alhassan & Anyinzaam-Adolipore, 2021; Nonterah et al., 2020; Sakeah et al., 2019). Men's preferences for circumcised women for marriage coerce women and girls to go through this dehumanising act without any resistance or negotiation (Berg & Denison, 2013). Other examples of discrimination faced by women in Ghana include dehumanising and harmful widowhood rites. While men typically do not perform any rites at the death of their wives, women are subjected to harmful widowhood rites. These include being stripped naked in public, drinking water used for bathing the corpse, staying with the body of her late husband in a dark room, dispossession of properties, forced marriage to the deceased brother or relative, deprived of basic personal hygiene and being forced to wail continuously (Ba-an, 2022; Owusu-Ambrose 2024). All these practices constitute a violation of their human rights. Evidently, although legal policies exist, their effectiveness is often impeded by entrenched patriarchal norms and weak enforcement mechanisms (Alhassan & Anyinzaam-Adolipore, 2021).

The global gender gap score in 2024 across four areas: economic participation and opportunity, educational attainment, health and survival and political empowerment stands at 68.5% (World Economic Forum, 2024). Ghana was ranked poorly, 88th out of 146 countries, reflecting

significant disparities between women and men nationwide, especially among rural populations involved in the agricultural sector (World Economic Forum, 2024). Moreover, Ghana ranks poorly at 119th position for political empowerment and 103rd for educational attainment. Ghana's poor performance can be attributed to discriminatory societal beliefs, cultural norms, attitudes and values that marginalise women, rendering them inferior in society and hindering their participation in decision-making and representation in political and governance spheres (Alhassan & Anyinzaam-Adolipore, 2021; Berg & Denison, 2013).

Furthermore, weak conceptual clarification of gender mainstreaming within the public sector, coupled with the absence of effective monitoring and evaluation systems in the Ministry of Gender, Children, and Social Protection (MoGCSP), poses significant challenges to the implementation of national legal frameworks and adherence to international commitments concerning gender equality and empowerment of women. These factors partly explain Ghana's decline in rankings in the global gender gap report, which fell from 58 in 2006 to 88 in 2024 (out of 146 countries) (World Economic Forum, 2024). Closing these gender data gaps is essential for achieving gender-related SDGs commitments in Ghana.

Gender Inequality in the Agriculture Sector in Ghana

Women constitute a considerable proportion —exceeding 5%— of the agricultural workforce in numerous SSA nations characterised by lower levels of economic development. This issue largely stems from inadequate education, restricted access to fundamental infrastructure and markets, and limited rural employment opportunities outside the agricultural sector. Collectively, these factors significantly restrict women's prospects for off-farm employment. In 2021, it was observed that globally, 31.9% of women experienced moderate to severe food insecurity, as compared to 27.6 % of men, resulting in a disparity of 4.3% (FAO, 2023).

Furthermore, women are more likely to be employed as unpaid family or casual workers and face time constraints as they balance both productive and domestic responsibilities. The greater burden of women's unpaid domestic and care work, such as cleaning and caring for household members, contributes to disparities in labour-market participation and outcomes. Estimates indicate that the time allocated to domestic activities differs between men and women, with approximately 65% of men spending between 0-10 hours per week on domestic tasks, whereas 89% of women devote ten or more hours (W. Quaye et al., 2019). The 2007 report by the African Development Bank (AfDB) indicates that in Ghana, women dedicate an average of 43 hours weekly to domestic responsibilities, whereas men allocate just under 10 hours to such activities (AfDB, 2007 as cited in Asiedu, 2018). Other estimates suggest that women in agriculture have significantly less access than men to inputs, including improved seeds, fertiliser, extension services and training, credit, and mechanised equipment. For instance, in 2017, only 9.1% of female household heads had access to improved seeds and fertiliser, compared to 32% of male household heads—a gender gap of 22.9% (FAO, 2023).

Women constitute 50.1% of Ghana's total population, contribute 52% of the agricultural labour force, produce 70% of food crops and account for 90% of the labour force involved in marketing farm produce (AAFORD PCU report, 2024). Yet it was estimated that 72% of rural women farmers, despite their primary occupation as farmers, were low-income earners compared to 48% of men (Food and Agriculture Organisation of the United Nations, 2012 cited in Abdu, 2023). It is also a well-established fact that in Ghana:

Women are the most important actors in the food chain which begins from farm production, market and intra household distribution of food. They play a lead role in post harvest activities such as shelling of grains, storage, processing and marketing. They are also becoming increasingly visible in farm tasks which traditionally have

been designated as male preserves, thus breaking ground in typical male dominated areas such as land clearance and growth of cash crops. Women therefore remain the centrepiece of food security and hold the key to a sound and healthy economy (Duncan, 2004, p. xiv).

Despite their vital role in agriculture, women farmers in Ghana face numerous challenges that restrict their productivity and their ability to participate in and benefit fully from agricultural development. Some of these challenges, such as access to tractor services, fertiliser, high-yielding seed varieties, credit packages, agrochemicals, and access to, ownership of, and control over land faced by Ghanaian women farmers, are gender-related issues. A study by Vercillo (2022) demonstrated that women have limited access to tractors compared to men because cultural norms prevent women from directly seeking tractor services; instead, they depend on male relatives, such as husbands or brothers, to access these services.

Moreover, the greater burden of unpaid domestic and care work borne by women represents a significant obstacle for Ghanaian women to flourish compared to men. While they are burdened with extensive and time-consuming domestic responsibilities, they are also required to work primarily on their husbands' farms. This situation results in limited opportunities for women and girls in Ghana to pursue education, engage in income-generating activities, or participate actively in community decision-making concerning natural resources and other developmental matters (Ahmad, 2012 as cited in Asiedu, 2018).

Investing in women's empowerment is one of the surest ways to achieve gender equality, poverty eradication, food security, climate justice, and sustainable development (Chant, 2012; Essilfie et al., 2024). Feminist scholars have consistently emphasised the intersection between women's empowerment and their agency, asserting that a woman who controls her economic

future possesses autonomy and influence over her life (Chant, 2012; Essilfie et al., 2024; Kabeer, 1996; Tiessen, 2015).

Evidence indicates that increased women's participation in decision-making processes concerning agriculture and food production contributes to the development of more sustainable and equitable food systems. When women acquire greater control over household resources, they tend to invest more substantially in their children's health, education, and nutrition, thereby fostering improved household wellbeing outcomes (Clement et al., 2019; Essilfie et al., 2024).

Given the high prevalence of poverty and food insecurity in northern Ghana in the face of a changing climate, this research examines SWFs' perceptions of climate change and their coping strategies to improve their livelihoods. Failing to address SWFs' needs in agricultural development and climate change policy threatens the fight against hunger, child malnutrition, and food security in Ghana and across Africa. The improvement of well-being and the reduction of the poverty rate in northern Ghana are of particular concern for Ghana's development. The World Bank made it clear that Ghana's success story of progress in poverty reduction occurred in the south, excluding the north (Oxfam et al., 2018). The significant disparities in food insecurity between the north and south, as well as gender inequality, underscore the need for research to understand the challenges faced by smallholder farmers, thereby increasing food production and improving food security.

CHAPTER FIVE: SMALLHOLDER WOMEN FARMERS' PERCEPTION OF CLIMATE CHANGE AND COPING STRATEGIES

Introduction

Smallholder women farmers in northern Ghana play an important role in household food security, engaging in activities such as caring for the sick and elderly, and often walking long distances to fetch water and firewood for food preparation to feed and nourish their family members. Because these gendered roles rely heavily on environmental conditions, worsening climate change intensifies the burdens faced by women and girls as they spend more time performing unpaid daily gendered reproductive duties, which have implications for the degree of exposure to and their mitigation of climate and environmental change (Agarwal, 1992) and women's empowerment.

Given women's central role in household food security, feminist scholars have emphasised the significance of a critical gendered intersectional lens within environment, gender, and development scholarship (Sultana, 2021; Vercillo, 2018). This chapter addresses my first research question, utilising feminist political ecology to examine how SWFs perceive the impact of climate change on their agricultural production, and how they mitigate it to sustain their livelihoods and household food security in the Upper East Region.

Drawing on the insights offered by 57 SWFs participants and 28 key informants, this chapter finds that SWFs are aware of the changing climate and perceive an increase in temperature, a decrease in rainfall, an increased risk of flooding and drought, and a reduction in soil fertility. Environmental changes observed by SWFs include the invasion of fall armyworm (FAW) and pest birds. These climate and environmental changes were reported to have a deleterious impact on food production and household food security by causing late planting, a shorter planting

season, delays in livestock tethering, reduced crop yields, increased climate-related diseases, and additional unpaid gendered responsibilities.

The research further revealed that to mitigate the impact of climate and environmental change, additional inputs are needed. To address these effects, SWFs increased access to two crucial agricultural ‘inputs’: organic manure/fertiliser to improve soil fertility, and tractor services to prepare farmland for planting, within their capacity, to enhance yields and support household food security. The subsequent sections examine in detail the role of these agricultural inputs in climate change mitigation as reported by the respondents. In addition, the chapter highlights the constraints and systemic gender barriers that women and girls face in accessing these important agricultural inputs (organic manure/fertiliser and tractor services) to mitigate the adverse impacts of climate change on agricultural production. The chapter aims to understand their unique gender barriers to climate change mitigation strategies and how to address these problems. The chapter concludes by highlighting the coping strategies of SWFs to access fertiliser for agricultural production. With this overview in mind, the next section delves into how smallholder women farmers perceive and experience climate change.

Smallholder Women Farmers’ Perception of Climate Change

“The rainfall pattern has changed drastically”

One of the climatic changes reported by the participants is a delay in the onset of rainfall, a situation that negatively affects ploughing, early sowing, and ultimately crop yield. One respondent intimated that “We don’t get early rainfall as before” (Wedam, Nagtunia). Another respondent indicated, “Because the rains don’t come early, we cannot plough on time to sow early” (Kania, Punyoro). She goes on to highlight the implications of the late rains: “Because we plant late, we do not get a good yield, so that makes it very difficult for my family to feed throughout the year.”

Two participants, a 61-year-old and 60-year-old with over 45 years of experience in farming, gave practical examples of the changes in rain patterns by stating as follows:

At first, the rain starts in April, and we sow early. It rains regularly to support plant growth, but now the rains come late. This year, it began in June, which is not good [...] We used to get plenty of harvest from the farm, but now the yield is very low, which cannot sustain the family until the next farming season. (Apegwine, Nagtunia)

The rain pattern has changed drastically. Yesterday, rain fell in the school area but didn't reach here [her farm, which is about 100m from the school]. Now I just do not understand what is happening because it never used to be this way. [...] It can rain for three days straight. When it rains continuously for days, I cannot clear the weeds on the farm. By the time the rain stops and I can weed the farm, the grasses will have overgrown, making the work very difficult and affecting crop growth. The grass takes the plant's nutrients from the soil, which greatly reduces your harvest. For example, if you could get five bags of maize, the overgrown grass would cause you to harvest three bags instead. (Apuri, Punyoro)

Many elderly SWFs also expressed the lamentation above by Apegwine. They lamented over how farmers were expecting rain in April, but it was delayed until June. They indicated that, over the years, the rains came late, were erratic, and were difficult to predict. This negatively impacts crop yields and household sustenance.

Another older smallholder woman farmer in Nagtunia during an FGD lamented as follows:

Our women's farm group, called the Jeribisi Women Farmers Association, used to farm community land together. We did not farm this year because last year, when the rain started, we planted our best seeds, and the rain stopped for a long time; all the

germinated plants withered, and we harvested nothing from our labour. Because the rain is unpredictable and is our only water source for farming here [in the village], we farmers are suffering. (Winemi, Nagtunia)

The above response sheds light on how ‘false start of rains’ makes it difficult for farmers to decide when to start planting for a successful harvest and how farmers often lose their best-stored seeds to false start of rain. Furthermore, the finding indicate that the unpredictability of rainfall affects crop production, decreases crop yields, and ultimately contributes to reduced food stocks and food insecurity in the lean season. The above quotation by Winemi suggests that SWFs have no access to irrigation dams and climatic services to guide farming. Hence, farmers must take risks and establish their own parameters for false start rains to determine when to start planting to sustain plant growth for a bountiful harvest.

Young SWFs who were mainly below 30 years old concurred with the older participants on the changes in rainfall patterns, especially erratic rainfall, and its impact on yield. Apoya, a 23-year-old SWF, comments as follows:

When we were kids helping our parents to farm, the rain came early and followed a pattern. My parents used to harvest millet twice during the farming season, in the early and late millet seasons, and we had plenty of harvests. The harvest lasted throughout the year, and we didn’t have to worry about food during the dry season. But now it doesn’t rain well, and our food crops are rotting on the farm. Because rainfall is not stable, the maize I planted is spoiling, and at the end of the harvest, we will not get a good yield that will sustain our family during the dry season. (Apoya, Punyoro)

The above quotation suggests that young SWFs are also aware of rainfall variability and its severe consequences for agriculture and household food security. Young respondents explained that they had been farming since childhood because, in rural Ghana, children are

educated in farming practices from a young age. They join their parents and contribute to all farming processes, from land preparation to harvesting, marketing, and storage. This finding aligns with previous studies that posit that working with parents on the farm gives young individuals experience and knowledge of agricultural practices (Yussif Jnr et al., 2024). Poor rainfall pattern, as reported by SWF, is consistent with 40-year (1982 – 2022) rainfall data (see Fig. 2) in the Upper East Region (Arfasa et al., 2024). The findings pertaining to delays, and erratic and low rainfall are consistent with a substantial body of literature documenting smallholder farmers’ perceptions—both men’s and women’s—in the Upper East Region (Baffour-Ata et al., 2021; Guodaar et al., 2021; Nyantakyi-Frimpong & Bezner-Kerr, 2015; Osman, 2023a; Owusu et al., 2021; Teye et al., 2015; Vercillo, 2018; Wood, 2020). For instance, Vercillo’s (2018) study on men and women smallholder farmers’ perceptions of climate change and adaptation strategies in northern Ghana revealed that smallholder farmers in the area are exposed to varied climatic stressors, including erratic rainfall, drought, flooding, and higher temperatures. Furthermore, these climate and environmental changes have other impacts on livelihood security, including livestock grazing patterns, a challenge elaborated in the section below.

Changing Rain Patterns Means That Livestock Free-Range Grazing Patterns Have Changed

Besides low crop yields, the unpredictability of rainfall adversely affects the period for confining or tethering animals during the farming season. Participants expressed frustration at being occasionally deprived of the opportunity to plant early, even when early rains seemed promising, due to the late ban on livestock grazing. One of them, Amaake, explained that “the village elders and the chief determine the date to tether animals, but because of erratic rainfall, the elders have difficulty in determining when we all must tether our animals for farming to

begin”. Another respondent, Apoya, agreed with Amaake’s statement, adding that “individual households now determine when to tether their animals, not the village elders”. The livestock free-range system is a traditional method of rearing animals, such as cows, goats, and sheep, prevalent in all communities in northern Ghana. In northern Ghana, livestock rearing is associated with food security, socio-economic well-being, insurance, and the provision of manure for farming (Adams et al., 2021). Participants from the three research communities reiterated that they practice an open/free-range system, allowing animals to roam outdoors to graze on pastures. However, at the beginning of each planting season, a ban is imposed to confine all livestock, preventing them from grazing on farm crops. Suribono, a Unit Community member and a smallholder farmer with over 40 years of experience, explained how the system of banning animals was established:

Before we begin sowing, a day is designated by the village elders for all households to confine their animals [...] We harvest the early grass to feed our animals at home or tether them to graze in confined locations. This ban signals the start of the farming period, and if your animal is found unconfined [free range], you [the owner] will be fined. (Suribono, Nagtunia)

It is evident from the above quote that the ban on free-range of livestock at the onset of the rainy season is essential and intricately linked to the success of crop production. Regrettably, the regulation of this practice has become increasingly complex over the years due to the unpredictability of rainfall. For instance, a participant in Punyoro stated:

This year, the rains started earlier than last year, but I was afraid to sow early because other households have not confined their livestock since they have not sown yet. If I sow alone early, the animals will graze on the farm and destroy it before harvest. When I sow late, the rain also stops before the crops are fully mature enough for harvest.

Now, it is an enormous problem that we are not united again due to the unpredictability of the rain. The community elders are also divided about when to impose a ban on the free-range of animals. (Yinemaliya, Punyoro)

As indicated by Yinemaliya, the unpredictability of rainfalls resulting from climate change has distorted long-established community systems and the regulation of animal tethering, which traditionally signals the beginning of the cropping season. The implication of this finding is that farmers are now deprived of the window of opportunity for early planting, even when the earlier rains are sufficiently stable and consistent to support plant growth.

“The weather becomes extremely hot due to the high intensity of the sun now”

Another prevalent theme that emerged among participants regarding climate change is the region’s excessive temperatures over the past several decades. Participants recounted that extreme temperatures and drought in the municipality caused seeds planted in the soil to die and germinated crops to wither. A 57-year-old widow with over 35 years of experience in farming stated as follows:

This time, when you sow and the plants are thriving, the rain ceases, and the weather becomes very hot due to the high intensity of the sun. High temperatures kill the germinated plants, resulting in low harvest. See the millet over there [pointing to her farm]. The ground is hard; it needs rain to cool down, but the rain is not coming, only hot sunlight. If it rains, I encounter no problems, but right now the ground is arid and hard. (Wonuwora, Punyoro)

The Agricultural Extension Officers (AEO) who participated in the study indicated that farmers occasionally experience two to three consecutive weeks without rainfall. Such occurrences, particularly during the early germination stage, can result in the loss of crops, as

farmers solely depend on rainfall to water their crops. It was not surprising that the respondents frequently expressed their frustration regarding the increasing occurrences of long dry spells and droughts in recent years. The analysis derived from the regional meteorological data has revealed a consistent linear increase in temperature since the 1980s (See Fig. 2), making the Upper East Region hotter than other regions in the country, with 3.7% higher than the average temperature of 32.56°C (90.61°F). This finding is consistent with previous studies (Arfasa et al., 2024; Issahaku et al., 2016; Nyantakyi-Frimpong & Bezner-Kerr, 2015; Vercillo, 2018). Hot temperatures and drought affect seed germination and the development of vital plant parts, including leaves, fruits, roots, and stems.

Furthermore, the hot temperatures not only affect crop production but also adversely affect the physical health of farmers in the study communities. Participants widely reported occurrences of skin rashes and Cerebrum Spinal Meningitis (CSM). Some participants stated their observation as follows:

The weather is scorching! We can't even sleep at night because of the heat [...]. Look at the heat rash on my body. How can plants survive this heat if it continues for days without rain? (Azuma, Korania)

I lost my child painfully to heat sickness (CSM). She was in her third year in Navasco (Navrongo Secondary School) [...]. The health workers vaccinated us against it, but still, people die from CSM. During the dry season, the weather is scorching, with dry harmattan winds. These harmattan winds crack our lips and feet, and the skin becomes very itchy due to dehydration. Such conditions can lead to a decline in health, and people are increasingly falling sick with CSM. The heat here [KNM] is unbearable. I lived in Kumasi [southern Ghana] before, and the weather there was much better. (Wedam, Nagtunia).

In fact, the heat in our village continues to increase every year, adversely impacting farm production and our health. We frequently experience heat rashes, CSM, headaches, malaria, and other diseases. We have lost loved ones to these illnesses [...] Therefore, during the hot months, we mostly sleep outside in the house compound. Sleeping outside also raises the risk of malaria, especially in our children. As a mother, if your child is sick, you cannot do anything [engage in productive work]. Last month, I spent two weeks in the hospital attending to my child, who was admitted to the children's ward. (Kadua, Korania)

When a SWF or any household member falls sick, labour days are lost, resulting in low production. At the household level, women and girls encounter unique climate-related stress arising from prescribed gender roles. In the Upper East Region and throughout Ghana, women and girls bear the responsibility for caregiving, including care for the sick and aged. The implication of this finding is that, owing to the increase in climate-related diseases in the region, women and girls are compelled to reduce their productive working hours on the farm and allocate additional time to unpaid care work, including caring for sick family members. The additional care burden contributes to an already heavy workload for women and girls, and the impacts of climate change are linked to increased responsibilities. Men and boys are less likely to experience additional care work due to the gender division of labour in these communities, where women carry most of the labour responsibilities. Also, smallholder farmers' financial resources for farming, including purchasing fertiliser, pesticides and tractor ploughing cost, are allocated towards recovery treatment expenses. The finding corroborates the existing literature regarding the rise of climate-related diseases affecting human health, notably CSM and malaria in the study region (see Akanwake et al., 2022; Akyereko et al., 2020; The RTS,S Epidemiology EPI-MAL-002 Study Group et al., 2021). For instance, Akanwake et al.'s (2022) study conducted in Ghana revealed a statistically significant relationship between climate variables

and CSM, emphasising that reduced rainfall and high temperatures were profoundly correlated with CSM outbreaks in the Upper East Region of Ghana.

“Increased Risk of Flooding – “a few hours of rain caused flooding on our farms”

Another noteworthy finding reported by participants was the growing incidence of floods due to frequent torrential rains. While floods were reported in all study sites, there were variations in exposure and impact. Korania, the community situated near the irrigational dam, has experienced a greater number of floods compared to communities with no irrigational dam (Punyoro and Nagtunia) due to its geographic placement in a low-lying area. During FGD and semi-structured interviews, participants from Korania expressed concern about the increasing frequency of floods during the rainy season and their effects on crop production and property. Some participants described how a few hours of rain can cause a flood. One of them, Weworo, said:

Last month, a few hours of rain caused flooding on our farms, which extended further into our homes. It washed away the applied fertiliser and parts of the crops. Life is very difficult for us because our livelihood is greatly affected. We need rain to farm, but that same rain pours down and destroys our farms and homes. (Weworo, Korania)

During the focus group discussion in Korania, participants explained that after days of water remaining in the fields due to rainfall, the maize and millet leaves changed colour from green to yellow because of excessive moisture. The storm and rain also caused the crops to fail. Regarding this issue, a key informant AEO explained that the seasonal torrential rainfall coalesces with the poor porosity of northern Ghana dryland soils, exacerbating the impact of the flood on crop production and properties. Participants in the Tono irrigation dam area (i.e. Korania) noted that flooding occurrences were more severe when the Bagre dam in neighbouring Burkina Faso, located north of the Upper East Region of Ghana, was opened to

spill excess water to sustain the dam; it destroyed private homes, public infrastructure (roads, schools, and clinics), and even claimed human and animal lives. This finding is consistent with previous studies in the Kassena Nankana Municipality (KNM) (see Akwotajie, 2023; Codjoe & Nabie, 2014; Glazebrook, 2011; Osman, 2023).

Reduction in Soil Fertility – “The land, too, is tired”

An important recurring theme raised regarding environmental change among smallholder women farmers was the decline in soil fertility over the years. Research participants young and old from all three research communities bemoaned that the soil is becoming less fertile and less able to absorb and retain water to support plant growth than in the past years. As 61-year-old participant with over 40 years of experience in farming puts it:

The land, too, is tired [unproductive] because there have been great changes between those days and today. Those days, with a small farmland, you get enough produce to feed the family and even carry some to the market to sell to make money and buy ingredients. But today, we even add fertiliser, but still, what we harvest is not encouraging at all. (Kawia, Punyoro)

Upon inquiring about the factors contributing to the declining soil fertility, she explained further:

You know, if you grow the same crops on the same soil for a long time without allowing the land to rest [fallow], the richness [fertility] is reduced, which also decreases your yield. But I have no choice but to continue farming on the same land for years. This land is the only farmland my father-in-law gave me, and if I do not farm yearly, my children will starve. If I stop farming for the land to regain its nutrients, my father-in-law will take [the land] away from me. (Kawia, Punyoro)

From the above quote, it is apparent that SWFs recognise that land rotation and fallowing are crucial soil conservation practices necessary for restoring soil nutrients, thereby contributing to a bountiful harvest and addressing food insecurity. Nevertheless, limited access to farmland and fear of losing the land presents a considerable obstacle, rendering these practices impracticable. These findings are similar to those reported by Goldstein and Udry (2008), who demonstrated that the disparity in productivity between men and women farmers persists because women farmers were less likely to leave their land fallow due to the risk of losing their land if they do not engage in active farming.

The patriarchal inheritance system, which renders women and girls entirely dependent on male relatives for land access, limits their land holdings. Consequently, this limitation undermines their capacity to engage in effective soil conservation practices such as land rotation and fallowing despite their substantial knowledge and innovative capabilities. Therefore, the active inclusion of women and other marginalised voices in the formulation of agricultural development strategies is imperative to guide our understanding of how to improve agricultural production, fight food insecurity, and close the gender inequality gap in the agricultural sector in Ghana. A young participant below the age of 30, Asua, in explaining the causes of soil infertility, said:

Now, every farmer uses chemicals [weedicide] on the farm to kill weeds because it involves less labour; in the past, it was not so. Now, we overuse the Stopper and Condemn (weedicide) to control the grass, pesticides, and chemical fertiliser in the soil. The taste of farm produce like maize and millet have changed; it is not as tasty as before. Unlike before, we used to allow the remains of the crops on the farm to rot and that added nutrients to the land but today we burn those remains of the crops which is why our food crops, too are not yielding well again (Asua, Nagtunia).

Other respondents widely shared Asua's above response regarding the causes of soil infertility. This finding demonstrates that both young and older women possess knowledge regarding environmental degradation practices such as prolonged farming on the same land, lack of fallowing, overuse of weedicides, pesticides, fertilisers, and bushfires. These practices undoubtedly undermine soil fertility, resulting in poor yield. Participants reiterated that land rotation and fallowing are effective practices for regaining soil health, increasing nutrient and microorganism levels in the soil's moisture-holding capacity, and reducing input cost. This finding confirms Glazebrook's (2017) study, which argues that women farmers are knowledgeable about environmental management and protection.

In addition to the above prominent climatic and environmental changes widely reported, participants noticed the following environmental changes: pest infestations due to drought (such as fall armyworms and *Quelea* birds). Participants reported significant adverse impacts on their yield and livelihood across all the research communities.

Emergence of Fall Army worm (FAW)- "The worms reduced my harvest drastically"

Participants mentioned the ongoing invasion of FAW over the years as a new environmental change in the municipality, which aligns with previous studies (Asare-Nuamah, 2021; Nboyine et al., 2020). Participants lamented the destructive nature of FAW in the region as a hindrance to a good harvest. According to Kawia, "For some years now, FAW invades maize farms and destroys the crops. Due to the invasion of farms by the FAW, some farmers have to destroy their farms to eradicate the worms before they replant." (Kawia Nagtunia). SWF explained that FAW reduced yield drastically and gave practical examples: "The worms reduced my harvest drastically. I used to harvest four bags of maize, but because of the worms, I harvest less than two bags on the same plot" (Kapuri, Punyoro). An AEO stated that "most maize farmers in the district reported FAW infestation in their farms [...] some vegetable farmers also reported FAW

infestation on cabbage and green pepper.” According to the AEO, the government provided free pesticides as part of planting for food and job programmes, which are supplied to farmers to control FAW in the district. He added that “the AEOs educate and train farmers to scout their farms daily to identify early signs of FAW infestation for quick eradication”. Some respondents confirmed receiving pesticides for FAW control, while others stated they purchased them due to delays in supply from the agricultural office. SWFs in maize farming expressed concern about the reduction in maize yield, their primary source of livelihood and household food security, due to the adverse impact of FAW amid erratic rainfall and hot temperatures on crop production.

