CHRISTIAN SERVICE UNIVERSITY COLLEGE, KUMASI

# IMPACT ASSESSMENT OF GOLDFIELDS GHANA FOUNDATION AGRICULTURAL PROJECTS AND EXTENSION SERVICES ON AGRICULTURAL SUSTAINABILITY IN GHANA; A CASE OF PRESTEA HUNI-VALLEY MUNICIPALITY

BY

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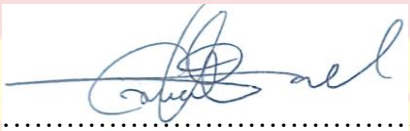
# DECLARATION

## Candidate's declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.



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## Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidance on supervision of dissertation laid down by the Christian Service University College.

Supervisor's Signature …… Date …….

Name: Dr. Nicholas Kofi Nti

## ABSTRACT

Agricultural and food security is a concern in Sub-Saharan Africa and this has invited the intervention from both government and private sectors. Gold Fields Ghana (GFG), a leading gold mining company in Ghana is a significant contributor to the nation's tax revenue, and an industry leader in socio-economic development. It has created Gold Fields Ghana Foundation (GFGF) to provide financial support to the company's development initiatives, projects