Pest Birds (Quelea) Invasion – “You can hear the birds making noises from the trees”

Participants reported that the destruction of crops by pest birds (Quelea) was another environmental change they had observed in recent years. They indicated that there has been a significant increase in the population of pest birds foraging on farms over the years. Several participants reiterated their observations of peak periods of birds raiding on farms in the morning and evening. Below are some quotes from participants describing the birds’ raid and their consequent impact on agricultural production:

The invasion of pest birds into our communities is very worrying. For the past three years, no farmer has been able to harvest the early millet they plant. When the early millet starts bearing grains, the birds eat everything from the plant. You can hear them making noises from the trees since you entered this village. They are just waiting for the millet to bear fruits, and they will eat everything. We harvest nothing at the end. The birds are frustrating our efforts and destroying our farms before we can harvest. The early millet is vital for household food security [...] The harvest of the early millet

feeds the family until other crops like the maize and late millet are harvested. But these birds prolong our hunger and starvation. (Kalo, Korania)

Respondents mentioned various traditional methods implemented to deter birds from raiding the grains on the farms. For instance, Apegwine from Nagtunia noted:

We have been scaring them (pest birds) away by shouting, hitting objects and other forms of noise, but you cannot be on the farm 24/7. Now, we mount sticks with clothes on them like humans on the farm. However, this method is not effective because these birds are very wise. They know it is not harmful, so they ignore them [the mounted sticks].

From the above quote, farmers' techniques to combat bird pest problems, such as bird scaring, shouting, and mounting human sticks, proved ineffective. This finding was not unexpected, as any bird-scaring approach that does not inflict harm or pose a threat to the life of birds is short-lived due to the birds' ability to acclimate to these methods (Elliott & Bright, 2007). Respondents at Korania engaged in rice farming emphasised that they predominantly employ professional bird scarers at a fee to deter birds during the rice ripening period. Other farmers constrained by financial limitations enlist their children as bird scarers on their farms, utilising rudimentary tools such as catapults and slingshots to scare the birds. SWFs also reported that the invasion of pest birds significantly reduces crop yield, increases production costs and incurs social cost. A widow respondent explained:

I am not always happy stopping my children from school attendance to scare birds because it will affect their education and future opportunities. But you see, hunger is witchcraft and can kill, and I have to make a tough decision between their education or starving them during the lean season [...] I have to sacrifice their education so they can help me on the farm during the ripening period to scare the birds away to improve

the farm yield. You see, I have no help; my only source of care for them [children] is my farm. (Wesono Korania)

The finding illustrates that, due to the invasion of pest birds, SWFs must sacrifice their children's education (social cost) to improve farm yield to support their household food security (Elliott & Bright, 2007; Wiafe, 2023).

In summary, this section reported SWFs' perception of climate and environmental change, including erratic rainfall, hot temperatures, shortened growing seasons, pest birds and FAW invasion and their adverse impact on crop production and food security in northern Ghana. SWFs awareness of the changing climate and environment in the Upper East Region is in contrast to some claims that farmers elsewhere in sub-Saharan Africa were ignorant of climate change and its impact on agriculture (Ajuang et al., 2016 as cited in Guodaar et al., 2021).

In addition to the growing understanding among SWFs regarding the effects of climate and environmental change, including some of the contributing factors that impact livelihood production, several other factors were emphasised as key priorities for mitigating the adverse impact of climate change, reducing workloads and increasing crop production. In particular, the participants highlighted the importance of increased access to fertilisers and tractor services for agricultural production as crucial coping strategies amidst the severe climatic and environmental changes they are experiencing. In the subsequent section, I present an overview of the arguments SWFs make for increased access to fertilisers and tractor services as vital coping strategies to support their livelihoods and ensure household food security.

Smallholder Women Farmers' Access to Fertiliser and Tractor Services as Mitigation Strategies to Environmental and Climate Change

As a framework, FPE draws attention to local agency, recognising the resourcefulness of marginalised women and men in environmental struggles and socio-ecological constraints (Hovorka 2006; Wangari et al. 1996).

To mitigate the impact of climate change, additional inputs are needed. Women expressed a desire to mitigate their current agricultural strategies and practices by adopting these mitigation strategies, which would be possible with increased access to fertiliser and tractor services. In the following sections, I discuss the structural barriers, SWFs' agency, resourcefulness, and resilience in coping with the adverse effects of climate change to improve crop production and their livelihood.

Smallholder Women Farmers' Access to Tractor Services

According to SWF, access to tractor service is necessary for land preparation to improve agricultural production. Participants explained that proper land preparation is vital to increasing yields and that using tractors to plough the farm is efficient, particularly now that they experience shorter rainfalls and extreme temperatures. In addition, they explained that tractor ploughing helps turn over the topsoil, bringing new nutrients to the top and also loosens the soil for proper water retention. Kaduna, a 25-year-old young SWF, argued that, "you know, due to climate change, the farmland is still dry and hard with the earlier rains, and often impossible to use hoes to plough. But with tractor ploughing it is very efficient and helps bury grass so that it can decay fast, resulting in the addition of nutrients to the soil". Another respondent, Alue, a 51-year-old with 35 years of experience in farming, stated that "ploughing with a tractor is efficient, time and labour-saving compared to a hoe, which is laborious, time-consuming and inefficient". From the findings, SWFs are aware of the performance and efficiency of tractor

ploughs, and prefer their usage over rudimentary tools such as hoes. The findings from the semi-structured interviews and focus group discussions show that SWFs had limited access to tractor services. The factors include financial constraints, long waiting times for tractor service delivery, small farm size, high cost of services, cultural norms and assigned gender reproductive roles. Participants identified limited access to tractor services as a barrier that affects their capacity for climate change mitigation, for healthy agricultural practices, and for household food security. In what follows, I will delve deeper into SWFs' constraints to access tractor services to mitigate the negative impacts of climate and environmental change.

Constraints to Tractor Services

Smaller Farm Size

In discussing barriers to tractor services, a key informant from the Centre for Social Mobilisation and Sustainable Development (CENSODEV) noted as follows:

Women farmers' access to tractors is a big challenge due to the small size of their farms. Most tractor operators will not move their tractor to a quarter or a half-acre when they have 10, 20, and more acres to plough for bigger money (Executive Director, CENSODEV)

A key informant described the daily struggles of women in accessing tractors and their impact on their yield as follows:

In this district, it is difficult for women to compete with men regarding agricultural equipment to plough and prepare farmlands. Women have to wait for the men to finish ploughing their lands before they can access tractors to plough their farms [...] The delay in land preparation caused most women to start planting late, and when you start late, you are bound to fail. (Executive Director, Akoka's NGO)

From the above responses, one of the reasons why women farmers are disadvantaged in accessing tractor services is their small farm sizes. The vast disparities in the sizes of men's and women's farms are a disincentive for commercial tractors to move to smaller plots to plough. Particularly, at the beginning of the farming season when demand for tractor services is very high, SWFs are not able to compete with men who own large plots of land. Consequently, SWFs plough and sow their farms late, putting them at a higher risk of adverse impacts of climate change, resulting in poor yields.

Financial Challenge and Farm Location

Another constraint that the overwhelming majority of respondents reported from all the research communities as a hindrance to the tractor's access is financial challenge, which coalesces with the high service cost. This finding was not surprising, as the Upper East Region and the whole of northern Ghana face limited access to infrastructure, social amenities, goods, and services, including mechanised agricultural equipment. According to the Director of Widows and Orphans Movement, most available tractors "are for commercial business owners with the ultimate motivation of profit maximisation. Women with limited access to land and properties have little cash and no collateral to access credit facilities to benefit from tractor services" (Director, Widows and Orphans Movement). The few subsidised government tractor services were primarily located in urban areas, such as Navrongo. SWFs who mainly live in rural areas are, therefore, disadvantaged in their access to tractors.

Kawia, a SWF from Nagtunia, has this to say concerning some of the challenges women face in accessing tractor services:

If you need tractor services, you have to travel to Navrongo [the municipal capital] to access one. It is expensive too. The operator says fuel prices have gone up. If there are few farmers in the community seeking tractor services at the time you need it [tractor

plough], the operator will not come because of the long-distance travel from Navrongo to Nagtunia to work on only a few small plots. Particularly during the peak of ploughing, the tractor operators have a lot of large farms to work on in Navrongo and the nearby surrounding communities; therefore, it's challenging to get them to come here. (Kawai, Nagtunia)

The above explanation shows that the farm's location and size significantly affect access to the tractor plough. Proximity to the municipal capital significantly enhances the likelihood of tractor accessibility and lower cost. This finding demonstrates that SWFs located in more remote rural villages are at a greater disadvantage compared to those located in proximity to urban centres.

Socio-Cultural Discriminatory Norms

Another crucial recurring theme raised in the semi-structured interviews and focus groups was that socio-cultural norms made it impossible for women to access tractor services directly. SWFs complained that their dependence on husbands or brothers to arrange for tractor services is a hindrance to their access to tractor services. As one married woman explained:

As a woman, I cannot go directly to them [tractor operators] to arrange for tractor service. Even my husband would be angry with me. My husband searches for the tractor and negotiates for us. But you know, he always ploughs his farm first and sometimes forgets about my plot. Here, women's farms are always the last to get tractor service if any tractor comes to this community. (Weworo, Nagtunia)

Women's dependence on men can frustrate and render them more vulnerable to increasingly erratic rainfall, late planting and short planting seasons. All these factors contribute to SWF's low yield, widening the gender yield gap in the agriculture sector, with implications for food

security at the local, regional, and national levels. These findings concur with Vercillo's (2022) study, which posits that cultural norms prohibit women from seeking tractor services directly and require them to depend on male relatives, such as husbands or brothers, to farm. Nonetheless, amidst all the cultural barriers, some respondents reported they accessed tractor services through their male relatives, but mainly during the late periods of the planting season.

Assigned Unpaid Gender Reproductive Duties

In addition to sociocultural discriminatory norms in these communities, the unpaid gender reproductive duties assigned to women and girls present barriers to accessing tractor services. Participants explained that after a husband or male relative has negotiated for tractor service, the farmer must be present at the farm awaiting the arrival of the tractor operator. In situations where the tractor operator is already engaged on another farm, it is necessary to wait; otherwise, another farmer present may persuade the operator to assist with their farm instead.

One of the respondents stated as follows:

Even if you [woman farmer] struggle to get money to pay for tractor service, you must also get time to chase the tractor operators to your farm. The tractors go to different farms daily, and you must be there early in the morning, stalking and waiting for your turn. The waiting is difficult for me. As a mother, I must return home around 4 pm to cook for the family. But the men can wait even until midnight for the tractor operators to come to their farms. My husband, after ploughing his farm, forgets about my farm, and I have to combine cooking for him and also getting enough time to wait for the tractor operators [...] You realise that women suffer more than men. (Kawia, Koria)

From the above quote, gender reproductive roles assigned to women also limit the time for women to access tractor services. It is essential to highlight that women's commitment to their

assigned gender reproductive roles, such as childbearing and caring for children and the elderly, and unpaid domestic duties, such as cooking, fetching water, and gathering fuel, can deprive women of opportunities for their productive economic empowerment. Men, on the other hand, are privileged with fewer domestic duties, which are assigned primarily to women, leaving men enough time to spend outside the house and wait for tractor operators. This finding indicates that women farmers must adjust their workloads and allocate substantial time to tractor operations, following significant payments for tractor services.

In summary, unequal access to tractor services exacerbates women farmers' challenges in agricultural production and climate change resilience. Tractor service providers' interest in exclusionary access to service delivery along large farm size, night operations, and location creates a gender-specific marginalisation for SWFs in rural Ghana. The patriarchal land inheritance system that privileges men and marginalises women, along with the gendered reproductive roles assigned to women, dictates the level of access to agricultural productive resources such as tractor services, with male farmers enjoying better access than female farmers. In line with FPE, the finding indicates that gender intersects with other categories of marginalisation, such as patriarchal land inheritance, cultural norms and location to limit SWFs' access to tractor services. This intersectionality underscores the need for gender-sensitive, geographically targeted agricultural policies. In the next section, I delve deeper into the arguments SWFs made for increased access to the second input —organic manure and/or fertiliser — as a climate change mitigation strategy, and their significance for increasing crop yields and supporting their livelihoods.

Smallholder Women Farmers' Access to Fertiliser

To improve soil fertility, participants from the FGDs and semi-structured interviews reported increasing fertiliser application on their farms. As an example, Komageamo, a 35-year-old

participant from Punyoro, noted: “I prepared manure from animal droppings, food waste and grass to complement the chemical fertiliser.” This finding demonstrates that women have transcended cultural norms, which suggest that they tend to wait for solutions and lack a degree of agency. SWFs in this context decide not to lament the ‘vulnerable position’ they are in, but instead take hold of the situation and emerge as agents of change by adopting alternatives to address the limitations.

However, SWFs faced limitations in acquiring an adequate supply of fertiliser at the appropriate time for their agricultural production. This finding aligns with previous studies (see Akpan et al., 2012; Karlan et al., 2014, as cited in Mensah et al., 2018). According to respondents, factors affecting access to fertiliser were high cost, poverty, a lack of affordable credit facilities, and a lack of transportation to urban areas. In what follows, I provide a detailed explanation of the effects of limited access to fertiliser on the production levels of SWFs.

The leader of the Women Farmers Association shared a compelling narrative to illustrate structural challenges SWFs encounter in accessing fertiliser, aimed at mitigating the detrimental effects of climate change:

The Agric officers in Navrongo told us to make payments to receive subsidised fertilisers from the government [planting for food and jobs programme]. So our group [Women Farmers Association] mobilised funds for 400 bags of fertiliser from our susu collection box. We made the payments for the fertiliser in February. As I speak to you, we have not received even a bag after seven months [September] of payments. Meanwhile, they promised to deliver in April [...] we should have applied fertiliser months ago. You see how women farmers are suffering here. (Kuponu, Punyoro)

In explaining the ramifications of limited access to fertiliser, Awiah said, “Without the application of fertiliser, I harvest little because the land struggles to replenish the nutrients in

the soil to support plant growth to improve crop yields” (Awaih, Korania). This view was shared by respondents irrespective of age, marital status, and location, linking the low application of fertiliser to low harvests, which affected their livelihoods and well-being. In describing the effects of lack of fertiliser application on her farm, Kapuri, a 49-year-old, stated as follows:

Access to fertiliser is a big problem. Lack of fertiliser on the farm means no harvest at the end of the planting season because the land lacks nutrients. Parents are suffering, but women suffer the most than men. You are always in the house with the children, watching them cry and asking for food while the man goes out to get drunk and enjoy himself. As a mother, what will you do? You understand why getting fertiliser for my farm to improve harvest is very important to my children’s survival [...] So, if I do not struggle to work hard on my farm, my children’s future will be destroyed because my husband is unreliable (Kapuri, Punyoro).

Other respondents shared similar concerns about husbands not being supportive in the house and the importance of women getting access to fertiliser to improve yield and feed their families from their farms (subsistence farming). This finding contradicts a previous study that claimed SWFs in northern Ghana tended to describe their farming primarily in terms of cash generation rather than subsistence (Vercillo, 2020). The traditional role of men as breadwinners of the family is gradually shifting, and women are stepping in to meet the basic necessities of their families, which were the sole responsibility of men. Consequently, there is a need for a place-specific study of the ongoing dynamic changes in gendered agriculture and food relations to inform effective development interventions for food security, the elimination of hunger, and sustainable development. Also, previous studies have documented how SWFs experienced lower yields than men smallholder farmers as a result of limited access to agricultural

resources, including fertiliser (Cadzow & Binns, 2016; C. R. Doss, 2015). The findings also indicate that SWFs' knowledge of fertiliser application is connected with their farming experience, not age or marital status (Mensah et al., 2018).

SWFs' Fertiliser Preference: Organic or Chemical Fertiliser?

When respondents were asked to choose between organic or chemical fertiliser, the majority chose organic manure and gave evidence for their choice. Many preferred the application of organic manure over chemical fertiliser. Nevertheless, they substituted it with chemical fertiliser due to the insufficient access to raw materials, such as animal dung and water for its preparation. It is worth stressing that respondents provided evidence supporting their preference for organic manure in comparison to chemical fertiliser. For example, Teni, a 61-year-old farmer with over 46 years of farming experience, argued as follows:

With the organic manure application, we harvest more even with the erratic rainfall than with the NPK fertiliser [chemical fertiliser]. The organic manure supports plant growth and has a higher resistance to hot temperatures even if the rain stops. The harvested crops from the organic manure also taste very nice and last longer when preserved, particularly the vegetables. However, with the NPK fertiliser, some of the crops will die with that same temperature exposure, and the food will not be as delicious as the manure type (Teni, Korania)

One can discern from the above quote that SWFs are knowledgeable about organic manure being more resilient to climate hazards and post-harvest loss than chemical fertiliser. This finding suggests that participants were knowledgeable that organic manure sustains soil ecology and preserves the required plant nutrients and other properties to support plant growth in harsh weather conditions, making it more resistant to climate hazards than chemical fertiliser (Abebe & Debebe, 2019; Daadi & Latacz-Lohmann, 2021). Returning to FPE, the finding

elucidates that indigenous situated knowledge and resourcefulness of SWFs are crucial for building resilience and mitigating the adverse impacts of climate change.

The ongoing efforts in Ghana to reduce farmers' vulnerability and strengthen resilience to climate change call for the urgent need to empower social minorities (women), whose voices have been underrepresented in the sustainable development discourse (Harding, 1991; Sultana, 2021). Exploring new forms of solidarities in knowledge production that account for women's experiences in environmental debates can spur a ripple effect on holistic gender-specific and place-based strategies, thus increasing women's active participation and involvement in formulating mitigation and adoption strategies to improve crop production, food security, and the achievement of the United Nations Sustainable Development Goals 2, 5 and 13 in Ghana.

When I asked SWF respondents why they do not apply organic manure since it is more resilient to climate hazards, Komageamo, a 42-year-old widow, explained, "In my house, we do not have livestock, so I can't access animal droppings to prepare manure, and I am not able to buy fertiliser or any farm inputs. My husband died long ago and I single-handedly take care of my children". She further lamented that this situation had worsened their household food security coupled with low soil fertility, "the land is not fertile, and if I don't apply manure or fertiliser too I will harvest nothing." In semi-structured interviews, some participants shared similar concerns about why they cannot prepare organic manure: "women do not rear or sell animals only men are allowed to do. If you asked for animal droppings to prepare manure, they [men] say it's not even enough for their farms, so they do not give you" (Anatutei, Nagtunia).

The finding elucidates that in these communities, crop-livestock amalgamation is a significant agricultural practice that enables farmers to access raw materials for organic manure production to support soil maintenance and preservation. However, over the years, the available livestock densities in the communities have not supported the demand for manure turnover for

smallholder farmers' farms (Tittonell and Giller, 2013, as cited in Daadi & Latacz-Lohmann, 2021), rendering women limited access to manure production compared to men. Patriarchal norms prevent women from rearing or selling livestock, making it a preserve for only men to rear livestock; this gender discrimination, in turn, creates gendered resource disparities that affect women's agricultural production and household food security. The finding shows that a primary raw material (animal dung) for organic manure production is both owned and controlled by men. Entrenched patriarchal norms and gender roles play a significant role in limiting women's access to some of the basic raw materials (animal dung) for organic manure production. Indeed, studies have shown that patriarchal norms and traditional gender roles of women create a condition where women are marginalised and experience vulnerability more severely than men (Apusigah, 2009; Wrigley-Asante, 2008).

To improve climate change mitigation strategies and food security, ensuring gender equality in agricultural input access and including the voices of social minorities (women) facing multiple marginalisations to guide our understanding of resilience to climate change is crucial. In addition, development projects and interventions that allow women at the grassroots to identify their needs would promote their agency (decision-making) and empower them to flourish.

Apart from limited access to animal dung, respondents, notably older women, reported other factors that discourage the preparation of organic manure, such as the labour-intensive preparation of compost sites (digging and stirring) and long distances to fetch water to aid moisture and decomposition. The findings show that the intersection of age, gender and patriarchal cultural norms plays a significant role in SWFs' access to organic manure. While SWFs are all disadvantaged, older women are even more disadvantaged due to the labour-intensive nature of organic manure production. With barriers in accessing organic manure, SWFs result in an increase in the application of chemical fertiliser. The next section explores

how women farmers express agency in redefining their constraints to access fertilisers to mitigate the adverse impacts of climate change and to improve their livelihoods.

Smallholder Women Farmers' Coping Strategies to Fertiliser Access

As a framework, FPE draws attention to local agency, resilience, and recognising the resourcefulness of marginalised women in environmental struggles and socio-ecological constraints to obtain and sustain their fundamental necessities in life, such as their livelihood and health (Hovorka, 2006; Wangari et al., 1996). As active agents of change, respondents reported that various strategies were implemented to access fertiliser amid the high costs. These strategies include reducing farm size, borrowing (susu savings and loans, family members), by-day work (working for others for money), and petty trading. The responses of some SWFs regarding their coping strategies for fertiliser access are as noted by Yifra, a 58-year-old widow, who commented:

There is no need to waste my strength on the farm if I cannot afford enough fertiliser. The plant will not yield much without sufficient fertiliser. Because of that, I farmed half of my already small plot this year because I could only buy four bowls of fertiliser (Yifra, Punyoro).

Kawia, a 27-year-old participant, added: "I have a small shop selling gari, sugar and other provisions. I use part of the shop capital to buy fertiliser to apply on my farm." (Kawia, Korania). Another young participant below the age of 30 remarked:

As for me, I go around to people who want farm labourers so that I can engage them for a fee. That is the kind of menial wage labour job I do. When I get the money, I will buy one bowl of fertiliser and some small weedicide for my farm. So, if I don't go to this 'by-day job', I will not have money to farm [...]. What can I do since my father

refused to send me to school to qualify for government work for monthly income, only by day? Where will I get the money? I will not steal. (Adizaa, Nagtunia)

These findings elucidate how younger women are willing to engage in stressful, low-paying jobs in order to purchase fertiliser for their farms. Conversely, older women, who may lack the physical strength to work, might lack the opportunity to diversify into other employment options to secure funds. A reflection on Adizaa's fertiliser coping mechanism through wage labour from menial jobs due to her lack of formal education points to a significant barrier to the well-being of women and girls in Ghana. In Ghana, over the years, although progress has been made in girls' education, respondents argued that boys are still preferred over girls for formal education, which is attributable to harmful gender stereotypes and socio-cultural perceptions. Some respondents provided examples of how 'their brothers' have better opportunities in the formal sector and wealth because of formal education, while women are disadvantaged with little opportunities, predominantly in the informal sector, mainly as petty traders, by-day labourers, janitors, and poor farmers with restricted access to agricultural productive resources. Semi-structured interviews with AEO further revealed that farmers lack the knowledge to apply agricultural inputs such as fertiliser, weedicide, and pesticides appropriately due to illiteracy and a lack of training, which harmfully affect crop yields and the quality of food crops. This finding emphasised the need for equal opportunities for girls and boys in formal education to achieve gender equality.

Other SWFs mentioned borrowing fertiliser or acquiring loans to buy fertiliser for farm production. Apegwine shared her experience as follows:

I borrow fertiliser from friends and family members so that I can pay them back when I harvest. But now it is difficult for everyone, so they are not able to help. Some companies sometimes assist us, like Snappy Aba savings and loans microfinance and

others. They provide fertiliser on credit, so that when you harvest, you can repay it with interest. (Apegwine, Korania).

It was uncovered that loan acquisition from savings and loans incurs a greater cost. Apegwine and many other SWFs lamented that, aside from the high rate of interest, the period of repaying the loan/fertiliser is very short, resulting in the necessity to allocate nearly all of their harvest to financial institutions. Apegwine, a widow SWF, further explains this point:

If they provide you with fertiliser for farming, you repay it around December and January, which is the harvesting period. However, they do not allow you to keep the harvest until March and April, when the prices increase. The little that remains after paying off my debt is used to care for my children (Apegwine, Korania).

A key informant reinforces the experience of Apegwine and other SWFs who patronise savings and loans with the practical example of how SWFs who borrow from them to farm end up with little for the family to feed and their well-being. He stated that:

After harvesting, the women have a ready market, but prices are low. The solution to sell at higher prices is to hold onto their harvest and sell during the lean season. However, women loan beneficiaries are forced to sell at low prices because they must repay their loans immediately after harvest (a six-month loan at 24%). The women work hard but receive small profit margins. For instance, last year, a bag of rice sold for Ghc 500 during the harvest period. In just two weeks, the price rose to Ghc 800 and kept rising. However, in this short time, women loan beneficiaries had already sold most of their harvest to pay off high-interest loans, as creditors would pressure them. Therefore, they [women farmers] did not benefit from the price increase. One could argue that these private loan and savings institutions exploit these poor women instead of helping them. (Executive Director, Akoka's NGO)

Inferences from the above quotation show that SWFs' difficulty in accessing fertiliser compelled them to accept unprofitable loan offers from unregulated Savings and Loan companies for fertiliser provision. The loans from unregulated banks carry high interest rates and very short repayment periods. Women in Ghana face socio-cultural barriers when accessing regulated bank loans (Ackah et al., 2023; Domanban, 2024; Kyire et al., 2025). These barriers include "lack of collateral, which is linked to women's lack of access to land titles that limit women's access to credit from regulated banks" (Executive Director, Akoka's NGO). The implication of this finding is that savings and loan companies that claim to support poor rural women farmers' agricultural production through the provision of agricultural inputs end up exploiting poor rural women with high interest and short recovery periods of loans.

SWFs' Coping Strategies to Limited Access to the Tractor Services

It is worth noting that discussion from the focus groups and semi-structured interviews revealed that SWFs seek alternatives to tractor services using a bull-drawn plough to harrow soil matter and prepare for sowing to avoid late planting and mitigate climate change. SWFs were also quick to express the limitations of the bull-drawn plough services due to inadequate funding and the long waiting times associated with seeking them. One of them was Tepora, a 46-year-old widow, who noted that with limited access and barriers to seeking tractor services, "I go for the cattle to plough [bull-drawn plough]". She goes on to explain that:

Even getting the cattle [bull-drawn plough] is difficult and expensive. You have to join a long queue. So this year, I used "by-day" (manual labour) to plough and even with the "by-day", I paid each person GHC45 to GHC50 daily. When you get food and water for them after the rest break, they will be strong enough to continue the farm work. Some close at 5:00 pm, and others close at 3:00 pm, with the excuse that they are tired. (Tepora, Punyoro)

This finding shows that due to limited access to tractors, SWFs rely on bull-drawn ploughs or manual labour to plough, which is a less efficient method of land preparation as compared to tractor ploughs because women cannot compete with men and do not want to risk late planting before the rain stops for the planting season. This finding resonates with a past study that argues that smallholder farmers in rural areas cannot access mechanisation devices such as tractor services, thereby resorting to less efficient methods of land preparations (Anang & Asante, 2020).

As discussed earlier, the delay in land preparation, coupled with climate change, affects plant germination, leading to low crop productivity and food insecurity. Although bull-drawn plough and manual labour emerged from SWF's responses as a substitute for tractor services, it is evident that they are less efficient. Therefore, urgent interventions are needed to provide timely and affordable tractor services to all smallholder farmers, particularly women, to fight food insecurity in northern Ghana. Respondents suggested that the government should provide separate tractors at an affordable cost for men and women farmers in all the communities to enhance women farmers' direct and timely access to tractor services.

In this chapter, SWFs' perception of climate and environmental change and its impact on farming were examined through intersecting categories related to their marital status, gender, location, and age to answer the first research question of this thesis. Elaborated in this chapter were SWFs' perceptions of climate and environmental change and impacts of crop production, as well as the unique challenges SWFs in northern Ghana must navigate to mitigate low agricultural yield and household food insecurity. This information provides context for understanding the standpoint perceptions and experiences of SWFs in northern Ghana as it relates to their livelihood, household food security, and well-being.

Discussion

The findings of this chapter indicate that the majority of SWFs in rural KNM in the Upper East Region of Ghana have observed a changing climate, including increasing hot temperatures, erratic rainfall, floods and drought, as well as environmental changes such as a decline in soil fertility and the invasion of FAW and bird pests. Critics of subjective approaches to the measurement of climate and environmental change have argued that it is challenging to detect climate change based on personal experience accurately (Weber, 2010).

SWFs' knowledge of the changing climate and environment in the Upper East Region is in contrast to some claims that farmers elsewhere in SSA were ignorant of climate change and its impact on agriculture (Ajuang et al., 2016 as cited in Guodaar et al., 2021). These findings strongly support the assertion that local knowledge of climate change is reliable and consistent with scientific evidence (Haque et al., 2023; Teye et al., 2015). Consistent with the results of some earlier studies (Karki et al., 2020; Teye et al., 2015) SWFs' perceptions of climate change differ across the research communities. SWFs in Korania were more likely to perceive the increase in flooding compared to SWFs in the other two communities. One reason SWFs at Korania were likely to experience more floods was their geographical placement in a low-lying area.

Respondents identified various adverse impacts of climate and environmental change. The negative impacts include low agricultural yield, disruption due to the ban on free-range livestock, food insecurity, hunger in the lean season, poor health, poverty, and social costs. The findings suggest that these adverse effects are further compounded for women farmers than men particularly widows and women household head by other socio-cultural and socioeconomic factors such as inequalities in gender rights, roles, opportunities, access to land and farm inputs, high population growth and declining soil fertility, poor infrastructural and

social amenities, domestic violence, and lack of formal education; which must be addressed collectively to empower women farmers to improve their livelihood and wellbeing (Huyer et al., 2021). From a perspective of FPE, these constraints illustrate how the effects of climate change are mediated and amplified by pre-existing inequalities in the control and access to productive resources.

Coping Strategies to the Perceived Climate Change Impacts

Various coping strategies to adapt to the effects of climate and environmental change, primarily based on respondents' perceptions of the problem of climate impacts, were reported. These include increased application of fertilisers (organic or inorganic), land fallowing, access to new farmlands, tractor ploughing, teachings from agricultural extension officers and the application of pesticides.

The finding suggests that SWFs' vulnerability to the adverse effects of climate change is not intrinsic but inextricably connected with discriminatory social and patriarchal norms, structural barriers and gender inequalities that marginalise their access to productive agricultural resources to cope. SWFs reported that despite their knowledge of effective coping strategies, the majority of women farmers, compared to men, could not implement them properly to ensure improved agricultural yields due to barriers emanating from patriarchy, gendered unpaid care work, socio-cultural norms, poverty, high cost of inputs and gendered access to - and control over - resources. For instance, women were not able to practice important agricultural activities such as land rotation and fallowing to restore soil fertility due to their limited access to land and fear of losing the present one, which has negative implications on crop yield. This finding substantiates Goldstein and Udry (2008), who demonstrated that the disparity in productivity between men and women farmers persists because women farmers were less likely to leave their land fallow due to the risk of losing their land if they do not engage in active farming.

Another notable finding in this research is that, due to socio-cultural norms, women must depend on their husbands and other male relatives to access tractor services for ploughing and livestock dropping for preparing organic fertiliser, which makes them vulnerable to the impact of climate change. Cultural norms prohibit women from rearing livestock; hence, they have to access animals dropped by men to prepare organic manure for farming. In addition to limited access to livestock dropping for the preparation of organic fertiliser, older women were further concerned, reporting labour constraints, health issues, and reduced strength in preparing organic fertiliser. Within the framework of FPE, gender intersects with socio-cultural norms and the age of women to shape access to organic fertiliser. FPE draws attention to the role of gendered knowledge and adaptation practices (Nightingale, 2006; Sultana, 2021). While women possess context-specific knowledge related to soil management, their limited decision-making power and restricted access to resources undermine their ability to translate this knowledge into effective climate adaptation. As such, women are not inherently vulnerable, but are rendered vulnerable through structural constraints that devalue their knowledge and limit their agency.

The use of animal ploughs and manual labour was deemed inadequate for allowing SWFs to prepare land and plant in a timely fashion under the increasingly unpredictable climate. Women faced many barriers in accessing the more effective tractor services. Socio-culturally, women are considered weak, and are not expected to search for and negotiate for tractor services and most tractor operators, mostly men, do not want to deal with women directly (W. Quaye et al., 2019). From a FPE perspective, this vulnerability is socially differentiated and produced through gendered power relations that shape access to, control over, and benefits from, environmental resources (Rocheleau et al., 1996; Elmhirst, 2011).

According to Ankrah et al. (2020), a woman's negotiating power determines how much she can obtain from her spouse to direct towards the purchase of farm inputs, including tractor services. Cultural norms place women in a subordinated position where they have to discuss and solicit money from their husbands to access farm inputs. The authors observe that less educated women (who characterise my research population) have depended more on husbands than women with education. This dependence on men affects women's coping strategies and makes them more vulnerable to the adverse impact of climate change compared to men. As an example, the study observes that more women than men plant late amid shortened planting windows and erratic rainfall, which is associated with a significant loss in crop yield or crop failure.

As highlighted by empirical evidence (Ankrah et al., 2020; Apusigah, 2009; Dwomoh et al., 2023), women in SSA continue to be highly marginalised in accessing agricultural productive resources, advisory and extension services, experience lower rate of modern agricultural technology and inputs application than their men counterparts, and are subjected to discriminatory land laws. This gender gap has dire consequences on their climate change coping strategies, food security, malnutrition and poverty. Therefore, the strategies of gendered adaptations to climate change must be understood as multidimensional and reflective of gender relations within specific socioeconomic and cultural contexts, not simply a matter of women's intrinsic vulnerability. Moreover, there exists heterogeneity among both men and women in the way tractor service and other agricultural productive resources are accessed within households. The findings observed that in term of location, farmers in Korania who were closer to the municipal capital, Navrongo, may have more access to tractor services than those in the other two research areas at a far distance. An implication is that agricultural development projects aimed at addressing differential access to productive resources in the Global South must be guided by the experiences of women across the full spectrum of identities (such as age,

marital status, cultural norms, education, location) to enhance their effectiveness (Ankrah et al., 2020). Particularly in the case of Ghana, where the south is predominantly matrilineal while the north is predominantly patrilineal, as well as a significant development disparity, with the former more developed than the latter (Nyantakyi-Frimpong, 2020).

The findings also demonstrate that when the tractor service arrangements are made for women farmers, gendered domestic duties further constrain their ability to wait for the arrival of the tractor. Other limitations for women's access to tractor services were the small size of farmland due to the limited access to land, the high cost of tractor services and poverty. Within the context of the FPE framework, the finding suggests that gender intersects with socio-cultural norms, patriarchy, location and size of farmland to shape women's access to tractor services. This finding resonates with the study of Vercillo (2022) and Quaye et al. (2019), which demonstrate that socio-cultural norms limit women's direct access to tractor services, thereby increasing their reliance on men for farming activities.

The findings suggest that FPE offers valuable insights into gendered politics concerning access to - and control over - productive agricultural resources. It is imperative to consider the context, complexities, and heterogeneities that influence gender and access to productive resources. Ensuring equitable access to agricultural productive resources between men and women has the potential to unlock the full productive capacity of women. Several gender studies have emphasised that women managers can be as efficient as men when granted equal access to agricultural inputs (Dwomoh et al., 2023; Glazebrook, 2017; W. Quaye et al., 2019).

While climate change is contributing to a decline in crop harvest in rural communities, some of the most profound impacts are borne by women and children due to gender inequalities that restrict women's access to agricultural productive resources and household granaries, with implications for their children's well-being. Moreover, many women are becoming household

heads due to the growing migration of men to greener pastures and a form of climate change adaptation in SSA (Vinke et al., 2022; Weinreb et al., 2020), which has exacerbated the poverty and climate change vulnerabilities faced by many women in the rural areas. Hence, women's ecological struggles must be central to climate change policy discourses rather than positioned as peripheral beneficiaries or as 'vulnerable other'. Gender policies should focus on ensuring equal access to resources amidst environmental and climate change, as both men and women struggle to sustain ecologically sustainable livelihoods. Several studies have established a significant positive association between access to agricultural productive resources for women's climate change mitigation (Denton, 2002; Pearse, 2017; Vercillo et al., 2022) and women's empowerment (Dwomoh et al., 2023; Glazebrook & Tiessen, 2011; Hovorka, 2006; Syhre & Brückner, 2018).

These results would have failed to emerge if the research did not pay attention to marginalised voices of women, gender and how it intersect with other socio-political categorizations or axes of power such as location, age, marital status and patriarchy norms to generate different forms of discrimination and privileges, reflect the diversity and the unique identity and experiences of respondents, or if the three research communities were treated as homogenous groups (Collins, 2000; A. Nightingale, 2006; Runyan, 2018). Examples of the diverse experiences and related challenges noted by women include marital status, age, education levels, and location. These variations highlight how vulnerability is differentiated not only between men and women, but also among women themselves.

Overall, an FPE lens shows that women's climate vulnerability is shaped by both ecological change and deeply rooted gendered power relations. Climate change worsens existing inequalities, unfairly limiting women's ability to adapt and simultaneously hiding the value of their knowledge and contributions. This study therefore contributes to FPE scholarship by

empirically demonstrating how mechanisation access—often overlooked in gender–climate debates—functions as a critical axis of differentiated adaptive capacity.

All of these identities had implications for increased inequality for women. Although rooted in the specificities of northern Ghana, the overall findings of this paper provide compelling evidence that there is a need to improve the gender-responsiveness of climate change coping strategies in agriculture to improve crop yield, food security, gender equality and women’s empowerment.

Although SWFs were knowledgeable about the negative effects of climate and environmental change, their major worry was access to fertiliser, tractor services and land as coping strategies against the impact of climate change, which access is all impeded by patriarchal and social-cultural norms. According to Haque et al. (2023), most adaptation strategies address women’s practical gender needs, which may not change women’s power and status in the long term. Structural changes are crucial to ensure women’s empowerment and uphold women’s position and recognition in agriculture.

Recommendations

When dealing with environmental issues, policies that are based on perceptions and personal interpretations of various individuals at the intersection of gender, age, location, experience, and cultural norms are more likely to capture the unique experiences and be tailored for specific needs than those based on rigid statistical models (Byg & Salick, 2009; Teye et al., 2015). Therefore, this chapter recommends that policymakers should integrate scientific expertise with the knowledge and experiences of all farmers, paying attention to the heterogeneity of men and women in communities, in the formulation of policies. Such an approaches aim to address gender inequalities across all levels effectively.

The findings suggest that climate and environmental change have adverse effects on smallholder women and men farmers and these realities should be addressed with other interconnected non-climatic factors, that arise from economic, structural and socio-cultural gender inequality to contribute to individual vulnerability to cope (T. Adams et al., 2019; Albornoz-Arias et al., 2025; Nyantakyi-Frimpong & Bezner-Kerr, 2015). FPE scholarship generally advances recommendations for social change in agricultural development that avoid technical approaches to interventions aimed at achieving transformative social justice (Vercillo, 2021).

In sum, this chapter examined SWFs' perceptions of climate change and their coping strategies. The findings from this charter revealed that women's vulnerabilities to climate change are not intrinsic but are due to inadequate coping strategies due to poverty, high cost of inputs and structural obstacles such as discriminatory laws to tractor access, and unequal resource distribution, gendered reproductive responsibilities at the household.

The next chapter considers SWF's ongoing experiences in access to farmland and its impact on their livelihood and well-being. Chapter Six answers this question: How are women farmers accessing farmland as a strategy to mitigate the adverse effects of climate change and enhance agricultural production in the Upper East Region?

CHAPTER SIX: SMALLHOLDER WOMEN FARMERS' ACCESS TO FARMLAND

The previous chapter presented SWFs' perceptions of climate change and their efforts to mitigate its adverse effects to improve their livelihoods and household food security. In addition to access to tractor services and fertiliser, SWFs reported that access to land was a crucial factor in mitigating the effects of climate change in northern Ghana. Building on this finding, this chapter examines women's ongoing experiences with access to land for agricultural production. The findings will inform the government about ongoing barriers to the differential access for diverse women to guide the necessary approaches of development interventions and gender equality in the agricultural sector. The theoretical concept of feminist political ecology was integrated with feminist standpoint theory to account for those gendered-specific social-cultural norms and gendered power dynamics in access to farmland. Open-ended questions were posed to women to gather their unique perspectives on how they access land for farming as a wife, widow, single individual, or daughter, and this was supplemented by follow-up questions to gain a deeper understanding of their experiences. The findings presented here are the direct accounts of 54 SWFs and 28 key informants. The chapter is structured into two sections, comprising women's modes of access to farmland and the distinctive barriers and marginalisation women face in accessing farmland.

Smallholder Women Farmers' Modes of Access to Farmlands

Land is a crucial resource in agricultural production in agrarian communities. Respondents from all three research communities emphasised the importance of access to farmland in sustaining their livelihoods, household food security, well-being, and empowerment as smallholder farmers. SWFs highlighted that access to land will empower them to adopt good agricultural practices such as fallowing and land rotation to mitigate the adverse effects of climate change while reducing production costs to improve their livelihoods. The challenges

women faced in accessing land were highlighted by the Gender Specialist at the International Institute of Tropical Agriculture (IITA), an NGO, who emphasised the importance of supporting farmers to improve yields, enhance food security, and reduce poverty, while ensuring that the poor, especially women, benefit from project interventions. The IITA staff explained how SWFs' limited access to land caused most of them to fall out of the core criteria to benefit from new and improved climate change mitigation technology. In her words:

Women face difficulties accessing farmland due to social norms. As a result, it is difficult for women farmers to qualify as beneficiaries of new, improved farming technologies, which are essential for mitigating the adverse impacts of climate change, particularly in northern Ghana, where these effects are more pronounced compared to southern Ghana. The adage in the north is that women cannot access land on their own unless through a man. Men are more likely to qualify for new farming-related, climate change technologies than women because they have more access to land, information, inputs, labour, and finances to meet the demands of the new technologies. How can we combat hunger in this region [northern Ghana] and across the country when more than half of the population is not fully represented in development decision-making and has unequal access to land? Women in Ghana make up more than half of the nation's population. (Gender specialist, IITA Ghana)

The FGDs and semi-structured interviews revealed nuanced dimensions in women's access to land for farming. Some respondents replied, when asked how they accessed land for farming, "I have a half-acre farmland; my husband gave it to me" (Wedaga, Punyoro). "My eldest son is in Kumasi, so I farm on his land now, but if he returns, I have to release it [land] to him" (Kalo, Nagtunia). "I went to the chief and begged for land, and he gave me a half acre at the irrigational site" (Apuri, Korania). The findings revealed that women in the region generally

have limited or no access to land, particularly widows, unmarried women, and women in irrigated communities. Almost entirely, women are allotted low acreages of land irrespective of their farming capabilities. Furthermore, “if a woman struggles to access land, it is usually infertile, and you have to work tediously to improve the fertility of the land before you can farm” (Wesoamo, Nagtunia). Aside from having limited access to land, women can easily lose possession of land when widowed or divorced. The study uncovered three modes of access to land by SWFs: 1. through family relatives (father or brother), 2. through marriage (husband, father-in-law and son), and 3. through renting/begging. Each mode is explained in detail below.

Women’s Access to Land Through Family

Respondents reported that the patriarchal land inheritance system defined the process of land ownership in the family. In the words of a key informant:

Our system of inheritance in northern Ghana is patriarchal, and cultural norms give more power to men and boys as compared to women and girls. Therefore, a lot of people believe women are inferior and men should always be dominant and take the lead in all things” (Director, Widows and Orphans Movement).

She further noted that power relations in the household are inclined to privilege men’s and boys’ dominance and masculine superiority not only in land ownership, but in also decision-making across a wide range of choices, including access to agriculture inputs, the number of children to be born in marriage, whether a wife can use contraceptives for family planning, which child should go to school, and which child should not.

In FGDs and semi-structured interviews with SWFs respondents, they confirmed that family lands are allotted to sons on inheritance rights, and they further distribute to their household and extended family. This shows that, due to entrenched patriarchal norms of inheritance that

exclude women and girls from land ownership, they cannot own land but may have secondary access through men and boys. I will discuss more on this finding under the section of the “marginalised of the marginalised” in land access. The following section examines marriage as another pathway through which women may access land for agricultural production.

Marriage as a Pathway for Women’s Access to Land

Another recurring theme that emerged is the importance of marriage as a conduit through which women access farmland. Respondents indicated that marriage opens a window of opportunity for women to access farmland from their husbands, fathers-in-law, or sons. Anatutei, a married participant, said, “I have a farm near the clinic; my husband gave the land to me” (Anatutei, Punyoro). Another participant said “my father-in-law gave me two acres of land. I cultivate maize and the red millet for pito [traditional beer] brewery. My father-in-law has a lot of lands” (Rita, Nagtunia). This finding corroborates earlier findings that associate women’s land access to marriage in patrilineal communities (Apusigah, 2009; Azumah et al., 2023; Yaro, 2010).

The findings further revealed that among married women, disparities exist in access to land. Some are privileged to access more land than others. A commonly reported reason that influences a wife’s access to her husband’s house is the ‘birth position’ of her husband in his family. Aloa, a 24-year-old whose husband is the first son, explained that: “For family lands, the eldest son receives the largest land. So, if your husband is the youngest son, he will receive the smallest portion of the land from his father”. Consequently, most men who are not firstborn sons end up with smaller land, which is not sufficient to provide a portion for the wife to farm separately. Instead, the wife must join him on his farm to provide unpaid labour.

During a semi-structured interview with a chief, he explained the reason behind the first-born son having more land than his siblings. His narration further demonstrates that households are complex units of gender relations structured through norms and institutions that shape the

distribution, access to - and control over - resources of individual members (Nyantakyi-Frimpong, 2017; Resurreccion & Elmhirst, 2008). The chief noted that:

When a man dies, the firstborn son inherits the larger portion, including lands, family gods, and food storage barn. The reason is that the first son performs the funeral rites for the father. The younger sons traditionally have no role in performing their father's funeral. Therefore, the first son receives the largest share of the inheritance as a birthright to assume the responsibility as the head and breadwinner of the family. Some portions are given to the remaining sons. Women are not entitled to land, so the daughters and wives receive nothing [...] The first son is responsible for caring for his father's wife or wives and the children he left behind. He must farm to feed all the family members, including his brothers and sisters, stepmother, stepbrothers and stepsisters in the house. With this huge responsibility, he [first son] inherits his father's barn and must farm to store food for the whole family, even though he has his own nuclear family. Therefore, he needs a lot of land to fulfil all his responsibilities. That is why he receives the largest share of land. The younger sons have nothing to worry about. Even if they consult the gods or a traditional priest and he demands a sacrifice of sheep or a fowl, it is the first son who provides it and performs the ritual on behalf of his younger brothers [...] You can be the first wife, but if the third or second wife's son is the eldest, he gets the largest portion. The elder son takes care of the spiritual needs of the family. He must perform traditional and spiritual rituals, provide all the animals and other items demanded from the gods for sacrifices to worship the gods on behalf of the family (Chief of [...], key informant)

The aforementioned quotation from the chief, which illustrates the distribution of inheritance among children following the death of a father, further underscores the discriminatory practices

surrounding patriarchal inheritance that exclude women and girls from land ownership. It highlights the significant disparity in the inheritance received by the first son compared to that received by the remaining sons. Specific gender norms associated with men as heads of household, land inheritors, performing spiritual sacrifices on behalf of the family, managers and primary providers of food to the household tended to grant them principal entitlement to own and control all of the farm resources accessible through their household. Through the lens of FPE, the findings support the claim that various political, environmental, and sociocultural roles within households intersect to influence the dimensions of differences and inequality in the distribution and control over productive resources, including land and other properties (Mollett & Faria, 2013; A. J. Nightingale, 2011; Vercillo, 2021).

The implications of this finding suggest that women and girls' access to land is contingent upon the men in their lives, namely, their husbands, fathers, and brothers. Consequently, the birth order of these males determines their share of the inheritance, including land, which, in turn, influences the size of land accessible to women and girls. Therefore, it is not unexpected that during FGDs and semi-structured interviews with SWFs, those women whose husbands are the first sons in their families were likely to have greater access to land than their counterparts whose husbands are not the first sons. As an example, Wedam, whose husband is the first son, noted that:

I have enough land to farm with my husband. As the first son, my husband has a large portion of the land, but he does not fully utilise the land, so we don't farm the whole land. He has given me a parcel of land to farm and has leased some of it to others to farm. I begged him for more land this year, and he gave it to me. I planted groundnuts on that new plot (Wedam, Nagtunia).

On the other hand, women whose husbands are not first sons experienced limited access to land. One of them is Adizaa, who said: “My husband’s land is insufficient to meet our family’s needs. He pleaded with his elder brother for more land on which we farm maize and vegetables”.

Another factor that determines women’s access to land in marriage is deduced from the quote of a young married participant below the age of 30 years:

My husband’s father gave us a small piece of land to farm each year, which is less than two acres in size. The issue is that we are many in the household, so my father-in-law shared the farmland in small portions for everyone to get some. I want to have my own farm and cultivate groundnuts, but I have no land; it really worries me. (Asua, Korania)

This quote highlights that a woman’s access to farmland through marriage is contingent not only on her marital status but also on the overall availability of family land relative to household size. Consequently, when the family land is insufficient for the household, women are not given land to farm on their own. However, they must join their husbands and contribute unpaid labour from land preparation to harvesting.

The married women respondents mentioned that they lack agency with land accessed through marriage (husband). For example, Anutua, who is the third wife of her husband, stated that:

In polygamous homes, the husband will allocate farmland to his wives and dictate the crops to cultivate, mostly groundnuts and vegetables, to store for household consumption. However, you know most of our men cannot stay a day without an alcoholic drink. Any day he lacks money to buy alcoholic drinks, he will fetch from

your limited stored food to sell to get drunk. If you advise him not to fetch because it's not enough to sustain the house for the year, he tells you, I own you! I paid your dowry not the other way! You cannot tell me what not to do in my house! When you came from your father's house to my compound, did you bring any land? I will do whatever I want in this house [...] And as a wife, I cannot do anything about that, only to submit to him. (Anutua, Nagtunia)

The findings indicate the complex negotiations of land access in marriage and the impacts on women's agency. While women may gain access to farmland through marriage, the same land acquired is utilised by men to subordinate women and deprive them of their agency because they negotiate from a vulnerable position. The statement "I paid your dowry, not the other way [...] I own you" further reveals how dowry payment by men to women's family as a cultural requirement to complete the marriage process is used by men for the marginalisation and oppression of women. Some men treat dowry payment as acquiring property or goods, and this perception sometimes leads to abuse and violence against married women (see Akurugu et al., 2021; Maenetja et al., 2021; Dery and Bawa, 2019). The finding also shows that women have no agency over what crop to cultivate, as well as control over the harvest from the farm where they used their labour, because of secondary access through their husbands. The findings substantiate a previous study in the domain of gendered environment, that found that such negotiations are not invariably devoid of altruism and often lead to bargains that undermine gender equality and women's rights (Apusigah, 2009). This is problematic and presents a serious barrier to SWFs agency and food security, particularly in polygamous homes. The following section examines women's access to land through their son(s).

“If not for my son, I would not have a land to farm”

Another significant finding that privileges or enhances married women’s access to land in their husband’s house is related to giving birth to sons “... because sons inherit their father’s property, including land” (Talata, Nagtunia). Another quote by a respondent highlights the importance of having a son in marriage: She said, “If not for my son, I would not have a land to farm [...] he is in boarding school, so I farm on his land” (Kania, Punyoro). Thus, it is not just enough to marry and have children, but a woman must have son(s) to upgrade her status in accessing land. Therefore, among married women, those without a son have restricted access to land compared to those with a son or sons. Even in polygamous homes, as explained by a respondent who is a second wife to her husband, access to land is not about the position of the wife but whose son is the eldest. She explained:

Your access to land is not about being the first wife; it is the woman who had the first son in the house. Although I am the second wife, I have a larger farm than my rival (first wife) because my son is the eldest and his father has allotted him a piece of land [...] He has travelled to Kumasi, so I farm on his land. (Nantogma, Nagtunia)

Within the context of the FPE framework, the quote shows an intersection of different identity categories among women (wives) themselves, in the same household (as first wife, second wife, and the wife with the first son), and how these mediate social relations around access to land. Such lived experiences might be missing if gender is construed as characteristic of individuals, rather than as social relations.

As previously noted, the eldest son generally inherits the most substantial portion of the father’s assets. According to the respondents, mothers of sons prepare their children to assume control and custody of their fathers’ properties in the future. This preparation occurs because mothers

can gain access to agricultural lands through their sons. This finding is consistent with the assertions of N-yanbini and Owusu-Ansah (2024), who contend that mothers of sons take satisfaction in educating them to become future patriarchs following their fathers. Conversely, “ girls are trained from childhood to believe that they belong only to the kitchen, marriage and making babies; they do not need to learn any trade for financial empowerment or being educated” (Gender officer, Songtaba NGO). The findings confirm previous studies that posit that entrenched patriarchal norms perpetuate men’s and boys’ dominance, and limit women’s and girls’ access to land (Apusigah, 2009; N-yanbini & Owusu-Ansah, 2024; Yaro, 2010).

From the findings, it is evident that the family/household is used as the primary entry point to socialise, nurture and groom girls to embrace and adhere to discriminatory patriarchal norms that disempower women and girls, render women and girls subordinates to men and boys and deprive them of land ownership. The implication of this finding is that the patriarchal family inheritance system is the “fourth mountain” of traditional structure (Ogundipe-Leslie, 1994) squarely placed on the backs of women and girls to oppress them. This system of patriarchal inheritance to land deprives women and girls of the ability to own and make decisions concerning land. Inevitably, the lack of decision-making ability among women and girls undermines their empowerment, agency, and progress towards achieving their well-being, household food security, and poverty reduction in northern Ghana. In the following sections, I discuss the third mode of women’s access to land within the research communities.

“We would beg land [rent] from landowners”

While cultural norms place significant barriers on women’s access to land from both their natal family as daughters and their marital family as wives and daughters-in-law, women, as agents of their own transformation, have developed alternative sources to sidestep these barriers and forge meaningful livelihoods as farmers for themselves and their loved ones. One of the

significant findings of the study was that women step out of their families to beg/rent farmlands from other landowners in the community. A 26-year-old participant explained how the renting process works. She noted that:

When you go to beg [rent] for land from someone, you need to go with an alcoholic drink, cola nut, tobacco and sometimes add money before they [landowners] release the land to you. After harvesting, you will also send some of the harvest to the landowner as an appreciation. (Welaga, Nagtunia)

The respondents expressed concern over the significant increase in the cost of renting a plot over the years. One of them, a 52-year-old participant, emphasised the changing dynamics over time, drawing on her more than thirty-five years of experience in renting land for farming.

You see, back then, it was not as expensive as it is now. We would beg (rent) land from landowners, giving them tobacco, and after the harvest, we would send some of the produce from the land to the landowners. But now, if you don't send cola nuts, drinks, and tobacco, you will not get the land. Even with all these costly items, you still might not receive the land. Therefore, if you are poor, you cannot rent land because nowadays, landowners give their land to wealthy individuals. However, if you encounter a kind-hearted landlord, he may give it to you free of charge, and after the harvest, you will send some of the harvest to him as a gesture of gratitude. (Lariba, Punyoro)

The finding further revealed that among SWFs, widows and women married from different villages have more access to land than single and married women from the community, as explained by respondents in the quote below:

I went to a landowner to beg for land (rent). Since I am a widow and in need of farmland, he (Landowner) gave the land to me. They say I am looking for daily bread to feed my children, so they will prefer to give the farmland to me instead of a man because I am a widow and am struggling with my children. (Tepora, Punyoro).

The finding shows that some men in patriarchal societies are acknowledging and appreciating the contributions of women at the household level, particularly widows who are household heads.

Another respondent, Akeani, who is from Namolo and married into the Punyoro reported that:

My husband married me from Namolo to Punyoro. So I am considered a stranger in this village and a mother with children to feed. Therefore, I have a greater chance of getting land through begging [renting] than a man or a woman from Punyoro. (Akeani, Punyoro)

Here, Akeani argued that she had better land access compared to men and other women from the village because she is considered a ‘stranger’ and thus needed extra help. This finding contradicts Vercillo (2022), who posits that women married into different communities with outsider identities (strangers) have limited access to land when compared to native-married women.

Participants indicated that the land begging/renting scheme has created additional opportunities for women to access land outside of their family lands. They explained that the renting scheme has improved their livelihood, and it would not have been possible for them and other female farmers to own a farm without the scheme. Some participants narrated how they begged for land to farm as follows:

I begged my husband to give me a separate plot to cultivate vegetables to sell, but he said the family lands were finished. I went to an old man and begged [rent] for land. He gave it to me. I cultivated vegetables for my family's meals and sold part to pay my children's school fees. The old man's land has improved my livelihood and that of my children. I know other women who, through begging [renting] of land, have their own farms now. (Kania, Nagtunia)

I begged [rented] additional land because my husband's land is not big and I farm a lot. I cultivated maize, groundnut, and red millet on that land. I have someone who has given me his land for the past three years. Access to the land has enabled me to provide for my children more effectively. The land is for his children who are in Kumasi now; when they return, they will take their land back. (Tepora, Nagtunia)

My husband's father gave me land to farm every year, which is very small, less than an acre. I farm jointly with my husband for the millet on his father's land. Millet is used for most of our cultural ceremonies, such as funerals, marriage, and to feed the gods. I went and begged [rented] another piece of land from a certain man to grow groundnuts, beans and maize, which have improved my livelihood. (Solim, Punyoro)

It is worth emphasising that women had better access to land than men in this transactional yet mutually beneficial arrangement, whereby landowners (mostly men) rent land to landless farmers for a share of their harvest. Respondents reported that most beneficiaries of this rental scheme are women, and there are some interesting reasons behind this fact. First, landowners (primarily men) consider women to be honest, generous, and trustworthy 'business' partners compared to men. A key informant, a landowner who had leased separate lands to six SWFs, explained that:

Women are more honest and faithful than men when you entrust your land to them. At the end of every harvest, women send a good portion of the farm produce to you [landlord], but men are stingy with their harvest. Even in the season when the rains are not suitable for the farm [erratic] and the harvest is very small, they [women] still bring you some produce. However, for men, even with good harvests, some will lie that they got nothing from their farm. (Kaba, key informant, Punyoro).

Even more interesting is a point made by another landowner, a key informant for this study. He noted that it is also safer for landowners to lease land to women because women are less inclined to challenge them or make false claims whenever they want to reclaim their land as compared to men.

You see, women are very respectful and understanding of issues. They accept all conditions and adhere to them. Whenever you want your land back, they easily [women] give it to you without arguing or challenging you. However, for men beggars, some behave as if they own the land and will determine when it is appropriate for them to vacate the land or which conditions to obey. Some even refused to return the land to the owners. I have seen landowners reporting men beggars [renters] to the Tindana and elders to help reclaim their lands. You see, I am an old man and don't have the strength to go through all these quarrels with my fellow men (Vouradam, Nagtunia).

In short, Vouradam is trying to say that it is easy for women to be bullied and manipulated into accepting unfavourable conditions, a point reflecting how patriarchal values shape different livelihood outcomes and opportunities for men and women. It is evident from the findings that some landowners preferred to rent their lands to women for exploitative reasons.

It was not surprising that SWF respondents reported various challenges in the renting scheme. In the subsequent section, I will examine the challenges SWFs encounter in the land rental scheme.

Women's Challenges in Land Renting/Begging

Respondents reiterated that although begging for land creates an opportunity to access land, it presents numerous challenges, including a lack of control, the long-distance location of land, and infertile lands, which are detrimental to their agricultural production and climate change mitigation strategies. In the FGDs, respondents remarked:

There are other landowners who, when you beg for land, will intentionally give you land that has never been farmed, with a lot of bushes and tree stumps to clear. Others will also give you infertile land. After you have struggled to make the land fertile and gotten a good harvest, they come back telling you they want their land back, and all your labour and investment are in vain. You have to start searching for another land to farm. It is frustrating, and it breaks my heart. (Taanti, Nagtunia)

When Taanti finished with her contribution, another participant loudly exclaimed:

This happened to me, too. After working on the land to make it fertile for a good harvest, the following year, the landowner claimed that his son wanted to farm the land. He took the land painfully from me. Some landowners are wicked and do not fear God. Since then, I have stopped begging for land, although I still want to farm more. (Amaake, Nagtunia)

These findings demonstrate that renting land provides women with opportunities to farm. Nevertheless, on the flip side, many SWFs are exploited by selfish landowners when renting

land, which has profound implications for their livelihoods and household food security. Land obtained from these sources comes with other obstacles, such as infertile soil, high rental costs, and a lack of agency regarding land control, preferred location, and the size of the land. SWFs respondents emphasised the importance of creating equal access to land and shared comments such as: "... women in our communities can farm as they want to take very good care of the children" (Solim, Punyoro), and "... will not depend on my husband for everything but can farm and sell part to buy things for myself and my children" (Asua, Korania). Another agreed, stating that access to land will empower women to improve yield by implementing healthy farm practices such as "farming on new land to allow the old land to fallow [land rotation] and regain its nutrients to improve yield with little fertiliser application" (Taanti, Nagtunia). She further noted that improving soil fertility will "withstand the harsh conditions of climate change and sustain plant growth even without the application of fertiliser".

From these responses, it is evident that improving women's equal access to land will equip them to mitigate climate change effects, thereby enhancing agricultural production and household food security. The development of agriculture in Ghana has been slow due to the gender gap in access to agricultural productive resources.

In rural Ghana, many women rely on agriculture for their livelihoods, survival, and household support; however, they do not have equal opportunities to access land to utilise their capacity and potential in the agricultural sector fully. In the ensuing section, I present the ongoing differential land access of women to farm in the Upper East Region of Ghana.

The Marginalised of the Marginalised in Land Access

Although women generally have restricted access to land, this situation is not universal, as women are heterogeneous. Given that women and girls in the research communities have diverse social characteristics such as age, marital status, and location, which shape their access

to land, some are more marginalised than others. This section delves deeper into the SWFs' unique ongoing experiences in land access.

Married Women Versus Unmarried (Single and Widowed)

A recurring theme that emerged from semi-structured interviews and FGDs is that married women have a better chance of accessing land than unmarried women and widows. As discussed earlier, marriage is one of the channels through which women may access land for farming. A married woman had the privilege of accessing land from her husband, father-in-law, and sons, whereas unmarried, divorced, and widowed individuals experienced more limited access to land. Respondents reported that in northern Ghana, marriage confers value and status on women; therefore, not being married or losing that status means losing some privileges, including access to land. For example, a key informant stated that, “when a woman divorces her husband, she loses the right to access the land provided to her by her husband through marriage” (Executive Director, CENSODEV). He further explained that, consequently, “women who experience gender-based violence within their marriages often refuse to divorce their husbands because their livelihoods would be adversely affected.” This finding elucidates why, during my field research recruitment, I was unable to secure participation from a divorced single woman. Therefore, it can be argued that women in abusive marriages may hesitate to pursue divorce, as marriage offers a safety net for accessing land necessary for farming to sustain their livelihoods. Additionally, another interview with a key informant noted that:

Unmarried women are considered strangers in the family by societal norms. When she is with her parents, it is difficult for her to access land because she will likely be married off soon. And when she marries, she is not recognised as a complete family member, so it is difficult for her to get land to farm on her own. (Gender specialist, IITA Bolga)

The case of Afagache a 23-year-old unmarried respondent, properly illustrates the apparent reality of single SWFs:

As an unmarried woman, you cannot access land even from your family members. I begged my father and brothers for land, but they both refused to give me, saying a man would marry me and take me away soon [...] But if you step out and beg for land to farm and succeed, if you cook in the house, they will all eat from your farm harvest and even finish the food in the pot before you can eat (Afagache, Nagtunia)

Afagache's frustration was widely reported among the unmarried respondents. Participants reiterated that because young women are perceived as 'soon to leave' their families, they are expected to marry into a new family to join their husbands and his agnatic kin in his settlement. Their fathers and brothers, who are the only family connection to their land access, rely on this to deprive them of farmland. However, when single women marry into their husbands' families, access to land for personal farming and agency (control over the farm and harvest) is difficult because they are considered outsiders and sometimes slaves bought with a dowry to perform gendered domestic labour, such as unpaid farm labour, cooking, and childbearing (preferably of boys) to extend the patri clan of the husband (Akurugu et al., 2021; Azumah et al., 2023; Dery & Bawa, 2019)

Ongoing Struggles Faced by Widows

When a woman's husband dies in a patriarchal society, it primarily means that the privileges and status associated with 'marriage' are lost to her. Additionally, a crucial connection to a 'man figure' for acquiring and maintaining land is severed, affecting her access to land. An important recurring theme raised in semi-structured interviews and focus groups was women losing their farmland after the death of their husbands. Kawia, a 57-year-old widow with four

daughters and no son, shared her experience of losing her husband's land because of not having a son:

I farm on my father's land now. But when I was married, I farmed on my husband's land. My husband's land was taken from me when my husband died because all my children were girls, so I went back to my father's house with my children. (Kawia, Korania)

In addition to not having a son, a widow's refusal to remarry the husband's male relative was considered the second reason for losing her husband's land and properties that he had acquired. This was referenced by a key informant from the Widows and Orphans Movement, an NGO in the region that advocates against dehumanising widowhood rights, the recognition and redistribution of unpaid care work, and women's unequal access to land.

In most parts of Northern Ghana, as part of the culture of inheritance, if your husband dies, his brother, cousin, or any male member of his family can inherit you, which is forced marriage. Widows are inherited because they consider dowry payment as buying a property, so the widow is regarded as the property of the late husband's family. Therefore, if a widow refuses marriage to her late husband's brother, she loses all the properties she acquired with her spouse, including the house, economic wealth and the land she farms for the sustenance of herself and her children. (Director, Widows and Orphans Movement).

From the quote, it is evident that widows are more marginalised than married women regarding access to land. A widow without a son is even more marginalised. This illustrates that women's access to land is strictly tied to a male figure in the family, such as a father, husband, or son. When a woman's husband dies, his land is transferred only to his sons, while his daughters are excluded. Widows gain access to their late husband's land through their sons and have even

greater control when their sons are very young or marry their deceased husbands' brothers. Refusal to marry a male relative of the dead husband and no son results in widows losing their husband's farmland and properties. Without a son, the widow is often left to fend for herself and her children, and her late husband's brothers mostly take her husband's land.

Although women can acquire and own land through purchase, most lack the financial means to do so. Furthermore, patriarchal norms prevent financially capable women from directly purchasing land unless it is through a man, which also comes with its consequences, as noted in the quote below:

[...] Even if a woman has money to buy a piece of land, she must buy it through her brother, husband, or any male relative, because landowners do not sell land to women here [northern Ghana]. And most times, it is difficult for the woman to reclaim ownership and control over the land she bought through a male relative. (Director, Widows and Orphans Movement).

These findings indicate that women must remain married in most communities to access land, and even having purchasing power is not a guarantee. The finding aligns with Ribot and Peluso (2003), argument that some institutions or individuals control resources [in this case, men], while others [women] must maintain access through those who are in control of resources. As entrenched patriarchal inheritance norms in the north grant rights solely to men and boys for owning and controlling land, women and girls must meet certain conditions, such as marriage or producing an heir (son), to qualify for access to and enjoyment of specific resources, including land. The patrilineal inheritance structure and prevailing patriarchal norms establish traditional barriers for women farmers in agriculture, thereby undermining them and significantly diminishing their productive capacity to flourish. In the following, I discuss the

differing levels of women's marginalisation in irrigated and non-irrigated communities regarding land access for farming.

Women in Irrigation Communities Versus Women in Non-Irrigation Communities

The Upper East Region of Ghana is characterised by a single rainy season, followed by a long dry season. Some communities, like Korania, have irrigation dams where farmers engage in dry-season farming. The research findings revealed a significant difference in land access between SWFs in irrigated communities and those in non-irrigated communities. SWFs in irrigated communities are more marginalised and face more significant constraints in accessing land for agricultural production and meeting their families' needs compared to those in non-irrigated communities. This is evidenced by participants from Korania, located at the Tono Irrigation Dam, in the quotes below by participants below the age of 30:

The farmlands are not there for women. My father-in-law has rented all the family land to strangers who farm at the Tono dam for money, and even getting a half-acre from my husband is difficult. I even went to my father's house to beg for some farmland, but you know, if they do not have enough for themselves, will they give it to a daughter who is married off? (Wepare, Korania)

You only farm together with your husband, but you cannot get your own land to farm. My husband will never give me a plot to farm and make money on my own. However, the truth is, women want their own land to farm throughout the year to sell the crops and use the money for their desired needs and buy things for their children, but it's not possible for many women here [in irrigated communities] (Kalo, Korania).

Badigwala, a 51-year-old respondent and a farmer for over 36 years, further compared women's access to land in the past to current realities in irrigated communities as follows:

In the past, a section was designated for women farmers, but it is no longer there for us. This is because the landowners have reclaimed their lands and rented them out for money. Now, if you go to PM [Project manager of ICOUR] to acquire land to farm, you will not get it. (Badigwala, Korania)

Kalo and Badigwala's narratives suggest that the commodification of land in irrigated communities produces gender differential implications which tend to affect women disproportionately. Specific quotes indicate that while irrigation interventions make farming lucrative, women have been marginalised including: "This is because the landowners have reclaimed their lands and rented them out for money." and "My father-in-law has rented all the family land to strangers who farm at the Tono dam for money." This finding suggests that where financial gains are to be made on land, men tend to exclude women from its allocation.

This finding aligns with a similar study in Gambia, where men took over farmland used for commercial women's gardening as a result of development aid that supported orchard production (Schroeder, 1997). Similar to Ghana, Apusiga (2009), Asitik and Abu (2020), and Bryan and Garner (2022) posit that irrigated regions, such as Tono and Vea in the Upper Region, are comprised of projects with a male-centric focus and have predominantly allocated lands to men, with limited participation from women.

It is worth noting that only six out of eighteen SWFs participants reported having accessed land to farm on their own. One of such women was Azuma, who said: "I have half an acre at the canal. Even the half-acre some of us [women farmers] have was allotted to us by the chief from his family land at the irrigational site". She further

argued that women have limited access to land because “men always feel that if women farm at the canal [the irrigation site] and make money, they will not respect them, so they refuse to give land to women.” Another respondent, Anatutei, agreed with Azuma by sharing a compelling story of why some men deliberately deny women access to land in irrigated communities. She said:

My sister also received an acre from her husband to farm. The husband cultivated his rice on a separate plot. Both husband and wife had bumper harvests from their farms and made a profit from the sales. However, the following farming season, the husband took the land from her, claiming she was challenging him and that she would soon earn more money than he, which would lead him to lose his respect and dignity as the man of the house. Hmm! In this community, the men want women to remain in the house and not to engage in any economic venture to be independent. If a woman farms to sell and make a profit, you can start making decisions and buying things for the children, which implies you are challenging him. Always, the man wants you to be in a state of lack and depend on him, so he will always make the decisions for the house and control you as he pleases. That is our greatest problem in this community.

(Anatutei, Korania)

Anatutei’s response points to how men are intimidated by their wives’ success. All the participants concurred with this response of men’s fear of losing respect from their wives. Unfortunately, husbands associate their wives’ success in farming and their ability to contribute to household decision-making with them as ‘challenging their authority’ in the house. The finding underscores that men deliberately deny women access to farmland to control their earnings, economic empowerment, and agency. The finding substantiates Carr’s (2013) and Dery’s (2015) work by showing that men deliberately limited their wives’ farms to meet

household consumption and prevent them from generating a significant marketable surplus to earn income. Furthermore, Carr (2013) observes that men will deny women land even if it results in a loss to the household earnings, in order to maintain the gendered land tenure system. Farming in irrigated communities is highly gendered, with SWFs involved in subsistence farming to meet the household's reproductive needs, which limits their agricultural financial returns, and men engaging in commercial farming at the irrigational site, producing crops for market sale. The manipulation of women into only subsistence farming is worrying because, while it may meet the household food consumption, it also widens the gender production gap and women's economic empowerment.

In this thesis, I call men's manipulations of women's access to farmland to control them as the 'gendered weaponisation of land'. I define gender weaponisation of land as when custodians of land (in this case, men) utilise their position and authority to manipulate secondary land users or beneficiaries (such as women and girls) access to land as a tool to disempower, marginalise, and oppress them. Gender weaponisation of land leads to serious consequences that perpetuate gender inequality, extreme hunger, poverty, unemployment and underdevelopment at all levels, including household, community and regional. For instance, SWFs' limitations in accessing land for farming deprive them of the economic capability to rent more land, buy adequate agricultural inputs to mitigate the adverse effects of climate change, and improve their well-being and ensure a better future for their children.

In addition, Anutua's statement, "both husband and wife had bumper harvest from their farms and made a profit from the sales" makes it evident that women farmers in the region are very productive and skilled farmers; therefore, when given equal access to farmland and agricultural inputs such as tractor services and organic manure, they will succeed. Therefore, there is an

urgent need to remove all forms of gender discrimination and barriers in Ghana's agricultural production to eliminate extreme hunger and poverty, and as priorities for meeting the SDGs.

It is worth highlighting that, out of 18 SWFs participants in the focus groups and semi-structured interviews in Korania, only 6 had access to their own farmland, with the size of the land being half an acre or less. The remaining 12 participants join their husbands or fathers to contribute unpaid labour from land preparation to the harvest of crops. In non-irrigated communities, 30 out of the 36 participants from the two communities (Negtunia and Punyoro) had access to land ranging from half to two acres.

Land Commodification in Irrigated Communities

The finding reveals that SWFs are passionate about entering commercial farming. As one of them, Wesoamo stated, "Now farming is business, and women are not just helpers in farm labour; we want to have our own farmland and control our earnings" (Wesoamo, Korania). Unfortunately, land in irrigated communities is treated as a "commodity" and is sold or rented to the highest bidder. This practice disadvantages SWFs due to their high poverty levels. During the focus group discussion, a leader of the women's farmers' association conveyed a poignant narrative regarding the "commodification of land" within irrigated communities, detailing how a chief's intervention to support women ultimately failed to materialise.

The GASIP organised a forum, inviting the community chiefs and Tindanas for women to voice their challenges in accessing land for agricultural purposes. At the meeting, we [women] expressed all the challenges and frustrations we have been facing in obtaining farmland and the impact on our children's well-being. Some women were so emotional that they shed tears. The chief of [...] stood up and promised to allocate land for women farming. We [women] visited him in his palace, and true to his word, he provided us with 10 acres to farm on. He took us to the Tindana

and instructed him to allocate the land to us [women]. The Tindana gave us the ten acres to farm. You know, the landowners love money nowadays, so the Tindana gave us a long list of items to present to him to finalise our land ownership. We bought fowls, sheep, millet flour, and other things to complete the demanded list. The Tindana and his people accepted all the items, declared the land ours and told us to start farming on the land. The next day, we, [the women], started clearing and preparing the land for farming. It was a virgin land covered with thick weeds and trees. We worked diligently for weeks, removing the weeds and fallen trees to prepare for ploughing. One morning, we arrived to find a tractor ploughing our land. We were thrilled and called the Tindana to thank him for his assistance. He mentioned he was coming to meet us. However, he did not show up, so we decided to go to his house. He informed us that a certain man had paid for the land, and he could not reclaim it from that man, so he would offer us another piece of land to clear and farm. Imagine! Can women continue to work hard for land with nothing to show for it? [...] We told him [Tindana] there was no need for another virgin land; after all, the planting season had started, and we could not clear another piece of farmland. (Akeani, Korania)

Akeani's account shows that land commodification has led to the marginalisation of women and undermined their empowerment. The finding confirms previous studies, including (Nyantakyi-Frimpong & Bezner Kerr, 2017; Yaro, 2010) who posit that land commodification provides a fertile ground for the exploitation of poor and marginalised groups in the community, where the rich get richer and the poor become poorer. Furthermore, from the context of feminist political ecology, the account indicates how gender intersects with patriarchy, land commodification, and cultural norms to restrict the access of women and girls who are engaged in agricultural practices to farmland.

The Tindana can be referred to here as ‘The African Man’ [patriarchal gatekeeper], and symbolises the burden of oppression placed upon the diligent labour of women farmers (see Ogunidipe-Leslie, M. 1994, p. 228). The decision to reassign the land that the women had worked on and for which they had paid compensation in traditional items to a capitalist investor evidences a significant lack of respect towards them, indicative of patriarchal societal structures. Furthermore, this action constitutes an exploitation of already economically disadvantaged women who, despite being marginalised, have actively mobilised their own resources to secure their livelihoods and ensure economic survival. Consequently, these women have suffered the dual loss of both the resources dedicated to the acquisition of the land as well as the land itself. Tindana’s (the African man) actions exemplify the ‘gendered weaponisation of land’ at the community level, which serves to disempower women and perpetuate systemic injustice and gender inequality.

Nevertheless, the inability of the women to request compensation for items presented to the Tindana and the labour invested in land clearance highlights the lack of socio-cultural agency among women and girls in their pursuit of justice when subjected to abuse or exploitation by men and boys in patriarchal societies. By abstaining from challenging men’s dominance and injustice, women may be inadvertently contributing to the ongoing perpetuation of unequal gendered land access. Nevertheless, women do not have feasible alternatives to challenge unequal gendered land access due to patriarchal and cultural norms that eliminate them from decision-making and ownership of land in society. These perspectives are similarly articulated by authors such as N-yanbini & Owusu-Ansah (2024) and Apusigah (2009) regarding rural land access in Ghana and also in Nigeria (Chigbu, 2019).

In discussing the assertiveness of women in the Upper East Region, a key informant from ActionAid Ghana, a non-governmental organisation dedicated to advancing human rights for

all, combating poverty, promoting social justice, gender equality, and addressing development through a human rights framework, remarked:

Some of these women have been subdued for so long that they have normalised gender inequality. You hear things like, I am just a woman, so I should not own land, oh! I cannot talk back to a man, oh! That is how it has always been, oh! That is the problem we encounter with women who have been abused or mistreated when we advise and encourage them to seek justice or report their abusive partners. [...] Therefore, we need to raise their awareness that they are human beings with equal rights. It takes a lot of time and effort after being subdued for so long to be able to be assertive, regain your confidence, and actually believe that you deserve to pursue the things you want in life. (Programme manager, ActionAid Ghana - Upper East Region)

As mentioned earlier, girls are groomed and compelled from childhood to accept and conform to gender-prescribed notions of femininity, which leads them to normalise the exploitation and injustice carried out by greedy, self-seeking men. Consequently, women and girls are unable to challenge men's authority because patriarchal norms assign leadership and power within the community to men. Ogunidipe-Leslie (1994, p. 228) describes women's conformity to discriminatory patriarchal norms as the "sixth mountain" sitting on the backs of African women, stating, "the woman herself [contributes to her exploitation] because she has internalised all these oppressions".

It is important to emphasise that during the FGDs, SWFs respondents expressed their frustration and disappointment regarding the deeply rooted patriarchal structures that intersect with gender to hinder women and girls from owning land. SWFs asserted that, without implemented measures to improve women's access to land and agricultural resources, a significant majority may be "forcibly displaced from farming activities and our children will

suffer” (Azuma, Korania). This situation could exacerbate issues such as child malnutrition, extreme hunger, chronic poverty, forced and child marriages, as well as violence against women, among other forms of gender-based oppression. Moreover, the commitment of the Republic of Ghana to scale up actions aimed at achieving the SDGs (as detailed in the Ghana SDGs Report 2020) has been significantly undermined. Thus, there exists an urgent necessity to heed the clarion calls from women and girls for equal access to land and other productive agricultural assets. Consequently, there exists an imperative for sensitisation and awareness initiatives aimed at alleviating this burden from women’s backs, which serve as a significant barrier to sustainable development in Ghana. Therefore, the government, women’s rights activists, and civil society organisations initiate women’s empowerment programmes and intensive grassroots awareness campaigns emphasising the importance of gender equality.

Impact of Women’s Restricted Access to Land on Their Well-being

Gender inequality in accessing land has dire consequences for community development and food security. Participants reported that women in these communities mostly farm staple crops, which represent the most culturally and nutritionally suitable foods for their families’ proper nourishment and contribute to the food security of the household. Participants reported experiencing poverty and hunger due to limited access to land, which prevented them from growing the requisite quantities of staples such as maize, millet, and vegetables to sustain their families throughout the year. One of the study participants, Akasegidi, a widow and a household head, said in her own words:

I do not harvest much from my farm to feed my children. The land is small, infertile, and cannot produce a lot. Four months after harvest, our food is nearly finished [...] It is very distressing to see my children suffering from hunger during the lean season when the supplies are running out. I mostly work for people to earn money to buy

food. But it is not enough; so I beg for food from my father's compound and friends, most of whom help for the sake of the children. They know that I am not lazy; but I lack enough land to farm to support my children. (Akasegidi, Nagtunia)

The assertion above was widely reported in the FGDs and semi-structured in-depth interviews. Participants attributed their poverty and suffering to limited access to farmland. This lends support to earlier studies (N-yanbini & Owusu-Ansah, 2024; Ofosu-Budu & Hanninen, 2020) which indicates that gendered land access exacerbates poverty and other forms of deprivation.

Discussion: Intersectional FPE of SWFs Access to Land

This chapter examines the ongoing experiences of SWFs in accessing land for agricultural production amidst the negative impacts of climate change, aiming to improve their livelihoods and household food security. The foregoing findings of this chapter draw upon and support feminist political ecology (FPE) scholarship by illustrating how gendered access to land is shaped by shifting power dynamics within the household and communities, which are associated with the escalating impacts of climate change and the commodification of agriculture in irrigated communities. The findings presented in this chapter highlight that access to land is gendered and largely discriminates against women. The gendered relationship observed intersects with marital status, location, land commodification and socio-cultural norms in shaping access and control over farmlands. The implications of these intersections are analysed in this section.

The findings reveal that only men own and inherit land, and women must access it through their fathers, husbands, and sons. northern Ghana is patrilineal, where the patriarchal land inheritance system defines the process of land ownership in the family. This finding is consistent with previous studies in Ghana and other parts of Africa (Apusigah, 2009; Blemayi Honya et al., 2024; Bryan & Garner, 2022; Chigbu, 2019; Lambrecht, 2016; Schroeder, 1997; Tsikata & Yaro, 2014; Vercillo, 2021; Yaro, 2010; Yokying & Lambrecht, 2020). One major theme of gender relations of land access at the household in the research is women reliant on their husbands to access land, owing to patriarchal inheritance norms and customary practices as documented extensively in the wealth of literature from Ghana. This research contributes to the existing literature by highlighting how patriarchal inheritance norms and practices, which position women's farming activities as secondary to those of men, can result to weaker material

access to land, disempowerment, as well as the manipulation of women's livelihoods and well-being, especially in contexts of land scarcity.

The findings suggest that women's reliance on husbands (men) to access land is particularly problematic because women's farming is deprioritised in land negotiations. As argued by Yaro (2010), women's land access lacks clear-cut rules, which leaves them in a vulnerable position in land negotiations. Women engage in such negotiations from a position of disadvantage, where their capabilities and limitations are prescribed and presented as non-negotiable by patriarchy and its structures. Consequently, such negotiations serve only to optimise their options within their culturally prescribed roles and often lead to bargains that undermine gender equality and women's rights (Blemayi Honya et al., 2024; Bryan & Garner, 2022; Dwomoh et al., 2023; Sedegah, 2025; Yokying & Lambrecht, 2020).

The research further reveals that men primarily use their dominant, privileged position as landowners to control and manipulate the earnings and livelihood of women, which highlights the gendered weaponisation of land. I define gendered weaponisation of land as when custodians of land (in this case, men) utilise their position and authority to manipulate secondary land users or beneficiaries (such as women and girls)' access to land as a tool to disempower, marginalise and oppress them. Women gaining surplus from their farms is a threat to men's hegemonic masculinity, dominance, and total control in the household. According to Dery, men call it 'encroachment of their masculinities' (Dery, 2015, p. 43). The gendered weaponisation of land is a tool that rests in the hands of men, and it is used to help sustain and perpetuate the patriarchal order that marginalises women in society. This echoes Carr's (2013) and Dery's (2015) arguments that because men are in charge of distributing farmlands to other members of the family through the customary land tenure in Ghana, it has created opportunities for men to manipulate and dictate the earnings of their wives and also influence the type of

crops to cultivate and the size and usage of farms (for subsistence crops and with no opportunity to produce a surplus). The gendered weaponisation of land thus undermines women's agency, including their ability to decide what crop to cultivate and the size of the farm, as well as the decisions on earnings from agriculture and their membership in agriculture associations (Yokying & Lambrecht, 2020). These oppressive acts have implications for women's empowerment and well-being, as well as household food security and sustainable futures.

Therefore, there is a need to pay attention to the nuances in the household when planning interventions for women's empowerment, because from the findings through the lens of feminist post-structural perspectives, the household is a more complex and contested site, rather than a single cooperative unit of production and consumption (Nyantakyi-Frimpong, 2017; Ofosu-Budu & Hanninen, 2020), where intersectional dimensions of difference and inequality exist (Nightingale, 2011) in shaping access to - and control of - productive resources, including land.

Within the context of the FPE framework, the findings suggest that women and men do not constitute a homogeneous group, which contradicts scholars who assume that rural communities in West Africa are mostly demographically homogenous with similar land access and entitlement relations for all (Vercillo, 2022). From a more intersectional perspective within households, there exist hierarchies among men and women in the way land is accessed among household members differentiated by several axes, including gender, patriarchal norms, birth position, and the wife of the eldest son. Furthermore, it is not uncommon, particularly within polygamous households, for a husband to allocate varying sizes of land to his wives, as the findings suggest. Differences and timing among the sexes of children of wives imply that they are not equally positioned to negotiate access to land within the household. The wife bearing the first son, regardless of seniority, possesses greater access to land through her son's

inheritance and retains complete authority over her son's land during his childhood, similar to findings from N-yanbini and Owusu-Ansah (2024). In a similar study in northern Ghana, Nyantakyi-Frimpong (2017) posits the complex hierarchy within a polygamous household shows how gender intersects with seniority, sexual activity among co-wives (bedroom tactics), and age differences among co-wives to negotiate with the husband to access dietary diversity at the household. This finding additionally enriches academic literature that challenges the singular perspective of the household. The findings suggest that when land appropriation is examined at the household level, it is neither a homogeneous experience nor entirely without issues. This finding, along with other scholars' (Nyantakyi-Frimpong, 2017; Nyantakyi-Frimpong & Bezner Kerr, 2017) observations, suggest that the household should be regarded as a locally constructed political arena. Therefore, without opening up the "black box of the household", it is difficult to understand the behaviour and interests of its members as well as the gendered access to and control over land (Nyantakyi-Frimpong, 2014, p. 154).

Another notable finding from this research suggests that women with children have more access to land than men through the pathway of renting (begging); and among the women, widows and women married into the community have greater access. Landowners preferred renting their lands to women because 1. they care for the home and also have children to feed, 2. they are faithful and generous renters who submit to their authority and fellow instructions. The latter reason suggests that landowners rent land to women because they are 'weaker prey' than men. Such transactions are shaped by hierarchies where landowners are the 'boss', seeking opportunities to benefit themselves while exploiting the harvest and investment of poor women farmers who rent their farmlands. Women's usage rights often depend on the continued goodwill of landlords. This conditional access puts women at constant risk of losing land, especially when land improvements increase its value, prompting landlords or male household members to reclaim it. Consequently, while these informal arrangements can temporarily

increase women's access to productive resources, they also increase their vulnerability and restrict the potential for long-term empowerment, cultivation of cash crops (such as cocoa and cashew trees), and livelihood improvement.

The other perspective is that, in patriarchal societies, there is a gradual recognition of women's roles and contributions in sustaining the well-being of children, food security, and family well-being at the household. This gradual shift of recognition serves as the motivation to intensify awareness about gender equality in access to productive resources in communities to accelerate agricultural production, women's empowerment, food security, and sustainable development. This finding suggests that women and men are not autonomous agents, as they depend on and negotiate with each other in daily life. The FPE scholarship is valuable for highlighting the political, economic, and environmental factors that shape the power dynamics within these relationships, which generate benefits and constraints for various individuals at different moments in time, including women (A. Nightingale, 2006; Vercillo, 2021).

Commodification of Land and Women's Access to Land

A third major theme this research found is that gender intersects with patriarchal norms, commodification of land, and location in determining disparities in women's access to land in northern Ghana, and certain women are at a much greater risk than men within the municipality. While investigating the differential barriers and struggles to women's access to land across the three research communities, women from communities with commercialised irrigation dams were more marginalised than those from non-irrigated communities due to the commodification of land. Men, who are the official landowners, have reclaimed the designated plots for women farming at their irrigational sites due to the commodification of land, leaving many women farmers landless and thereby widening the gender inequality gap in land access. This finding illustrated a significant aspect within the literature on gender and land: that the

gender differential implications of commercial land transactions stem from both the longstanding inequalities in land ownership and agricultural production systems (Bryan & Garner, 2022; Tsikata & Yaro, 2014). The generated differentiated access has implications on the well-being and livelihood of SWFs.

Since the 1970s, feminist critiques of agricultural development programmes have focused on the failure of development initiatives in addressing gender disparities in property rights, household labour, and decision-making processes (Bryan & Mekonnen, 2023; Vercillo et al., 2022). My central argument in this research is that agricultural development interventions that do not pay explicit attention to gender differential access to - and control over - natural resources tend to reinforce existing inequalities in land negotiations as well as exacerbate gender inequalities in land access and livelihood prospects. The women research participants from the three communities explained how men and women possess differing ownership and control over resources owing to their respective gendered roles within the household and the prevailing patriarchal family authority structures. Hence, this dissertation contributes to the agricultural literature by highlighting how patriarchal norms subject women's access to land to men's dependence, which can result in their limited access, especially when it is commodified, as well as to vulnerability that increases as a result of the gendered weaponisation of land and its consequences for food security.

Lastly, the theme in the research is that women and girls have been socialised in the household to accept men's dominance as the norm (the "sixth mountain" in Ogundipe-Leslie's framing), which significantly undermines efforts towards women's empowerment, agency, and well-being. The finding shows that while women acknowledge and express their frustrations about gender inequalities and discrimination in access to - and control over - land, they are not able to challenge injustices and demand their rights. For instance, the women failing to seek

compensation from the Tindana who redirected their land to a businessman demonstrate a lack of socio-cultural agency among women in their pursuit of justice when subjected to abuse or exploitation by men and boys in patriarchal societies. . Therefore, there is an urgent need to create an enabling environment and ensure accountability from land custodians such as chiefs, Tindanas, family heads, lineage leaders, and husbands towards women's empowerment and gender equality.

Despite Ghana's formal commitments at both international and national levels to gender equality, and the enactment of several progressive laws and policies, the study's findings indicate that gender inequality in land access persists. The 1992 Constitution of Ghana explicitly prohibits gender discrimination and guarantees women the right to own property and inherit assets. Furthermore, statutory laws such as the Intestate Succession Law, PNDC Law 111 (1985); the Head of Family Accountability Law, PNDC Law 114 (1985); and the Land Title Registration Law, PNDC Law 152 (1986), have been established to protect spouses and children and to facilitate women's access to the property of deceased husbands (Duncan, 2004; Fenrich & Higgins, 2001). Additionally, the Gender and Agricultural Development Strategy (GADS I and II) seek to mainstream gender considerations in agricultural and land-related programmes, recommending that women constitute at least 40% of beneficiaries in such initiatives (Ministry of Gender, Children and Social Protection, 2015). Similarly, the Lands Act, 2020 (Act 1036), marks a significant advancement towards strengthening land governance and promoting gender equitable access to land resources, including provisions relevant to women's economic empowerment and land rights (GhaLII, 2020). However, FPE scholarship emphasises that access to natural resources, such as land, is not solely determined by statutory rights, but is also shaped by gendered power relations ingrained within social institutions and everyday practices (Rocheleau et al., 1996; Elmhirst, 2011).

These findings highlight a persistent gap between statutory provisions and everyday land governance practices, suggesting that the effectiveness of legal reforms in fostering gender-equitable land access remains limited due to the continued dominance of customary tenure systems and gendered power relations in Ghana. While gender disparities in land access are frequently attributed to deeply rooted patriarchal socio-cultural norms that privilege male authority in land ownership and inheritance, these disparities are also reinforced by institutional and structural constraints. Such constraints include weak enforcement and implementation of existing legal provisions (Alhassan & Anyinzaam-Adolipore, 2021), limited awareness among women and girls regarding their statutory land rights, and comparatively low levels of education that hinder their capacity to assert or claim such rights (Duncan, 2004; Johnson et al., 2016; Lombardini et al., 2017).

Collectively, these findings indicate that legal reforms alone are inadequate to transform gendered land access patterns unless they are complemented by strengthened institutional enforcement, increased legal awareness, and broader socio-cultural change within customary land governance systems.

These findings possess significant policy implications concerning the future of agriculture and food security in northern Ghana and beyond. Land represents the fundamental productive resource for individuals reliant on agriculture for their livelihoods. Persisting gender inequalities in agricultural land access have contradictory effects on the long-term trajectory of agricultural development as well as achieving the SDGs, including the eradication of extreme hunger and poverty.

This dissertation recommends that, in improving women's access to land, we must first pay attention to the heterogeneity of women in rural areas in Ghana. Development interventions should be place-specific to recognise women's gendered position in these different contexts.

Addressing these structural inequalities requires attention to a more complex framing of the diverse and intersectional realities of women, accounting for age, class, ethnicity, race, socio-cultural norms, education, religion, marital status, (dis)ability, and sexual orientation. Lastly, agricultural development planning should include all key stakeholders of land tenure, such as traditional authorities, Tindanas, state bureaucrats, and donor organisations, to promote the pursuit of women's land claims as a human right and promote effective representation of marginalised voices in current land reform processes and structures to ensure gender equality.

CHAPTER SEVEN: THE IMPACT OF THE GHANA AGRICULTURE SECTOR INVESTMENT PROGRAMME (GASIP) ON WOMEN'S EMPOWERMENT

Introduction

SWFs in Ghana play a significant role in the agricultural sector and, consequently, in achieving SDG 2, which seeks to end hunger and achieve food security. However, SWFs often have limited access to productive resources such as land, farm inputs, and funds, as revealed in the previous chapters. To overcome this challenge, the Government of Ghana (GoG) introduced the GASIP in 2014. This chapter examines the impact of the GASIP on empowering SWFs. Empowerment is explored through the lenses of economic, knowledge, physical security, self-confidence, social networks, and children's well-being categories. The chapter provides insights from the Global Affairs Canada GEM toolkit used in four FGDs with 32 participant beneficiaries, 9 semi-structured in-depth interviews with beneficiaries, and 10 semi-structured in-depth interviews with key informants. The findings shed light on women participants' self-defined barriers and supports that either hindered or contributed to their empowerment. Lastly, it presents the recommendations from women participants' themselves with examples of how to enhance their experience of empowerment.

SWFs Understanding of Empowerment

This study adopted Kabeer's definition of women's empowerment, "the process by which those who have been denied the ability to make strategic life choices acquire such an ability" (Kabeer, 1999, p. 435). However, with the utilisation of the GEM tool, the research did not impose this preconceived notion of empowerment on the respondents. Instead, the discussions first sought their emic perspective by asking what empowerment looks like within their household (Global Affairs Canada, 2022). The most frequent discussions of the local meaning of empowerment centred on 'power with'(relational), rather than 'power over', as explained in the literature. The

emerging themes include childbirth, marital happiness, ensuring children's futures, economic stability, and supporting family members, and among other themes. Each theme is explained in detail below.

Empowerment Means Happiness in Marriage and Childbirth.

Happiness and unity in marriage were the most prevalent responses provided by women when asked what they understood as women's empowerment. Married women being happy and united with their husbands was associated with empowerment. As one respondent puts it, "When there is unity and love between me, my husband and my in-laws, I will be empowered to work and achieve my goals in life". (Wedam, Nagtunia)

Another married SWF stated:

Happiness in marriage is empowerment. If you and your husband are united, there is happiness in the home, and the children are also happy. Even if there is poverty, the love and unity between my husband and I will bring happiness and peace at home. However, if your husband has money and you are not together as one, you will not be happy and empowered because there will always be unresolved problems, fights, and disagreements (Kadua, Nagtunia).

It is evident from Kadua's quote that women acquiring human and social resources through gendered relations that foster unity and happiness in marriage enhance their ability to define their strategic life choices and act on them. Respondents viewed unity in marriage through the relationship of 'power with' husbands and in-laws, which provided the capabilities of 'power within' to achieve strategic goals and succeed in life.

Women's empowerment was also linked to childbirth. In other parts of Africa, women giving birth is positively linked with all measures of empowerment except financial authority (Samari, 2017). Tepora, a 45-year-old woman with a physical disability, and who is married with four children, could not hide her excitement and achievement of having four children when society said it was impossible for her first, to be a wife and second, a mother. She shared her compelling story as follows:

Giving birth within marriage is empowerment, my sister. You can ask my friend about this. When I was planning to get married, people said I was crippled, so a crippled man couldn't marry another cripple because he could not have children with me. His family asked me to leave the marriage and return to my family. If not for patience, I would not still be here, married. I stayed in the marriage, and God blessed us with four children, so why would I not be happy? Every day, when I wake up, whether or not I have food to eat, I feel empowered because I am grateful for the blessings of God [children]. I have seen able couples with four healthy legs and no children. Being able to give birth makes me feel empowered because society discriminated against me and claimed it was not possible, but God proved them wrong. (Tepora, Punyoro)

The women argued that they gained not only 'present empowerment' but also 'future empowerment' from childbirth. Respondents viewed children as future security and caregivers when they grew old and could no longer work or care for themselves. To highlight the significance of ensuring a good future for children, three married women respondents, for instance, mentioned staying in an abusive marriage to raise their children rather than getting a divorce. One of them, Amaake, argued that because of her children's future success, "I am able to stay in an abusive marriage to look after them [her children]" (Amaake, Korania), which she explains as empowerment. She went further to highlight that in order to remain in an abusive

marriage, she has developed coping skills: “I am more patient toward my husband, especially when he is angry or drunk [...] not disagreeing with his decisions sometimes solves problems in my marriage and prevents him from beating me”.

While Amaake considers enduring violence in marriage in order to secure the future of her children as empowerment, Kabeer disagrees. In the view of Kabeer, women’s tolerance of abusive husbands in marriages and other sentimental practices that undermine their well-being exemplifies disempowerment and highlights existing gender inequalities in fundamental well-being achievements. Amaake’s decision to remain in the abusive relationship in order to care for her children reflects a form of situated agency—where actions are shaped by the economic, social, and cultural context within which individuals operate. Amaake’s framing of endurance as “empowerment” underscores her efforts to exercise agency within the boundaries of her circumstances, prioritising the perceived well-being and stability of her children.

Within Kabeer’s framework, these actions may be interpreted as forms of everyday agency, where individuals make pragmatic choices to manage power imbalances and reduce harm, rather than inherently seeking to oppose the wider patriarchal frameworks that underpin the abuse. Such strategies align with feminist scholarship that contests the binary distinction between victimhood and agency (Mahmood, 2005).

Ghanaian cultural norms believe in pronatalism. Consequently, the girl child is nurtured and groomed to be first a respectable daughter to her parents; then a virtuous wife to her husband; and third, a good mother to her children. Childbearing and reproductive capacity are central to women’s identities in Ghanaian societies. As revealed in the previous chapter, women who conform to traditional gender social norms of marriage and childbearing enhance their status, gaining agency in various ways, including increased bargaining power and decision-making authority, as well as access to land and other valuable resources. Similar findings argued that

women conforming to social norms may gain agency, as this allows women to maintain social networks as well as achieve their goals (Meinzen-Dick et al., 2019). On the flip side, there are social stigmas, for example, being considered useless, being labelled a witch, marginalisation and sometimes domestic violence that accompanies married women without children in Ghana (Ofosu-Budu & Hanninen, 2020), which is a significant factor in their feelings of happiness and sense of belonging within their communities. Hence, Ghanaian women desire to marry, give birth, nurture their children, and be a 'virtuous wife' to their husbands to obtain the high status and respect society ascribes to the institution of marriage and motherhood for women's relevance.

An Empowered Woman is a Homemaker and a Submissive Wife

Participants also viewed an empowered woman as a hardworking woman who wakes up early in the morning to fulfil her domestic duties before heading to the farm or the market, and someone who respects her husband. A participant stated as follows:

An empowered woman wakes up early in the morning to cook and take care of her husband, children, and in-laws before going to the farm or market to trade. She submits to her husband and respects her in-laws in her compound [...]. You know, a woman must submit and obey her husband's decisions and wishes to bring peace and happiness to the home (Atupare, Nagtunia).

Atupare's responses were shared among many respondents regarding an empowered woman being a homemaker and a 'submissive wife', providing evidence of expressions of 'power within' as a virtue linked to being a good wife to her husband. Women being submissive and respecting husbands reflects societally prescribed norms and expectations about how a 'good wife' should behave to conform and receive social acceptance. A similar finding was reported in a previous study in Ghana,

where empowered women were described in terms of ideals of socio-culturally acceptable femininity to foster peace and family bonds (A. Z. Abdu, 2023). The finding reveals that conforming to culturally gendered prescribed norms, even those not favourable to women, can be a form of creating a collective agency.

Within many socio-cultural contexts in Ghana and across SSA, women may strategically align themselves with expectations of respect and marital harmony to maintain social cohesion and strengthen relationships with husbands and in-laws. These relational strategies can facilitate the development of support networks and social capital, which may enhance their influence over household decisions and gradual improvements in their well-being. Such practices highlight how empowerment may manifest in relational and context-specific forms of agency, where women negotiate gendered expectations rather than directly resisting them (A. Z. Abdu, 2023; Okoli, 2024).

Empowerment Means Economic Capacity

Another recurring theme of empowerment, according to respondents, is the pursuit of economic achievements. Having a stable job that ensures economic capacity was linked to empowerment. An empowered woman is described as “a woman who is not lazy with her hands but works hard to help her family” - a woman succeeding in farming and or business to feed her family and selling some for income. In addition, an empowered woman has access to - and control over - productive resources to succeed in all her economic ventures, such as farming and trading. It was not surprising that access to agricultural resources and farmland dominated the list, including fertiliser, tractor services, combined harvesters, and weedicides, as well as access to credit to expand businesses and provide enough money to make their family members and loved ones happy. Participants observed that women acquiring resources and enacting their

agency to achieve their desired goals is empowering because “if you work and contribute to the needs of the house, your husband respects you in the house” (Asua, Nagtunia). Asua’s quote shows that women’s economic capacity can also lead to social achievements, for example, including a husband’s respect.

Aside from gaining respect from her husband, Asua further explained that economic capacity enables a woman to have autonomy over how she spends her money and is self-dependent: “I will not depend on my husband for my personal needs like clothing, because I have my money and make decisions on how to spend it.” This confirms similar research that women exercised more freedom and agency when they earned their own income (Doneys et al., 2020).

Economic capacity also provides resources and agency to solve financial problems that may arise and subsequently reduce worry and sleepless nights. One respondent stated as follows:

Empowerment is when I farm big [commercial farming] to earn money to pay my children’s school fees, build a house and acquire other necessities. Now they [Radio news] tell us agriculture is a business. It’s very worrying that your children ask for clothing or school fees, and neither the mother nor the father can provide them. I have sleepless nights and worry when my children lack basic needs, because children do not understand poverty. Moreover, you know, worry and stress give you blood sickness [high blood pressure]. Therefore, generating income from my farm and pito business to feed, clothe, and educate my children and meet their needs to make them happy is empowerment. (Asibi, Nagtunia)

Women working and earning a profit to exercise agency, thereby meeting the needs of their children and helping others with their challenges, is considered an important dimension of empowerment. Indeed, this speaks to why, in the previous chapter, the women implemented

indigenous mitigation strategies within their capacity to improve farm yield (resources) to extend their choices (agency).

It is worth highlighting that none of the respondents from the three research communities viewed women's empowerment as a woman having 'power over' her husband, parents, or community members. On the contrary, women referred to submission to their husbands and respect for all as a virtue of an empowered woman.

Empowerment Means Good Health

One element of empowerment which is uncommon in the literature is 'good health'. SWFs underscored the importance of good health in their definition of empowerment. Respondents highlighted that good health is the foundation for achieving all necessities in life, including financial stability, children, marriage, and happiness. Without good health, one is incapacitated to have the physical and emotional strength to do anything, including "taking care of my children, going to the farm, trading, [... since] no man will marry a sick woman" (Lariba, Punyoro). Another quote by a respondent below the age of 30 years highlights the importance of health over her husband's support: she explained that:

If I sleep and wake up in good health, I am empowered. It does not matter what happens; I will let it pass because, with good health, I can achieve anything that I want. I can farm, trade, and take care of my children, whether or not my husband is involved. (Abil, Korania)

Another woman over the age of 45 years concurred on the importance of good health, adding that it even supersedes money and wealth. She said:

You see, my sister, if you have all the money and wealth in this world without good health, it's useless. You cannot spend the money; people will spend it for you. Even

doctors can stop you from eating your best foods, so what is the point of having money you cannot spend to make yourself happy? (Kadua, Korania)

For women, good health is a form of empowerment. Besides being empowering in itself, it is clear that it serves as a primary human resource to acquire other material and social resources, including marriage and financial stability, and children's success, for women's transformation and well-being. In the subsequent section, I examine the impact of GASIP on beneficiaries within the research communities.

The Impact of the GASIP on SWFs' Empowerment

Having established the perception of empowerment in the context of women beneficiaries' own lives and communities, the study proceeded to examine the impact of the GASIP project on women's empowerment. Beneficiaries were asked to reflect on the GASIP project across the GEM tool's five key domains of empowerment: economic, knowledge, physical security, self-confidence and social and others. As expected, their perceptions were nuanced, but overall, the programme was central to the positive gender impacts observed in their lives and community.

Economic Empowerment

While all of the focus group participations were beneficiaries of the GASIP, 11 out of 24 women rated the programme as having a 'positive gender impact' in terms of their economic empowerment. Specifically, economic empowerment was viewed in terms of improved access to resources and financial security, financial savings, and business expansion. These benefits are elaborated below.

Improved Access to Resources and Financial Security

A recurring theme that emerged among respondents was the increased capacity to save and make new investments. As part of the GASIP programme, beneficiaries received training on how to plan and efficiently manage their income and expenditure, ultimately impacting their household well-being rather than frivolities like excess clothing and alcoholic beverages. According to one of the Programme Officers, the GASIP provided savings collection boxes to beneficiaries and encouraged savings among beneficiaries in all the communities. This savings scheme is commonly referred to as susu in Ghana (Hosseini & Bonsu, 2023). One woman beneficiary explained how the susu contribution works and the benefits she has enjoyed as follows:

As a member of the group, you are mandated to pay a collectively agreed sum of money into a susu box during weekly meetings. Our group contributes Ghc 10 weekly. At the end of every week, one member takes the lump sum, which then rotates among all members to end the cycle [...] I have been able to buy a larger cooking pot to brew my *pito*, which has been difficult over the years. The susu contribution has been very helpful in expanding my *pito* business. (Asibi, Nagtunia)

Financial Savings and Business Expansions

Women beneficiaries reported that, through the teachings and training workshops they received on financial and savings skills from the GASIP programme, most of them expanded their businesses and increased their sales and profits. The women emphasised that having this new financial knowledge helped them “plan and create a budget to avoid unnecessary expenditure, which is beneficial to their financial stability.” The quotes below further explain women’s views on the positive impact of the GASIP programme on their economic empowerment. One

26-year-old beneficiary underscored how the programme has equipped her with skills to plan, save and be financially disciplined:

Before GASIP, I often made impulse purchases at the market without a plan to guide my spending. If I saw things, I bought them because I had money. At the end of the day, I would spend all my money, and when I got home, I realised I did not need the things I had purchased, leaving necessary items unbought and my money gone. Now, thanks to the training, I plan to create a list of necessary household items and restock accordingly. I no longer waste money, and this has helped me save and contribute to the susu box. I am now disciplined with money and can contribute weekly to the susu box. (Kania, Nagtunia)

Another woman respondent under 30 years old also described how her profit margins have significantly increased and expanded her business by implementing her new business knowledge from the programme. She said:

Before the GASIP teachings, I only traded and sold on Navrongo market days. However, through these teachings, I have learned to trade and sell in other smaller markets, which has significantly increased my sales and expanded my business. For instance, this week's Monday was the Navrongo market day, which I attended. Then, on Tuesday and Wednesday, I visited other smaller markets and made additional sales for the week. Even after our meeting, I am going to Pungu market to sell my goods. (Abil, Korania)

Older respondents, aged 49 and above, concurred with the report from the younger woman regarding the impact of adopting new best business practices to expand their business and increase profit. One of them, Yipini, a 50-year-old farmer and trader, shared her story and went further to elaborate on its impact on her husband:

I plan how to spend the money before taking my susu lump sum contribution money when it matures. Recently, I invested my lump sum money in my crop farming and shea butter business. I am proud of my achievement; even my husband is happy for me and respects me. I am able to provide more for my children's needs, and that makes me very happy. (Yipini, Punyoro)

Respondents shared similar stories about the programme, which inculcated the habit of saving, helping them set aside money for the susu box. Women beneficiaries reported increased intrinsic agency for knowledgeable entrepreneurs, which helped increase profit margins.

Respondents reported that access to the economic resources from the susu contribution enabled them to solve emergency problems and acquire farm inputs to improve farm yield. A 51-year-old widow beneficiary revealed that the susu contribution is her financial security that enabled her to access a quick loan to save her child's life in the hospital. She said:

Because of the GASIP susu collection box, I have the financial security to rely on for solving emergency issues for my family. Before, it was very difficult to borrow money [...]. For instance, two months ago, my child was sick, and I had no money to go to the hospital. I went to the leaders and took a loan, and that money was used to pay hospital bills and buy medications. The loan from the susu box saved my child [...]. After farming, I repay the loan with very little interest on the susu contribution. (Welaga, Nagtunia)

Another woman beneficiary, a widow, explained how she can pay her children's school fees on time and access farm inputs to improve yield:

I no longer struggle to pay for my children's school because of the GASIP susu. From the training, I have learned to save and contribute to the susu box, which I pick at the

opening of school to pay my children's school fees, buy books, uniforms and other necessities for school. The remaining money I use to plough my farmland and buy fertiliser. (Amaake, Korania)

Changes in the Household Decision-Making Process

Women beneficiaries of the GASIP also indicated that enhancement in their economic status also translated into increased agency in decision-making, particularly regarding household expenditures. Women respondents reported a positive shift in the decision-making process at the household level. Husbands now consult their wives and seek their contributions or suggestions, which were previously denied to women because of discriminatory patriarchal norms. It is worth noting that the agency gained by women was used to improve the well-being of their family members and friends. A young married woman whose husband is not a beneficiary shared how she has gained agency in household decision-making while supporting her husband in expanding the family farm.

My husband has changed; he now respects and seeks my input in decision-making in the house. You see, before the project, it was very difficult for him [her husband] to buy adequate fertiliser for our farm, which reduced our harvest. But now, when he needs money to farm, he will ask me to get a loan from the susu box. With the loan from the susu, we have increased our farm size because there is money to buy fertiliser and access to tractor operators [...]. Sometimes, if the month ends and I do not have money to contribute to the susu, when I ask my husband, he gives me the money, but before, he would never give me. (Atia, Korania)

Clearly, the GASIP had a positive impact on gender relationships within households, as women are in better financial positions, which helps ease the financial burden on their family

expenditure for farm inputs (which are considered responsibilities of the husband) through the susu loans.

A man beneficiary shared a remarkable story of the significant change in decision-making in the home with his wife:

Before GASIP, I was not united with my wife. We both hide and spend our money separately. When the children are crying and asking for food, she directs them to me. I will also run out to the bar, buy drinks and roasted meat, and enjoy. I will return home shouting at my wife, Where is my food? Where is my food? The result is fighting, and I end up beating her sometimes [...]. However, thanks to the GASIP teachings, I discussed with my wife how much money I earn and how we should spend and save it together for the susu box. Now there is love and unity, and we are able to save as couples together and take care of our children. No more quarrels and beatings.

(Kaba, Punyoro)

Evidently, these examples illustrate a transformation in traditional gender roles and a positive shift in amplifying the voices of women within the household decision-making process, although this occurs to varying degrees of autonomy, cooperation, and negotiation with their husbands. And according to Kabeer, women participating in decision-making outside their gendered assigned division of roles and responsibilities in the household is of greater consequential significance and can be considered as an indicator of empowerment.

In addition to individual members expanding their businesses from the susu box, the women have, as a group, established businesses to increase their susu contributions. Every group has a bank account for depositing its funds. For instance, as one group member explained:

As a group, we operate a rental business. We rent out tables and chairs to people organising occasions like weddings and funerals for a fee. The profit we make is deposited in the group bank account. The rental is a profitable business for our association (Asua, Punyoro).

Similar stories were shared in other groups about lucrative investments and businesses that could provide additional income for the group. As discussed in the previous chapter regarding the challenges SWFs face in accessing loans and agricultural inputs, the women were proud of their achievements and glad that they no longer depended on informal savings and loan companies with extortionate rates that further impoverished them. Respondents expressed happiness about worrying less about seeking loans from family or friends to buy farm inputs and solve other financial issues. The susu group served as insurance for their business, livelihood, and the well-being of their family and friends. Although the susu system faces its own operational challenges, including default payments on weekly contributions and loans, as well as inconsistent attendance at meetings, women beneficiaries emphasise that susu savings have a positive impact on their economic empowerment. These accounts show that women had control over their resources, and their husbands could not control their resources. In line with Kabeer's empowerment framework, women's access to resources (loans), making strategic life choices on their own, expanding their businesses, buying farm inputs, and improving the well-being of themselves and their families is empowerment.

However, the remaining 13 women participants who participated in the FGD rated the GASIP as having a 'mixed gender impact' and commented that while they have access to the susu loan, their husbands controlled the household economic resources and shifted the majority of their household economic responsibilities to women, particularly when the women receive their lump sum. In so doing, husbands reduced their own financial contributions to the household

funds. As one beneficiary noted: “I like the susu contribution, but the week that I receive my lump sum, my husband does not give chop money [money for food]. I end up using a big part of my money to provide for the house instead of investing in my business” (Suribono, Nagtunia). Another participant added, “[...] even sometimes when I ask for money to buy necessities for the children, he will tell me to go to my people [susu group] for money.” (Wonnudaga, Korania)

Through the lens of the Kabeer empowerment framework, husbands manipulating and controlling their wives’ loans (resources) by deliberately neglecting their gendered domestic obligations, depriving women from utilising the loan to expand their business and improve their wellbeing, is disempowering. Kabeer described this situation as a zero-sum empowerment process, whereby the gain of one individual (the husband) necessarily entails the loss of another (the wife). This finding aligns with broader feminist scholarship, which contends that economic resources alone are insufficient to ensure empowerment, particularly when underlying gender norms and power dynamics remain unchanged (Kabeer, 1999; Cornwall & Rivas, 2015; Salia et al., 2017).

It is worth highlighting that out of the 13 participants, 11 were from the communities with women-only farm groups, highlighting this as a barrier that needs to be addressed. This finding confirms previous studies that gender equality and women’s empowerment programmes that exclude men risk burdening women further because women may assume new responsibilities and expectations without a corresponding redistribution of authority, labour, or social support within households and communities (Alemu et al., 2018; Mwambi et al., 2021; Okoli, 2024).

New Improved Knowledge

Women participants in the GASIP consistently reported acquiring new knowledge, skills, and information to improve their livelihoods and physical security, which they viewed as inherently

a form of ‘positive gender impact’. Nine women beneficiaries out of 24 reported ‘positive gender impact’ in the knowledge category, which empowered them to achieve their goals. Kabeer articulates that resources in a broader sense are not just material or social, but improved knowledge and skills are also human resources that are a vital dimension for empowerment.

In the area of livelihoods and household food security, participants acquired new and improved knowledge in agricultural practices, including climate change mitigation strategies, FAW control and eradication, and fertiliser application, which they viewed as particularly relevant. Prior to joining GASIP, women participants encountered barriers in accessing agricultural information and AEOs. However, by acquiring new, improved knowledge, women have succeeded in reducing gender inequalities within their households to transform their well-being.

New Knowledge in Agricultural Practices

SWFs mentioned new knowledge in preparing organic manure and pesticides to control FAW, which empowered them to enhance their harvests and improve their livelihoods. The women beneficiaries explained that they learned to prepare pesticides from neem trees, which are very common in northern Ghana, to spray on their farms to control FAW. One of the women who had this knowledge, a 50-year-old respondent with over 30 years of farming experience, noted:

We were taught how to prepare a pesticide to kill the FAW, which was destroying our farms. We ground the leaves of the neem tree, mixed them with leaves of [...], and sprayed the mixture on our farms. The medicine is effective; it kills and drives away the FAW, especially when you identify it early and treat it. They also taught us how to constantly inspect the farm, including the leaves and stems of plants, to notice them early and apply the pesticide before they destroy our farm. It has helped improve

yields on the farm, and my other friends have shared similar success with me (Amaake, Nagtunia).

Evidently, knowing and applying the proper agricultural technical practices for farming has helped many SWFs beneficiaries achieve greater crop yields and become more effective farmers.

Another beneficiary shared her achievement of acquiring knowledge on the best method of application of fertiliser through the GASIP. She explained that “my yield has improved using the GASIP process and timing of application of fertiliser on my farm” (Apegwine, Korania). She further mentioned that last year’s farming season, “I could not access the required quantity of fertiliser to apply on my farm, which reduced my yield compared to the previous year”. Apegwine’s disappointment in having new technical knowledge on fertiliser application to improve yield, but lacking access to enough fertiliser, was a recurring theme among SWFs beneficiaries, highlighting limited access to fertiliser as a barrier to their empowerment in the knowledge category.

As argued by Kabeer, access to resources is an indicator of empowerment, which reflects potential rather than actual choices. In the knowledge category, the remaining 15 women participants rated with ‘mixed gender impact’, stating that although they acquired new skills and knowledge which may be valued on their own, they continued to lack access to critical resources such as land and agricultural inputs to use their newfound knowledge to improve farm yield and their well-being. Some common examples and experiences shared by participants included: “Because my land is small, I could not practice the new farming system to mitigate climate change” (Wedaga, Korania). In the words of another respondent, “I could not follow the fertiliser application method to improve my yield because I couldn’t buy the two

bags my farm required” (Asua, Punyoro). These quotes from the women were common, and they speak to the barriers that need to be addressed.

As discussed in detail in the previous chapter on women’s challenges in accessing productive agricultural inputs to mitigate climate change, 15 women participants lacked the transformative agency to transform prevailing gender inequalities to improve their well-being.

Physical Security

One major impediment in Ghanaian society that undermines women’s and girls’ empowerment is gender-based violence (Alo et al., 2023). This study asked women respondents about the impact of the GASIP on their physical security, the third category of the GEM tool. Participants reported two factors that influence their physical security: a reduction in gender-based violence (GBV) and timely visits to health facilities.

During the FGDs, respondents mentioned that the ramifications of GBV negatively affect women and have an even greater impact on children. One respondent, a married man, explained that “the children suffer at the end. Parents fighting and lack of peace in the house made children go wayward [...] for instance, most teenage girls end up getting pregnant and boys becoming thieves” (Kaba, Punyoro). However, with the implementation of GASIP, women beneficiaries reported a reduction in domestic violence against women, particularly wives in the study communities, as a result of the project’s teachings and training.

Returning to Kabeer’s definition of empowerment, the focus on increased ability to make important and key life choices is central to this finding, and the evidence from this study shows that the GASIP had the overall positive impact of improving opportunities to move from being denied the ability to make major life decisions to new opportunities. In total, 10 out of 24 participants rated physical security as having a ‘positive gender impact’. They indicated that

they now have ‘acquired the ability’ to feel safe at home because their husbands had stopped assaulting and verbally abusing them. In total, six out of the 10 participants who claimed an overall ‘positive gender impact’ were from Punyoro (mixed-gender farm group).

Women emphasised that their husbands do not ‘beat them again’ because the men had stopped getting intoxicated with alcohol. Women beneficiaries believed that freedom from GBV guaranteed greater "peace and unity in their marriage", which was reported earlier in their understanding of empowerment. Agreeing with the reports of women about the reduction of GBV, a 35-year-old married man observed that:

After the teachings of GASIP, domestic violence has drastically reduced. Most men do not beat their wives and or children. This new behaviour has fostered love and unity in homes. You no longer hear women screaming for neighbours to save them from their husbands’ beatings and abuse, nor do you hear drunkards making noise at night and disturbing other family members. The GASIP teachings encouraged us (men) to stop abusing alcoholic beverages and beating our wives. (Aluah, Punyoro)

Based on the teachings, beneficiaries’ harmful behaviours were transformed, and most of them stopped abusing alcohol, which served as a catalyst for GBV. During the men’s FGD, one man shared a compelling story of how he was able to overcome many years of addiction to alcoholic beverages and the changes before and after the programme.

Before the GASIP teaching, most of us were drunkards and wife-beaters. The money we work for all ends up in the bar, without considering our future. You see, a drunk person is abusive, and I used to beat my wife and children whenever I got drunk [...] The teaching challenged me to reflect on how much money I spend on drinks daily. Now, knowing the total at the end of the month has motivated me to stop wasting money on these useless things and start contributing to the susu box, which has made

me a better husband and father. Some of my friends, too, have stopped drinking [alcohol] and are able to send their children back to school again. Now, we have much respect from our children and wives because we no longer abuse them. We have been enlightened and gained knowledge to make our wives and children happy. (Kappa, Punyoro).

Kappa's story resonates with responses from other men beneficiaries. As part of the training, GASIP officials illustrated the importance of savings and the dangers of excessive consumption of alcoholic drinks to beneficiaries: saving GHc 5 (the cost of a tot of an alcoholic drink) daily means that in a week, it totals GHc 35, and in a month, it reaches Ghc 140 and counting. Men explicitly referenced the 5 cedis daily illustration to justify their willingness to stop their drinking habits in order to save money. The impact of GASIP led to positive behavioural and attitudinal changes on both sides (men and women), which reduced gender inequalities and empowered women. Men equally observed positive changes in their wives' attitudes. In the words of Adongo, a married man:

Some of the women are also drunkards and will spend part of the chop money drinking [alcohol]. If you get to find out, it will lead to a quarrel, and you may end up beating her at home [...] You know people are different; other men were not given their wives' chop money, and women had to struggle on their own to care for the children. However, the GASIP teaching has brought transformation in homes, and people are becoming more responsible at home. (Adongo, Punyoro)

Respondents also mentioned that the project has contributed to a reduction in domestic financial conflict between partners, associating this improvement with the susu contribution, as they now face fewer financial challenges than previously experienced. A 49-year-old woman respondent observed, "We mostly fight when we have financial challenges". She elaborated,

“Saving with him [her husband] into the susu box has lifted financial burdens and reduced unnecessary conflicts and arguments at home with my husband” (Asua, Punyoro), which could have potentially led to GBV. A younger woman respondent, below the age of 30, attributed the positive behavioural change and improved gender relationship at home to the activities in the GASIP meetings and susu saving meetings. She noted that:

My husband has stopped beating me and even plays with me and the children at home since he joined GASIP. My children and I used to be scared of him because he beat us and called it discipline. During the GASIP meetings, he would play with other women and make jokes, so I encouraged him to bring that same attitude home, and he did. We live happily at home because he does not want other members to know he is not friendly at home, but plays with other women outside the home. (Apoya, Punyoro)

The aforementioned quotation illustrates that the GASIP group meetings functioned as a significant avenue that provided what Kabeer calls social resources to reduce gender inequalities, positively influenced the behaviours of beneficiaries and provided protection for women and children against domestic violence. For several participants, these meetings fostered a strong bond among them and reinforced mutual interests at both the community and household levels. For example, one respondent, a married woman from a women-only farm group, recounted a compelling narrative regarding how the group facilitated the cessation of domestic violence in her home.

[...] I attended our meeting, and some of the members noticed the bruises I sustained from my husband’s beatings. I could not hide it and told them the truth about my husband’s abusive behaviour at home [...] To my surprise, they organised and came to my house, humiliated my husband for assaulting me. After that incident, he has never raised his hand against me again. You see, this is a family where we protect one

another, and even our neighbours [non-beneficiaries] respect us for that. (Tapora, Nagtunia)

It is evident that women found the courage and self-confidence to resist domestic violence through the social resource support system provided by the programme. Furthermore, the findings revealed that their social support system generated through a “collective agency or power with” served to deter men from perpetrating violence against their members, thereby fostering a sense of pride and recognition within the community. This recognition, in turn, attracted additional women to join the group. The finding aligns with previous studies that emphasise the formation of collective agency among group members as a means to compel men to cease acts of domestic violence (Meinzen et al, 2019).

Another positive gender impact of the programme is that women are able to access health care when their husbands are unavailable. In accordance with cultural norms, women are often unable to seek health care, even in emergencies, without their husbands’ approval, thereby placing their lives in constant danger “when your husband is not around” (Kania, Punyoro).

One woman commented, “The teaching from the family tree made us understand we are one, so why should I wait in pain for his permission before seeking medical attention? What if I die while waiting?” (Apoya, Punyoro).

Another respondent, Kezie, a 23-year-old senior high school graduate and beneficiary, shared how the program improved her physical security by gaining more approval from her husband to make decisions regarding her own body, including those related to sexual and reproductive health. This change made her feel more physically secure. For Kezie, her husband now “sometimes understands no sex if I explain to him, I am tired and need to rest [...] before he will not understand.” (Kezie, Punyoro).

However, the older participants had a different opinion of Kezie's contribution. One of them, Yifra, a 58-year-old with no formal education, explained that a "wife should never refuse her husband's sex even if she is tired because it is her duty to always obey and satisfy his desires". This finding was not surprising because the Ghanaian traditional culture stipulates that the husband possesses 'dominion over' his wife and therefore also over his wife's body, and a wife must submit to the authority, commands, and wishes of the husband at all times (Addey, 2024). As elaborated upon in the preceding chapter, a wife is considered the 'property of the husband' as a result of the dowry payment.

The remaining 14 FGD participants rated the project as having a 'no gender impact', reported no changes to their empowerment or gender relations in relation to their physical security, with only 3 from Punyoro (mixed-gender farm group). These findings highlight the importance of: 1. the mixed-gender farm groups, as there is a clear positive gender equality outcome arising from the mixed-gender farm groups; and 2. the ongoing challenges of tackling attitudes and behaviours that reinforce GBV and gender inequality. The limited opportunities for engaging men and boys in conversations about GBV and alcohol consumption demonstrate the ongoing challenges for tackling violence and inequality.

Self-Confidence

Women beneficiaries concur that the GASIP has undoubtedly enhanced their self-confidence. This is significant considering the crucial role of women's self-confidence in their empowerment. For example, 12 out of 24 FGD women beneficiaries rated this category with 'positive gender impact', with seven out of the 12 from the mixed-gender farm group.

Speaking about their self-confidence, women beneficiaries believed that they have gained 'assertiveness and self-esteem' and feel more capable of expressing their feelings, views, and concerns with others both at the household and community levels. They believe in themselves

and feel increasingly capable of achieving set goals. In the words of some of the beneficiaries, “Now I can express my concerns and opinions on issues to my husband, before I was afraid” (Aloa, Punyoro). Atawura explained that her increased self-esteem has enabled her to “establish effective communication at home, reducing conflicts and quarrels between myself and my mothers-in-law” (Atawura, Korania).

Furthermore, the women beneficiaries observed that they were not ‘inferior’ but equally essential personalities who play significant roles in the home to sustain the family. One woman beneficiary highlighted that “after completing the family tree, I realised that both men’s and women’s roles are important to sustain the family, so we are both equal. I am not inferior to my husband” (Suribono, Punyoro). Another added that “the project raised awareness that women’s duties in the house are equally important as men’s, and the notion that man is the head of the family “does not imply I am inferior to him, but I am also important” (Wepare, Korania). Wepare further noted that her consciousness of the equal importance of her role in the house gave her the confidence (power within) to approach her husband and express her concerns about issues at home.

Not only can women express themselves in their homes, but also in public. As elucidated in the following comment by a woman beneficiary:

Before the GASIP, many women could not speak in gatherings of men; we had to communicate through our husbands, fathers, or sons. Through the GASIP, women were able to discuss and share ideas during meetings with men. Specific questions were directed at women to encourage their responses and contributions in the women’s section [...]. I have gained the confidence to express myself in public and speak among men, thanks to the GASIP meetings. (Wonuwora, Punyoro)

The programme has also increased women's self-confidence and their ability to advocate for their rights with government dignitaries at high positions, including municipal and regional levels, which was previously impossible. One of the women group leaders shared a captivating story of how their increased self-confidence level empowered them to approach the municipal chief executive (MCE) to advocate for rural women farmers' livelihood in the municipality:

Now, women have the self-confidence to approach big men to discuss and present their challenges. At first, it was very difficult for me to communicate with the MCE. I spoke slowly and was unable to articulate our issues properly. However, I have changed; I now have boldness and confidence when I visit [...]. Previously, as women, we were very scared and afraid to enter the offices of prominent officials, but now the GASIP training has empowered us women to leave our homes and share our issues outside the home. (Rose, Korania)

Speaking on his observation of women's assertiveness in a semi-structured, in-depth interview with one of the programme officers at the municipality, he attested that:

The women beneficiaries are now assertive and confident during project meetings and when they visit the office [...] for instance, this year their leaders [women farmers association] frequently visited our Agric office to seek information on the arrival of government-subsidised fertilisers for farmers. They were so persistent that, sometimes, when my boss noticed their presence and had no positive feedback for them, he would run into hiding. This is particularly beneficial because, before the programme, women farmers would not visit the office to interact with us (AEOs) (GASIP programme officer, Navrongo)

From the quotes above, it is evident that women have gained self-confidence due to the new knowledge (human resources) acquired from GASIP training. Thus, women's assertiveness and

increased ability to express their feelings and opinions at both household and community levels demonstrate their capacity to utilise the human resources gained from programme trainings to improve their marginalised positions and transform gender inequalities in a patriarchal society. Kabeer concurs with this rating as a positive gender impact because, for her, women's ability to gain confidence and assertiveness is an achievement which is indicative of empowerment.

Only five out of 24 focus group women participants rated this category 'negative gender impact', and a few commented that they regretted decisions made from the project teaching because it made them experience more "verbal and physical abuse from husbands", making them worse off than before. Participants' reflections indicating that engagement with the project led to an increase in "verbal and physical abuse from husbands", and in some instances regret for participation, not only highlight programme limitations but also point to adverse empowerment trajectories. These findings challenge the conventional assumption that empowerment interventions are inherently advantageous; instead, they reveal the potential for such initiatives to heighten vulnerability under conditions of persistent gender inequality. When examined through Kabeer's (1999) framework, these experiences expose a breakdown in the relationship between resources, agency, and achievements. Although the project may have enhanced women's access to knowledge, skills, or financial resources, their capacity to convert these into meaningful and strategic life choices remained hindered by deeply rooted patriarchal norms and power dynamics within the household.

The remaining 7 women participants rated 'no gender impact', reporting no changes to their self-confidence.

Social Relations and Networks

In the social networks category, 14 out of 24 focus group women participants rated it as having a 'positive gender impact'. Women beneficiaries reported an expansion in social community

networks, which provided them with material, human, and social resources, as well as increasing both their *power to* and *power with* agency. The themes that emerged as empowerment at the social category were often linked to improved gender relations at the household, and expanded social networks of relationships among beneficiaries through intracommunity interaction, collaboration, and cooperation, driven by shared objectives and goals. In the ensuing sections, the chapter explores in greater depth the themes that have emerged at both the household and community levels.

Change in Gender Relationships and Gender Duties

The Upper East Region is highly patriarchal, plagued by gender-discriminatory social norms that privilege men's dominance over women in every sphere. The women in these research communities are disadvantaged and subordinated in gender relationships to men, as discussed in the previous chapters. With the GASIP gender mainstreaming strategy that aims to improve gender relationships, women beneficiaries attested to the positive gender impact on their gender relationships at the home and community levels. As one woman noted, "The GASIP taught us the importance of supporting one another as couples" (Kadua, Korania). Beneficiaries reported positive changes in the attitudes and behaviour of women and men, as well as in their children, which led to improvements in gender relationships. A positive change or shift in gender roles was the theme at Punyoro, mixed-gender farm group. Men respondents mentioned being pleased by the positive changes they observed in their wives after joining the project and how proud they felt. The GASIP teaching "raised awareness that women can perform men's duties at home to help them, and men too can perform household chores to support their wives" (Apuri, Punyoro). According to women beneficiaries, they observed changes in the behaviours that positively impacted their gender relationships with husbands. A 45-year-old married man beneficiary shared how there has been a radical positive change in the gender division of labour,

as neither wives nor husbands anticipated such a transformation. The radical change is essential because men and boys in these communities are culturally groomed not to take part in women's unpaid gendered domestic duties.

The GASIP teachings have brought transformation to our homes. Initially, we believed that specific duties were solely for women to perform in the house, and men should remain uninvolved. This teaching has made us realise that men can also take on responsibilities labelled as women's work. Now, if I get home before my wife, I cook for the family and wash the children's clothes. The traditional norm was that when you marry a woman, it is her responsibility to handle all the domestic work, such as cooking and washing clothes. As the husband and the man of the house, I used to think it was acceptable to command her to attend to all my needs when I returned from work. Now, I understand these behaviours are not right, and I have changed my approach. We have learned from GASIP that partnering with your wife leads to faster family progress and fosters unity and love in the home. (Sapio, Punyoro)

Another participant indicated that his wife performs 'men's duties' at home to support him, remarking that "my wife now takes my tethered goats to the pen if I get home late, but before she would not because it's not her duty in the house" (Kofi, Punyoro).

The narratives from Sapio and Kofi offer compelling evidence of changes in the gendered division of labour within households, demonstrating how GASIP teachings have begun to challenge the previously rigid gendered division of labour at the household level. Sapio's account is particularly revealing, as it reflects not only a change in practice—men cooking and washing—but also a transformation in gendered subjectivities and moral reasoning. The change in gender division of labour observed in this study represents a significant but partial form of empowerment. It reflects the capacity of interventions like GASIP to initiate shifts in

both practice and perception, consistent with Kabeer's notion of achievement and FPE's emphasis on the fluidity of gender roles (Nightingale, 2006). However, its transformative potential ultimately depends on whether these changes are deepened, sustained, and accompanied by broader shifts in power and norms, rather than remaining isolated adjustments within enduring structures of inequality.

Importantly, the emphasis on "partnership" in Sapio's narrative aligns with emerging critiques of empowerment frameworks that call for a shift from individualised notions of women's empowerment toward relational and transformative approaches (Cornwall & Rivas, 2015). In this sense, the GASIP teachings appear to foster a model of shared responsibility, where men's behavioural change is integral to women's empowerment. This is significant, as it addresses a key limitation identified in the literature: interventions that focus solely on women often fail to transform the gendered structures that constrain their agency (Alemu et al., 2018; Connell, 2020).

It is worth highlighting that the examples of men changing and taking on 'prescribed women's domestic duties' and women doing the same were reported only at Punyoro (mixed-gender farm group). The finding suggests that the active engagement of both men and women in the gender transformation project can positively change detrimental gendered stereotypes and norms to support women's empowerment and achieve gender equality within patriarchal societies.

Another dimension that improved gender relationships, according to one woman respondent below the age of 35 years, was due to her upgraded beauty and improved dressing. She explained that:

I have learned to dress well and keep my hair in a way that makes me look attractive to my husband. Before, I did not pay attention to my appearance and could wear the

same dress for a week, and my husband would complain, but I didn't care[...] The GASIP teaching helped me understand that men are attracted to well-dressed women. Now I have the skills to keep my man at home and not drive him away to chase after other women. He sometimes compliments my outfits, and that makes me happy. (Komageamo, Korania)

Interestingly, opinions were divided on whether beauty upgrade and dressing well can keep their husbands at home or prevent infidelity, largely due to the negative past experiences of some beneficiaries in their relationships. Older beneficiaries pointed out that some husbands will still cheat on their wives regardless of all their beauty-related efforts. One woman, a 49-year-old respondent, explained that:

My sister, it does not work for all of them [married men]. For some of them, you can dress up like a wedding bride, but he will not notice your beauty. For me, I just concentrate on my trade and make money to take care of my children. He can do whatever he likes; I do not care. (Weworo, Koraina)

Another older woman agreed with Weworo, stating that “some husbands do not respect their wives and will cheat no matter how beautiful they dress” (Anaba, Korania). However, a few young participants felt that women should ‘look good’ and dress well for themselves because “I feel good and confident when I am well dressed” (Apuri, Korania)

From these responses, one can glean that in several dimensions, a woman's dressing well may positively impact her gender relations and confidence levels, which aligns with an emic understanding of women's empowerment. This highlights the need for women to establish their own agency, whether to look good for themselves, their husbands, or both.

Social Respect and Recognition

One significant dimension of empowerment that is underexplored in empowerment scholarship is the impact of social respect and recognition. A common theme that emerged was the excitement of women beneficiaries about gaining social recognition and experiencing greater respect from family members and neighbours due to their expanded businesses, newly acquired skills, and improved farm yields. One 58-year-old respondent observed: “Because we are doing well in both farming and business, people admire us and say good things about us in the village.” A younger respondent below the age of 30 concurred and added how she had gained recognition from her in-laws and colleagues in the market. She noted: “My in-laws and husband are happy with me for expanding my *pito* (local drink) business, making more money and supporting my husband financially [...]. Even some of the market women in the village admire me” (Walaga, Nagtunia). A man respondent reported being proud of his wife’s new achievement: “I am proud of my wife now; she supports me financially and has also expanded her business without my help” (Akologo, Punyoro).

Respondents observed that social recognition came with women beneficiaries’ abilities to implement new best farming practices and their equal capacity to help or teach others to improve their farm yields. Particularly for younger women, this did not necessarily align with their traditional expectations of a ‘young woman’ teaching an older man. Therefore, being equipped with new abilities and skills to help others is significant for those who have been marginalised and voiceless in their communities in the past. As an example, Kawia, a 24-year-old beneficiary, shared a compelling story about how her new knowledge from the project gave her recognition from an elderly man:

This programme has truly empowered me to gain respect and recognition, even from elderly men and women. You know, elderly people often do not take advice from us

because they believe we are not as knowledgeable as they are. But to my surprise, an older man like my father approached me and asked me to teach him how to prepare pesticides to control the worms (FAW). I taught him how to prepare it and assisted him in spraying it on his farm. He was happy because the neem tree pesticide effectively drove the worms away from his farm [...] You see, the young women in the programme are now respected and admired for what we can achieve with our new skills and teachings. (Kawia, Nagtunia)

The quote above shows how women beneficiaries are equipped with knowledge (resources) through the programme training, not only for themselves but also to disseminate it to others further. According to Kabeer's framework, women acquiring knowledge (resources) that enables them to transform gender inequalities, improve their well-being, and help others is empowerment. The benefits of teaching others were frequently reported in the FGD, including giving young women a voice, earning respect from men and the elderly, and fostering personal pride. Additionally, it was seen as a way to strengthen community bonds and unity. In addition, the findings demonstrate that the women beneficiaries are genuinely interested and willing to support others with their new insights and knowledge.

Social Network at the Community Level

Women beneficiaries experienced a sense of togetherness and unity through their lived experiences as poor rural women farmers in patriarchal communities, particularly due to their membership in susu savings groups. Women's participation in the GASIP and susu contribution meetings became an essential avenue for establishing new friendships and networks and strengthening existing ones. The susu saving groups served as a platform that provided women with benefits beyond what they might achieve as individuals, to what Kabeer refers to as "social resources" (2001, p. 20).

Women respondents explained that the susu group “has united the whole community into one big family [...]. I know it is because of all the members’ contributions I can obtain a loan in times of need” (Adizaa, Nagtunia). For Taanti, the programme and susu meetings have created opportunities “to come together as one family to share ideas, have fun, and collaborate to improve our livelihood and secure a better future for our children” (Taani, Korania). Speaking to social resources, one respondent explained how the programme has helped her expand social networks, beyond her community, promoting inter-communal relationships and fostering peace, trade, and development among them. One participant stated:

The GASIP has improved our social network through the susu contribution. Now we get to meet other people from different communities through the susu contributions. On the days of susu contributions, people from far and near come together [...]. It has also built peace and unity between Punyoro and other nearby communities. (Akeani, Punyoro)

Social networks providing information, peace and support are also considered social capital. For Winemi, a 31-year-old married woman beneficiary, the positive gender impact of the social resources was tied to the activities of susu and GASIP meetings, as well as the unity and care that members built among themselves. The group gathering mirrored a ‘safe space’ where members look out for each other’s well-being and progress:

During GASIP meetings and susu contributions days, we come together, share ideas, and play as one big family, which has strengthened our social bonds. We discuss how we are implementing the teachings about agricultural practices, family unity, couples loving one another and raising our children and providing education, new markets to improve sales [...] If my husband and I missed a meeting, other members will come to our house and share the teachings with us and others who could not attend [...] I feel

a sense of belonging, love, and happiness whenever they visit me at home. (Winemi, Punyoro)

As a result of the love and bonds formed within the groups, programme beneficiaries gained much respect and admiration in the community, which attracted others to join the GASIP programme since the programme was opened to all farmers who were interested.

Another impact of the GASIP was the social welfare wing established by the group members, which supported members in both good and difficult times. Women respondents gave examples of receiving ‘love, care, and support’ when they experienced contingencies such as childbirth, marriage and funerals. One of them, Asua, noted: “When my mother died, it was very difficult for me. The group members regularly visited in turns to console me. They also donated drinks to support the funeral” (Asua, Korania).

The quotes above resonate with responses from other women beneficiaries about having a ‘caring family’ they can lean on in both good and trying times of their lives. Evidently, through the social welfare support and the susu saving, the programme improved the collective agency, social capital and connectedness of members to have access to an informal social welfare system.

It is worth mentioning that special songs were composed by members and sung during every group meeting to demonstrate the bond and unity among members. The song at Punyoro is translated below:

We did not know each other before, but now we know each other and we can live happily together. 2x

Togetherness is sweet. We used not to know each other, but now we know each other, and we can work together, and there is unity and love 2x.

In addition to helping and supporting members, beneficiaries of the programme also became philanthropic, engaging in community initiatives for community development. Common among all groups was their dedication to tree planting in their communities as a climate change mitigation strategy, as well as the provision of fruits, medicine, and raw materials for the shea butter industry to support the community. The programme manager of GASIP attested to the zeal and commitment of the women beneficiaries when seedlings are supplied for planting and their continuous watering during the dry season to sustain the trees against harsh weather conditions.

Furthermore, produce from group farms was donated to health facilities to provide healthy and nutritious meals for patients. Notably, pregnant women and lactating mothers received fresh vegetables and soybeans during their regular visits to the community clinics to enhance their well-being and that of their babies. The group donations increased and encouraged more pregnant women to visit the clinic throughout their pregnancy and delivery, helping to reduce maternal morbidity and mortality in these rural areas.

Respondents reported that they enjoyed an improved status and gained more social recognition in their communities because community members appreciated their benevolence and the new knowledge they had acquired, which included encouraging pregnant women to seek antenatal care in clinics and promoting the well-being of babies.

The remaining 14 beneficiaries rated the social category as ‘mixed gender impact’. They indicated that while they enjoyed the unity and collective agency from the GASIP group level, there was no significant positive change in their gendered relations at the household level. In total, 11 of them were from the two communities with the women-only farm groups.

One of them reported that “I can say some [men] have changed but not all of them, especially the drunkards, like my husband, have not changed.” (Kania, Nagtunia). However, Kania was hopeful that “if he joins the GASIP meeting, the teachings can help him change”.

Kania’s comment about “if he joins the GASIP meeting” highlights a barrier and provides insight into the ongoing challenges of development programme intervention in achieving healthy gender relationships and eliminating structural inequalities that marginalise women and girls, particularly in the household sphere, where socio-cultural norms reinforce and reward hierarchy and patriarchy.

Children’s Well-being

A category of empowerment identified by participants, aside from the five GEM tool indicators, was children’s well-being. As discussed earlier in this chapter, women’s emic understanding of empowerment was inextricably linked with giving birth as well as ensuring a better future for them. Women’s hope for sustenance in old age is that their successful children will, in turn, care for them. A common theme worth mentioning was beneficiaries’ achievement in improving the well-being of their children, as well as instilling positive social morals which were in line with their perspective of empowerment. As such, women were proud to report that their children also experienced the project’s positive impact in several ways, such as “improvements in my children’s grades at school”. And for Wonuwora, a widow with no support from family members caring for her five children, she noted: “I have enrolled my first daughter to learn hair dressing, she will graduate this year in December to open her own salon. All thanks to the susu loan” (Wonuwora, Punyoro). A comment by a man beneficiary shows the positive transformation in the attitudes and behaviours of children, which he linked to the GASIP training.

GASIP taught us to come together as parents and train our children in love. Together with my wife, we correct and advise our children. Before, as a father, I beat them a lot and did not spend time with them as their mother did. However, the programme training has encouraged us to be one as parents, training them in love and winning their trust. My children are more respectful than before (Ayariga, Punyoro).

GASIP has also alleviated children's starvation and improved education, particularly during the lean season. As explained in this comment by a man beneficiary:

Before GASIP, some parents starved their children. Fathers sold stored food and wasted the money on alcohol, and some of the women, too. Ultimately, the stored food finished before the next farming season, causing the family to experience hunger in the dry season [...] However, with the teachings from GASIP, the majority of us have stopped drinking [alcoholic beverage], taking care of our children's needs and education. (Batako, Punyoro).

It is evident that the GASIP made parents more responsible for earning the respect and admiration (human resources) of their children and the community at large. And most importantly, the GASIP enabled women beneficiaries to acquire economic resources and new skills, providing for their children's education and investing in their well-being, while training them to be successful in the future, which will be their life support in old age. This supports the finding highlighted earlier in this chapter that children's well-being is a category of women's empowerment in the research communities.

Returning to Kabeer's empowerment framework, such an achievement is an act of empowerment. For example, 16 out of 24 focus group women participants rated the children's well-being category 'positive gender impact', and the remaining eight rated 'mixed gender impact' and several of them commented that they were not able to provide food throughout

the year for their children due to limited access to fertiliser, land, and tractor services highlighting these as a barrier that needs to be addressed.

Evidently, one can say that the GASIP project enabled women's empowerment through access to social resources, which, according to Kabeer, is a necessity for empowerment. They have also been able to utilise their social resources to improve their wellbeing and others, including gaining respect, expanding trade, promoting unity, reducing gender-based violence, transforming gender inequalities, and improving the well-being of their children. These, according to Kabeer, are achievements (empowerment).

Support and Barriers for Empowerment: the Perspective of Beneficiaries.

While evidence indicates a substantial positive impact of the GASIP on the empowerment of women beneficiaries, respondents identified specific barriers that limited their empowerment. These barriers reflect not only their personal challenges but also perceived obstacles to their empowerment supports. Generally, these encompassed external factors functioning at the individual, household, community, and structural levels that impeded their empowerment.

Individual-level barriers: Women respondents reported women's gendered reproductive duties as a hindrance to attending all programme meetings. Also, implementing new skills or techniques requires more time and effort in addition to their gendered reproductive role, resulting in women needing to make inevitable trade-offs to accommodate or increase their working hours, which becomes burdensome for them.

Furthermore, when discussing the barriers to implementing newly learned techniques and knowledge into practice for women's empowerment, a common theme that emerged was limited access to agricultural inputs such as fertiliser and farmland. As one woman noted, "Having the knowledge is one thing, and having the needed inputs to implement is another

thing”. Women beneficiaries indicated that limited access to farm inputs was due to high cost and poverty.

The third barrier revealed at the individual level from the findings was the forgetfulness of the detailed specifics of new skills and techniques learned to mitigate the impact of climate change and improve farm yields. This barrier was predominantly reported by women beneficiaries aged 50 and above. One of them, a 61-year-old farmer, noted, “I understand the training, but sometimes you know old brains cannot retain full data of information for long”; therefore, she has to “wait for the next training meetings to be retrained” (Adizaa, Punyoro). For the next beneficiary, who is also above the age of 50, when she forgot, she sought support from young group members. “I consulted the younger women in the group, and they gladly helped me with the information”. (Apegwine, Nagtunia)

Others encountered unique barriers because they lived a considerable distance from the project meeting venue. Lack of transportation and per diem to support transportation were barriers to women’s participation. Such women, like Suribono in Nagtunia, remarked, “I do not own a bicycle to ride on meeting days, and my house is very far from the meeting venue.” She further recommended that the programme should provide “small money for taking an okada (commercial motor) to programme meetings.”

Household-level barriers: Relational factors were reported as contributing to or hindering women’s empowerment. The common theme was women’s participation in securing their husbands’ permission to attend programme training and susu group meetings. One woman respondent noted that “my husband deliberately assigned work to me to do when it is time to go for programme meetings.” If she explained that she would do it after the meeting, he would accuse her of “not being submissive and challenging his authority in the house” (Welaga, Korania). Welaga’s comment resonated with respondents from other women beneficiaries from

women-only farm group communities. However, some women reported being able to convince their husbands to grant permission if all household responsibilities are completed before leaving.

Structural barriers: Limited access to farmland, fertiliser, and tractor services was a recurring theme reported by women beneficiaries as a significant barrier to their economic empowerment and well-being. One participant noted: ‘Women don’t own land. Only men do because of cultural norms in our communities,’ as has been extensively discussed in the previous chapter.

Support for Empowerment

Household support: Understanding and supportive husbands were reported to assist with women’s domestic duties so they could attend programme meetings, particularly when they observed that the programme meetings translated into improved financial and other benefits for their family. One man respondent confirmed: “At first, I did not want my wife to join the programme because I thought she would become arrogant, but seeing the positive change in her made me join the programme too. I help her with household chores and the children so we can attend meetings on time” (Kaba, Punyoro). Among the beneficiaries in Punyoro (a community where both men and women are beneficiaries), harmony and unity between husbands and wives empowered women to participate in group meetings with ease.

Community level support: Women respondents indicated receiving support within the programme environment that contributed to their feelings or experiences of empowerment. At the community level, women’s beneficiaries attested to the overwhelming support from other women project members in the group. As discussed earlier, a collective agency from women beneficiaries was an anchor that helped women, mainly dealing with household problems and abuse from husbands.

Furthermore, women beneficiaries stated that they enjoyed the meeting as a break from their stress and work, allowing them to socialise with other community members, build networks, and have fun.

Recommendations from Women Beneficiaries

Women beneficiaries shared several recommendations for improvement of the GASIP so they could be more empowered in the future.

1. The programme should adopt a comprehensive approach by including men in all programme communities. In the words of one beneficiary, “the project should develop new strategies to get men involved in this community to promote widespread education and knowledge” (Amaake, Korania). Including men will educate them by fostering an awareness of the significance of gender equality. This initiative has the potential to significantly enhance the programme’s transformative capabilities, thereby improving gender relationships, restructuring institutional frameworks, and challenging prevailing stereotypes and values associated with gender inequality, as evident in Punyoro, the only community in which men were active participants in the GASIP.
2. “GASIP should organise special meetings for our teenagers to instil good manners so that they will take their formal education seriously. [...] My children are my future; that is why I am working hard to take care of them.” (Tepora, Punyoro)
3. Prioritise women farmers for the provision of subsidised fertilisers, tractor services, and other agricultural inputs at the beginning of the farming season. In the words of Taati:

You know that women cannot compete with men for tractor services. The government should provide special tractors only for women farmers to help us plough our farms on time before the rains stop [...]. GASIP should supply subsidised fertilisers, condemn [name of a weedicide] and other important farm inputs for us.

Buying from stores is very expensive, and many women cannot afford it. (Taati, Nagtunia)

4. GASIP should assist women in accessing farmlands, particularly by designating a section of land for women at the irrigational sites. “As women farmers, our biggest challenge is accessing land, so GASIP should help us access farmland at the canal (irrigation site)” (Wesono, Koria)
5. Provision of loans to women for business diversification and shea butter extraction. “We want support in terms of money (loan with low interest) so we can expand and improve our farms’ yields as well as expand our businesses” (Adizaa, Koria).

Discussion

This chapter examined the gender empowerment impacts on women beneficiaries following the implementation of the GASIP within the context of entrenched patriarchal gender discriminatory norms prevalent in northern Ghana society, which reinforces the oppression experienced by women and girls at both the household and community levels. Through the feminist approach of the GEM tool (a focus-group discussion toolkit), which allows women to define empowerment or offer an emic understanding of empowerment, the tool reveals varied ways women perceive empowerment.

Local Definitions of Empowerment.

The emic understanding of an empowered woman among the women participants was primarily focused on ‘power with,’ which refers to the relationship with others and their triple gendered roles, encompassing reproductive, productive, and community aspects within the studied context. This finding is consistent with Abdu (2023), who posits that from women’s perspective, empowerment was relational.

From Kabeer’s perspective, the women’s focus on relational empowerment reflects the ways in which resources are socially mediated. Access to land, tractor services, labour, income, and social support in SSA—including Ghana and similar settings—is often negotiated through kinship ties, marital relationships, and community networks. As such, women’s ability to act (agency) is not detached from others but is instead enabled or constrained through these relationships. The notion of ‘power with’ therefore represents a form of agency that is exercised through cooperation, negotiation, and mutual interdependence, rather than resistance or independence alone.

The finding that empowerment is understood as relational also complicates dominant Western feminist discourses that prioritise individual autonomy and independence as the primary markers of empowerment (Chant, 2016). While such perspectives align with a more individualised interpretation of Kabeer’s “agency,” they risk overlooking the ways in which collective agency and interdependence function as meaningful and contextually appropriate forms of empowerment. Kabeer herself cautions against universalising notions of empowerment, emphasising instead that what constitutes a “choice” or a “valued achievement” is context-specific and socially embedded.

The finding calls for a more nuanced interpretation of agency—one that recognises the legitimacy of relational and collective forms of power in shaping women’s lives and advancing their wellbeing.

In particular, women highlighted the importance of happiness and unity in marriage and childbirth as empowerment. A married woman with children in a country like Ghana that promotes pronatalism is significant for women’s empowerment. This supports Samari’s (2017) argument that women who embrace sociocultural norms and give birth are associated with increased empowerment. Women getting married and having children, particularly boys, in patriarchal societies is empowering because of cultural norms on women’s roles, societal praise of marriage and motherhood for women and the reward of improved status that comes with benefits, such as access to land. Therefore, married women gain access to resources and agency to fulfil their goals more than unmarried women. This finding supports the argument that women conforming to social norms gain agency, as this allows women to maintain social networks as well as achieve their goals (Meinzen-Dick et al., 2019).

The findings also reveal that women considered having children and training them to be responsible adults in the future as an empowering experience. Women value children as their

future security and caretakers in old age, demonstrating a willingness to ensure their well-being and making all necessary sacrifices, including remaining in an abusive marriage. This substantiates Okoli's (2024) study that children are essential for the future empowerment and flourishing of women because women self-sacrifice in ensuring the well-being of their children, and children often hope to return this kind gesture when they are equipped to do so in the future.

The results further reveal that an empowered woman was described as a homemaker and a submissive wife who respects and obeys the commands and wishes of her husband. This supports findings from scholars such as Eissler et al. (2021) and Meinzen-Dick et al. (2019). This finding appears to contradict 'autonomy', a dimension of empowerment in the Western literature of empowerment.

This finding complicates Kabeer's (1999) conceptualisation of empowerment as the expansion of individuals' ability to make strategic life choices, particularly where such choices challenge existing power hierarchies. The description of an empowered woman as a homemaker and a submissive wife who respects and obeys her husband appears, at first glance, to reflect what Kabeer would characterise as limited agency, or even a form of 'negative agency' embedded within a 'power over' relational structure. In this sense, women's conformity to patriarchal expectations may be interpreted as the internalisation of restrictive gender norms rather than their transformation.

However, such an interpretation risks imposing a universalised, individualistic understanding of empowerment that may not adequately capture lived realities in contexts such as rural Ghana. In highly patriarchal settings marked by entrenched gender inequalities, agency is often exercised within, rather than outside of, existing social structures. As Abdu (2023) argues, women's empowerment in such contexts is relational and negotiated, grounded in maintaining social harmony and fulfilling culturally valued roles. Thus, women's adherence to norms of

submissiveness and respectability may not simply signify subordination, but can constitute a strategic form of agency aimed at securing stability, social acceptance, and incremental gains within the household.

This aligns with broader feminist scholarship on “bargaining with patriarchy” (Kandiyoti, 1988), where women comply with dominant gender norms as a calculated strategy to maximise security and influence within constrained environments. From this perspective, performing the role of the “good wife” can enable women to build trust, strengthen marital relationships, and subtly negotiate access to resources or decision-making power. Such forms of situated agency are not overtly resistant but are nonetheless purposeful and contextually rational.

The findings of the study concur with scholars such as Eissler et al. (2021) and Pane Solis (2022) on the relevance of economic stability for women’s empowerment. Women described economic stability as having a stable job, running a business, and being a commercial farmer. The importance of economic stability, as emphasised by women, included the ability to provide for herself and her family, especially her children, as well as helping friends, gaining respect from husbands, and achieving greater autonomy and household decision-making.

The definition of empowerment, which is not widely recognised in the literature, was associated with good health. The findings suggest that good health serves as the fundamental resource for attaining all other resources or categories of empowerment, including economic stability, social network, self-confidence, physical security, marriage, happiness, children’s well-being, and other life achievements. In the subsequent section, the chapter discusses the impact of GASIP on beneficiaries within the research communities.

Lastly, while this chapter operationalised Kabeer’s empowerment framework, women’s emic understanding of an empowered woman did not neatly align. These findings would not have

been possible without the utilisation of the GEM tool, which examines the development of a local definition of empowerment.

The Impact of GASIP

Regarding the impact of GASIP on women's empowerment outcomes, the findings offer several insights for assessing women's empowerment and inform projects aimed at supporting their empowerment. GASIP had a positive gender impact on the empowerment outcomes of women beneficiaries across all six identified dimensions of empowerment (economic, knowledge, social, self-confidence, physical security and children's well-being), albeit to varying degrees.

In accordance with the project intervention for women empowerment literature, women beneficiaries indicated that it had a positive gender impact on the economic category through the susu contribution box (Boachie & Adu-Darko, 2022; Rickard, 2022), improved knowledge (Eissler et al., 2021; Meinzen-Dick et al., 2019), physical security (Keith et al., 2023; Meinzen-Dick et al., 2019), social networks (Breza & Chandrasekhar, 2019; Pane Solis, 2022) and self-confidence (Daher et al., 2022; Eriksson & Kyhle, 2021), and children's well-being (Okoli, 2024). These findings align with Kabeer's (1999) empowerment framework, which highlights the importance of resources—including economic, human, and social—as key enabling factors that allow individuals and groups to exercise agency or expand their capacity to make choices.

The research findings suggest that, in addition to the five categories of the GEM tool, children's well-being is another significant component of women's empowerment in KNM. Among all the categories, the social networks have interesting nuances of impact that this chapter highlights in the following section.

The social networks of women beneficiaries were significantly enhanced through the GASIP meetings and the susu saving contributions. The frequent meetings associated with the susu saving and loans, over time, built trust, bonds, and a sense of togetherness among participants, which yielded social resources, social capital, and improved *power with* and *power to* agencies, resulting in substantial achievements in both the household and community domains that positively impacted across the six categories of empowerment. For instance, the susu savings contributed to improved economic resources and the power to access farm inputs, expand businesses, support men's gender-assigned expenditures, alleviate their financial burdens and provide for the needs of children. Furthermore, the bonds formed within the group extended to a welfare scheme that assisted members during joyful occasions, such as childbirth and marriage, as well as during difficult times, such as funerals. In addition, enhanced economic and human resources enabled women to confront the precarious power structures (*power with*) that constrain their well-being. Instances shared included women's involvement in strategic decision-making within the household and a reduction in GBV and domestic violence attributed to solidarity within the groups and training of GASIP. These findings corroborate prior research that shows that through the susu saving loans scheme, women experienced a sense of belonging and expanded social networks, contributing to a reduction in GBV and transforming entrenched cultural norms for their well-being (A. Z. Abdu, 2023; Eriksson & Kyhle, 2021; Meinzen-Dick et al., 2019).

The findings further reveal that barriers to women's empowerment in the communities include: limited access to productive resources such as land and fertiliser, women's gendered reproductive duties, transportation, old age, and securing husbands' permission before attending GASIP meetings. The support factors were husbands' approval and support from other women project members in the groups.

Women-only Versus Mixed-gender Farm Groups Empowerment

The findings further revealed nuances in how women experienced the impacts of GASIP, particularly concerning the approach to its implementation. The study demonstrated that GASIP implementation varied across communities, with significant implications for women's empowerment and gender equality. The results indicate that women beneficiaries in GASIP mixed-gender farm groups exhibited greater empowerment than those in women-only farm groups. For example, out of 13 women who rated the economic category as having a 'mixed-gender impact', just two were from Punyoro. In the social category, out of 14 women rating a mixed-gender impact, just three were from Punyoro. In the physical security category, out of 10 reporting a 'positive gender impact', more than half (six) were from Punyoro. More significantly, it was exclusively at Punyoro (a mixed-gender community) where gender roles were changed, with men participating in gendered roles traditionally assigned to women, such as cooking and bathing children and vice versa.

This finding provides an important entry point into broader debates on relational empowerment, intra-household dynamics, and the limits of women-focused development interventions as well as the relevance of including both men and women in gender transformation projects (Cornwall & Rivas, 2015; Jerneck, 2018; Kabeer, 2005; Marchand & Parpart, 2003). The contrast with mixed-gender groups is particularly instructive. The higher empowerment outcomes observed among women in the mixed-gender group suggests that the inclusion of men may have facilitated shifts in gender relations, however incremental. By engaging men within the intervention space, the findings suggest that the mixed-gender group created opportunities for renegotiating norms around labour division, decision-making, and control over resources.

Consistent with Agarwal's (2000) observation, the benefits derived from group participation are not experienced in isolation but are mediated through existing gender relations within households and communities. In the case of the women-only groups in Korania and Nagtunia, although participants gained improved access to credit and financial resources through GASIP, these gains did not translate into substantive empowerment. Instead, women reported that their husbands appropriated or redirected these benefits by transferring household financial responsibilities onto them. This reflects a pattern of what Kabeer (1999) conceptualises as "instrumentalisation without transformation," where women's access to resources increases, but their bargaining power and ability to challenge entrenched gender norms remain limited.

This aligns with emerging critiques of the WID approach, which has been criticised for its tendency to "add women" into development processes without addressing the structural and relational dimensions of inequality (Rathgeber, 1990). Women-only may also undermine the "potential and actual complementarities between men and women in terms of their knowledge and skills", which leads to ineffective development programmes and strategies (C. Doss et al., 2018, p. 73).

While women-only groups are often promoted within the WID tradition as safe spaces that enhance women's access to resources and collective voice, this study suggests that such gains may be constrained when the wider gendered power structures in which women are embedded remain unaddressed. In this sense, the relative success of mixed-gender (Punyoro) group resonates more closely with GAD perspectives, which emphasise the need to transform gender relations rather than focusing solely on women as isolated beneficiaries (Rathgeber, 1990).

In a related study conducted in southern Ethiopia, women participating in women-only apple cooperatives show limited bargaining power due to men's control over the apple business. Moreover, there were more conflicts between spouses, arguably resulting from an intensified

fight over control over household resources, which the authors referred to as “backlash effect” from husbands (Alemu et al., 2018). Similarly, in northern Ghana, Kent (2018) revealed that, development interventions targeting women’s shea butter industry to improve women’s financial income and wellbeing without addressing intra-household negotiation and compromises between men and women (commercialisation of women’s rights over this resource), instead of empowering poor women led to low remuneration and exploitation.

Evidently, the exclusion of men in Korania and Nagtunia (women-only group) undermined women beneficiaries’ gender relational aspect, deprived them of the capacity to transform socio-cultural gender inequalities, which inhibited the potential of gender transformation for gender equality and empowerment. The finding suggests that the active engagement of both men and women in the gender transformation project can positively transform detrimental gendered stereotypes and norms to support women’s empowerment and achieve gender equality within patriarchal societies in Ghana and SSA.

However, women may encounter entry barriers that hinder their participation in mixed-gender farm groups, which, in turn, negatively impact their empowerment (Mayoux, 1998; Mwambi et al., 2020). For instance, Mwambi et al’s (2020) study demonstrate that although the percentage of women and men involved in bargaining and processing dairy producer organisations in Kenya is not significantly different, women are nonetheless excluded from participating in decision-making processes. Women may be marginalised in mixed-gender groups, particularly in settings where cultural barriers to women and men working together are high (such as patriarchal communities). Women-only groups may be the most feasible approach to addressing women’s needs and enabling their full participation in collective actions/agency (Pandolfelli et al., 2008).

These findings highlight important factors for projects aiming to promote women's empowerment in patriarchal societies. The differences in empowerment impact observed across the research communities can inform gender-transformative interventions and reshape the GASIP project. Lastly, the findings show that the GEM tool is effective in providing rich contextual data to understand the meanings local people attribute to empowerment, as well as facilitating the in-depth examination of participants' experiences of gender equality and empowerment.

In summary, this chapter, from the standpoint of smallholder women beneficiaries of the GASIP, explored how SWFs perceived and experienced empowerment in their context. The women's emic understandings of empowerment often focus on different forms of agency, their relationships, and their gendered roles in reproductive and productive spheres within the studied context, including happiness in marriage and childbirth, economic stability, physical security, self-confidence, and social relationships. The chapter revealed that the components of the GASIP are instrumental in promoting women's empowerment to varying degrees across all six key categories of empowerment: economic, knowledge, physical security, self-confidence, social, and children's well-being. However, several barriers, particularly access to land, agricultural inputs, and patriarchal gender discriminatory norms, threaten their experiences of empowerment. The GEM tool and the qualitative findings that arise from the FGDs offer several critical insights for examining women's empowerment and informing GASIP project officers and other future development interventions that aim to support women farmers' empowerment in the Upper East Region of Ghana.

The next chapter is the conclusion chapter of this dissertation.

Chapter 8: Conclusion

Introduction

This final chapter summarises the study findings and key arguments that help answer the research questions. To situate the findings in perspective, the chapter begins by restating the research questions. Next, the chapter discusses the implications of the findings presented in Chapters Five, Six, and Seven, outlines the theoretical and methodological contributions, and suggests directions for future research on climate change and gender equality. The chapter also presents the limitations of the study and offers recommendations for gender equality and women's empowerment in terms of policies and practice.

Research Questions

The study was guided by three overarching research questions aimed at understanding SFWs' perceptions of climate change, their access to land for production, and their experience of empowerment through the GASIP. As outlined in Chapter One, these research questions are as follows:

- 1 How do smallholder women farmers perceive the impact of climate change on their agricultural production, and how are they mitigating it to sustain their livelihoods in the Upper East Region?
- 2 How are women farmers accessing farmland as a strategy to mitigate the adverse effects of climate change and enhance agricultural production in the Upper East Region?
- 3 What are the experiences of women beneficiaries regarding the GASIP and its impact on their overall empowerment in economic aspects, knowledge, physical security, self-

confidence, social networks, and any other recognised dimensions of women's empowerment?

Key Findings and Arguments

The research revealed that SWFs have observed the changing climate in terms of increasingly hot temperatures, erratic rainfall, floods, and drought, as well as environmental changes, including a decline in soil fertility, the invasion of FAW, and bird pests. Additionally, the chapter discussed that, despite their knowledge of effective coping strategies, the majority of women farmers, compared to men, could not implement them properly to ensure improved agricultural yields due to barriers emanating from patriarchy, gendered unpaid care work, socio-cultural norms, poverty, high cost of inputs, and gendered access to and control over resources. These findings and arguments, as documented in Chapter 5 of the dissertation, emphasise the importance of broadening the definition of climate change vulnerability beyond adverse impacts on agricultural production.

The results of the study also showed that SWFs' vulnerability to the adverse effects of climate change is not intrinsic but is inextricably connected to gendered unequal access to fertiliser, tractor services, land, and other agricultural productive resources. This argument underscores the importance of extending explanations of climate change vulnerability beyond mere exposure to climate hazards to include other equally essential barriers that individuals face in their capacity to cope with and adapt to climatic stressors.

Another empirical finding of the study is that northern Ghana is highly patriarchal, and women do not own land. Access to land is ingrained in patriarchal inheritance norms and practices, which position women's access as secondary to that of men. Women viewed their reliance on men relatives (for example, fathers, husbands, sons) to access land for farming as a source of oppression and disempowerment. The findings revealed that men primarily use their dominant

privileged position as landowners to control and manipulate the earnings and livelihood of women, which I call in this dissertation the *gendered weaponisation of land*. Gendered weaponisation of land exacerbates women's vulnerability to climate change, disempowers women and contributes to food insecurity. Also, the findings revealed that women and girls have been socialised in the household to accept men's dominance as the norm, which significantly undermines efforts towards women's empowerment, agency, and well-being.

The study also established that women's emic understanding of empowerment primarily focused on 'power with' (Kabeer, 1999), which refers to the relationship with others and their triple gendered roles, encompassing reproductive, productive, and community aspects within the studied context. Hence, the finding contradicts Western discourses that emphasise individualism over collectivism in the pursuit of women's empowerment (Chant, 2016). Also, women noted good health as the fundamental resource for attaining all other categories of empowerment, including economic stability, social network, self-confidence, physical security, marriage, happiness, children's well-being, and other life achievements.

The research also found that women beneficiaries in GASIP mixed-gender farm groups exhibited greater empowerment as 'positive gender impact' than those in women-only farm groups across all six empowerment categories of the GEM tool: economic, knowledge, social, self-confidence, physical security, and children's well-being. For example, it was exclusively at Punyoro (the mixed-gender community) where gender roles changed, with men participating in roles traditionally assigned to women, such as cooking and bathing children, and women were engaged in roles that are traditionally assigned to men.

Empirical and Theoretical Contributions and Directions for Future Research

The findings from this research attempt to contribute to various strands of literature and associated debates in several different ways.

This empirical contribution of the dissertation concerns gendered access to – and control over – land in a patriarchal society. This dissertation adds some new thoughts and dimensions to understanding Ghana’s SWFs’ experiences of accessing agricultural productive resources through the lens of FPE.

The first and second empirical Chapters (5 and 6) of this dissertation affirm important components of FPE by revealing the ways in which gender intersects with other axes of power, such as the gendered division of labour, patriarchal norms, location, marital status, and land commodification, to determine access to – and control over – agricultural productive resources, including land, tractor services, and organic fertilisers. Furthermore, this intersection of power axes generates different forms of discrimination and privilege, unique identity and experiences of women and men in mitigating climatic and environmental hazards in the particular context (Collins, 2000; Runyan, 2018).

The findings reveal that while women have limited access to land owing to patriarchal inheritance practices, women with children in non-irrigated communities possess more access to land than men through the pathway of renting (begging); and among the women, widows and women married into the community have greater access. According to the analyses of comments from the research participants, landowners (primarily men) opined that women care for and provide food for the children and the home. This finding reveals there is a gradual recognition of women’s roles and contributions in sustaining the well-being of children, food security, and family well-being at the household level.

However, this access is very insecure and lacks strong tenure rights. Women’s usage rights often depend on the ongoing goodwill of landlords. This conditional access constantly risks women losing land, especially when land improvements increase its value, prompting landlords to reclaim it. Consequently, while these informal arrangements can temporarily increase

women's access to productive resources, they also heighten their vulnerability and limit the potential for long-term empowerment, agency, and livelihood improvement.

A major finding of this dissertation is that women experience heightened vulnerability to the adverse effects of climate change, not simply because of exposure to climate change, but due to patriarchal and socio-cultural norms that structure their access to critical productive resources. Women's limitation and often insecure access to land and tractor services constrain their ability to adopt climate-resilient agricultural practices, such as soil conservation, and long-term land improvements. As climate variability intensifies, timely land preparation becomes critical; however, women's dependence on male-controlled mechanisation often results in delayed planting, reduced yields, or crop failure. These constraints illustrate how climate impacts are mediated through existing inequalities in resource control in northern Ghana.

Additionally, in exploring these dynamics, this dissertation advances existing understanding of climate change vulnerability by addressing the perceptions of women as being inherently closer to nature as a result of their roles. FPE underscores the gender inequalities and power dynamics within societies that lead to gendered access to – and control over - resources, which are ingrained in patriarchal and socio-cultural norms (Rocheleau, 1995; Moser, 1995; Carr, 2013; Vercillo, 2021).

The second important component of FPE that this dissertation affirms is that women are important knowledge-holders. This study contributes to amplifying women's marginalised and silenced voices in order to advance the practical, epistemological, and procedural basis of political ecology and environmental studies in achieving social justice and gender equality (Elmhirst, 2011; A. Nightingale, 2006; Sultana, 2021). Specifically, the findings shed light on how SWFs' perception of climate change, including increasingly hot temperatures, erratic rainfall, floods and drought, as well as environmental change, including a decline in soil

fertility, invasion of FAW, and bird pests, are consistent with scientific research findings in the Upper East Region. Although SWFs have primarily relied on their farming experience and past weather conditions to form their perceptions of climate and environmental changes, their observations generally align with the evidence of changes documented by the Ghana Meteorological Agency (GMA) monitoring stations for the past 40 years (Arfasa et al., 2024).

Third, this study broadens knowledge of women's agency and resourcefulness in environmental struggles and in navigating socio-ecological constraints to sustain and improve their livelihoods (Hovorka, 2006; Wangari et al., 1996). Over the years, FPE has illuminated the nuanced and complex (re)negotiations of power in which women are continually challenging their structural limitations and actively working towards empowerment and agency across scales (Hovorka, 2006; D. E. Rocheleau et al., 1996; Syhre & Brückner, 2018). The study elucidates how women's perceptions of climate and environmental change influence their coping strategies and resilience practices in agricultural production in Ghana, positioning them as active agents of change despite prevailing gender inequality, as well as structural, economic, and socio-cultural constraints to resource access. Therefore, the dissertation reinforces the importance of including indigenous situated knowledge and resourcefulness of women and men regarding climate and environmental change in scientific models aimed at mitigating the adverse effects of climate change in Ghana and across Africa.

Furthermore, this study reinforces the importance of highlighting how SWFs exercise their agency in environmental struggles to sustain their livelihoods and food security in agrarian livelihood vulnerability studies. Women's agency and resilience are often overlooked or excluded in climate change vulnerability studies, portraying women merely as 'vulnerable others in need of help'.

The third empirical Chapter (7) contribution of the dissertation is an examination of GASIP's impact on women's empowerment and gender equality. While the necessity to utilise gender indicators to measure the gender mainstreaming effort in the agriculture sector has been acknowledged in policy reports from Ghana (Ministry of Gender, Children and Social Protection, 2015), to the best of my knowledge, this dissertation constitutes the first study to provide evidence on the GASIP. Also, feminist investigations into the impacts of development interventions from women-only or mixed-gender farm groups on gender equality and women's empowerment have produced insights that point to the recognition and transformation of gender inequalities or if their participation exacerbates exploitation, as women's work burdens increase due to participatory policies (Adu-Boahen et al., 2024; Basu et al., 2019; Dohmwirth & Hanisch, 2018; Dohmwirth & Liu, 2020; Kabeer, 1994; Okoli, 2024). This dissertation adds to this debate by examining the impact of GASIP on women's empowerment and gender equality in women-only and mixed-gender farm groups.

Methodological Contributions

The use of qualitative methods, particularly FGDs guided by the GEM tool, permitted the engagement of participants in collective discussions to explore the experiences, perceptions, meanings, ratings, and nuances of the concept of women's empowerment from women and men beneficiaries. The qualitative, multidimensional empowerment measurement approach, known as the GEM tool, ensured a flexible, inclusive, participatory, and intersectional approach to data collection, providing rich information on the different dimensions of women's empowerment. The integration of the Global Affairs Canada GEM toolkit (Global Affairs Canada, 2022) and Kabeer's (1999, 2001) empowerment framework helped to contextualise and gain a more comprehensive understanding of the findings, as well as address challenges associated with measuring women's empowerment (Glennerster et al., 2018; Malhotra et al.,

2002; Mayoux, 1998; Richardson, 2018). The incorporation of the Global Affairs Canada GEM toolkit also facilitated the comprehensive capture and validation of the dimensions of empowerment that were significant to the study population, as well as the emic meaning of empowerment within their socio-cultural context.

Lastly, my methodology and fieldwork experience would also be valuable for emerging scholars beginning their research careers, particularly within rural communities of Ghana and other SSA nations. As a Ghanaian woman researcher affiliated with a Canadian university, collecting data and generating knowledge with both men and women participants within patriarchal research communities proved to be a challenging task. My navigation of the dual identities held as an ‘insider’ and ‘outsider’ complicated as well as enriched my research in various ways, as discussed in detail in Chapter 3. For instance, while women participants appeared more at ease in FGD expressing their views on sensitive issues on gender relations, I encountered several gender stereotyping remarks and behaviours with men’s focus group participants. I am aware that such occurrences are unlikely to be directed towards a male researcher. My personal experiences, discussed in this dissertation as a female researcher, can assist novice female researchers in overcoming similar challenges in field research.

Limitations of the study

The measurement and definition of women’s empowerment are associated with limitations. First, the translation of the concept of ‘empowerment’ into the local dialect (Kasem) by the local translators may have been influenced by their own cultural biases and life experiences. Additionally, some relevant nuances related to empowerment may have been lost in translation due to a lack of equivalent words in the local language for specific phrases or concepts (Glennerster et al., 2018). Furthermore, gender relations, socio-cultural norms, and gender stereotypes that shape women’s agency and empowerment may be sensitive topics within

certain communities, potentially leading individuals to refrain from expressing their genuine views on the matter.

The dissertation cannot claim a comprehensive examination of the GASIP empowerment impact on women's beneficiaries because it may be possible that beneficiaries may have been empowered before joining the programme or vice versa. The dissertation did not examine the empowerment and agency of women who were not beneficiaries – or were inactive participants - of the GASIP in the research communities. Future research that explores inactive participation of individual members and the experiences of non-participants could provide additional in-depth insights into the impact and potential limitations of GASIP on women's (dis)empowerment.

Policy Implications and Recommendations

There is global recognition of the importance of women's empowerment and gender equality in achieving the SDGs, particularly in meeting Goals 1 (eradicating poverty), 2 (ending hunger), 5 (gender equality), 4 (quality education) and 13 (climate action). Despite Ghana's dedication to gender equality and the empowerment of women in official policies, the gender inequality gap persists in various sectors of the economy, including the agricultural sector. In SSA, Ghana was ranked poorly for gender equality measures, at 88th out of 146 countries, reflecting significant disparities between women and men nationwide, especially among rural populations involved in the agriculture sector (World Economic Forum, 2024).

The study's findings demonstrate that SWFs' vulnerability to the adverse effects of climate change is not intrinsic but is inextricably linked to economic factors, gendered unequal access, and limited access to fertilisers, tractor services, land, and other agricultural productive resources needed to cope. Based on these findings from the dissertation, the following

recommendations are proposed to help improve gender equality, women's empowerment, food security, and meet the SDGs in the Upper East Region and similar areas in Ghana and SSA:

1. The government of Ghana and its development partners should integrate gender transformative strategies in development programmes, paying attention to gender relations and intersectional realities of women's and men's lived experiences, accounting for age, class, ethnicity, race, socio-cultural norms, education, religion, marital status, (dis)ability, and sexual orientation.
2. The government should collaborate with all key stakeholders, including traditional authorities, Tindanas, state bureaucrats, and donor organisations, to promote the pursuit of women's access to land and other agricultural inputs as a human right and promote effective representation of marginalised voices in current land reform processes and structures to ensure gender equality.

In conclusion, this dissertation has demonstrated that women's vulnerability to climate change in northern Ghana is not solely due to environmental exposure but is also deeply rooted in structural inequalities within patriarchal systems. By highlighting SWFs' lived experiences, knowledge, and agency, the study offers a more nuanced and socially informed understanding of climate vulnerability and resilience. Ultimately, achieving gender equality and climate resilience requires not only technical solutions but also transformative changes in social relations, resource governance, and development practices.

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APPENDICES

APPENDIX A: CERTIFICATE OF ETHICS APPROVAL

12/06/2023

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

Numéro du dossier / Ethics File Number

S-05-23-9208

Titre du projet / Project Title

Understanding Smallholder
Women Farmers' Experiences of
Food (In)security in Ghana: A
Qualitative Analysis

Type de projet / Project Type

Thèse de doctorat / Doctoral
thesis

Statut du projet / Project Status

Approuvé / Approved

Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)

12/06/2023

Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)

11/06/2024

Équipe de recherche / Research Team

**Chercheur /
Researcher**

Affiliation

Role

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Chercheur Principal /
Principal Investigator

Rebecca TIESSEN

École de développement international et mondialisation / School of
International Development and Global Studies

Superviseur / Supervisor

Conditions spéciales ou commentaires / Special conditions or comments

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

Le Comité d'éthique de la recherche (CÉR) de l'Université d'Ottawa, opérant conformément à l'Énoncé de politique des Trois conseils (2014) et toutes autres lois et tous règlements applicables, a examiné et approuvé la demande d'éthique du projet de recherche ci-nommé.

L'approbation est valide pour la durée indiquée plus haut et est sujette aux conditions énumérées dans la section intitulée "Conditions Spéciales ou Commentaires". Le formulaire « Renouvellement ou Fermeture de Projet » doit être complété quatre semaines avant la date d'échéance indiquée ci-haut afin de demander un renouvellement de cette approbation éthique ou afin de fermer le dossier.

Toutes modifications apportées au projet doivent être approuvées par le CÉR avant leur mise en place, sauf si le participant doit être retiré en raison d'un danger immédiat ou s'il s'agit d'un changement ayant trait à des éléments administratifs ou logistiques du projet. Les chercheurs doivent aviser le CÉR dans les plus brefs délais de tout changement pouvant augmenter le niveau de risque aux participants ou pouvant affecter considérablement le déroulement du projet, rapporter tout événement imprévu ou indésirable et soumettre toute nouvelle information pouvant nuire à la conduite du projet ou à la sécurité des participants.

The University of Ottawa Research Ethics Board, which operates in accordance with the *Tri-Council Policy Statement* (2014) and other applicable laws and regulations, has examined and approved the ethics application for the above-named research project.

Ethics approval is valid for the period indicated above and is subject to the conditions listed in the section entitled "Special Conditions or Comments". The "Renewal/Project Closure" form must be completed four weeks before the above-referenced expiry date to request a renewal of this ethics approval or closure of the file.

Any changes made to the project must be approved by the REB before being implemented, except when necessary to remove participants from immediate endangerment or when the modification(s) only pertain to administrative or logistical components of the project. Investigators must also promptly alert the REB of any changes that increase the risk to participant(s), any changes that considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project or the safety of the participant(s).

Kim THOMPSON

Responsable d'éthique en recherche / Protocol Officer

Pour/For Barbara GRAVES Président(e) du/ Chair of the Comité d'éthique de la recherche en sciences sociales et humanités / Social Sciences and Humanities Research Ethics Board

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APPENDIX B: RESEARCH INSTRUMENTS

I. Interview guide for key informants (GASIP program officials)

1. Can you start by telling me briefly about your position at [organisation] and your role in this project?
2. What are some of the forms of gender inequality that are prevalent in this region?

3. Can you describe some of the challenges of working to promote women's empowerment and gender equality in this context?
4. Can you describe whether and how women's empowerment and gender equality goals have been integrated into the GASIP project?
5. To what extent were intersectional considerations such as age, ethnicity, religion, etc. incorporated into the project's design and implementation?
6. What have been the most noteworthy women's empowerment and gender equality results of this project? Could you provide examples?
7. Which elements of the project were the most important for achieving these results and why?
8. In your opinion, how sustainable are these results?
9. Did this project have any unintended negative impacts on women's empowerment and gender equality? Could you provide examples? What lessons can be learned from these instances?
10. Conclusion, is there anything else that you would like to add before we end our conversation?

II. Interview guide for key informants (NGOs on women empowerment and agriculture)

1. Can you tell me a bit about this organisation and about yourself and the work you do at this organisation?

2. How does your organisation promote gender equality and women's empowerment in this region?
3. Do you offer programs or projects that specifically target women? Can you tell me about these programs?
4. What are some of the challenges to supporting the empowerment of women farmers in Ghana?
5. What are some of the challenges you see for women farmers living in rural farming communities?
6. Do you know of some programs or examples of how young women's lives have been changed through innovative projects in food security or agriculture?
7. Can you share some stories of success of women in agriculture?
8. What do you think needs to be done to promote improved agricultural practices and food security for women in Ghana?
9. Beyond the economic and political possibilities, are there other important strategies for empowering girls?

III. Interview guide for key informants (Agriculture extension officers)

1. As an agriculture extension officer, please tell me about your duties in the farming communities?
2. How have your farm activities changed in the past 10-20 years?
3. Tell me about the environment and climate change, and how it affects women and men farmers?
4. What technology or practices are being encouraged for smallholder farmers?
5. Are your services accessible to all categories of farmers? If not, why?

6. Do male and female smallholder farmers have equal, adequate, and timely access to your services? How? Why?
7. From your interactions with farmers, what are the challenges of smallholder women farmers (SWFs) in these communities?
8. What strategies are implemented to tackle these challenges?
9. What do you think needs to be done to promote improved agricultural practices and food security for women farmers in Ghana?
10. What do you envision for the future of smallholder women farming in this region/community in relation to food security?
11. What other interventions do you think might better serve the agricultural resource needs of SWF in the region/community? equal rights to men?

IV. Interview guide for SWFs (GASIP beneficiaries)

1. How have your farm activities changed in the past 10-20 years?
2. Tell me about the environment around where you farm and how it impacts your activities?
3. How has it changed 10 to 20 years? Why do you think these changes are happening? Who and how are people affected by these changes?
4. How has this affected your farming and household food security?
5. What do you do, and what does your community do to adapt to these environmental changes?
6. How do you access farmland? Which land do you not have access to, and why? How has this changed in the past 10 years, and why?
7. How do you access other agricultural inputs, such as seeds and fertiliser? How has it changed over time? And why?

8. How do you access the services of extension officers? And how often do you do it?
9. Do you have equal access to these resources as compared to smallholder men farmers?
10. If not, what are the reasons that explain these different experiences of access to agricultural resources (focusing on cultural norms, customary law, and national/civil law)?
11. What impact have these differences in access to land and agricultural inputs had on your farming activities, livelihood and wellbeing?
12. What challenges do you face as a SWF? What do you do to mitigate/or tackle these challenges?
13. How have you benefited from government or other actors, associations and policy (who, which)? Why?
14. Is there anything they do not provide that you want? Anything they provide that you think is not useful/want to change?
15. What other factors will contribute to your well-being or empowerment?

V. Focus group discussion guide with SWFs beneficiaries

Land access

1. How have your farm activities changed in the past 10-20 years?
2. Why do you think these changes are happening?
3. Who and how are people affected by these changes?
4. How do you access land for farming?
5. Do you have equal access to land as compared to smallholder men farmers?

6. If not, what are the reasons that explain these different experiences of access to agricultural resources (focusing on cultural norms, customary law, and national/civil law)?
7. What impact have these differences in access to land and agricultural inputs had on your farming activities and household food security?
8. What do you do to mitigate/or tackle these challenges as individuals and as a group?

GASIP

1. What does gender equality and empowerment look like? How would you describe an empowered woman?
2. What does it mean for men and women to be equal? What does it mean for women to have equal rights to men?
3. In what ways are you currently empowered?
4. How has the project (GASIP) contributed to your empowerment in these five different domains :(economic, knowledge, physical security, self-confidence, and social) and any other not mentioned in this list.
5. How has the project impacted your experiences of empowerment? (no gender impacts, negative gender impacts, mixed gender impacts, positive gender impacts)? If so, can you provide an example?
6. What are the barriers and supports for your empowerment in the project environment?
7. How might this project be improved to provide more benefits to women participants like yourself, or to benefit other women in the community? What would help you to be more empowered in the future?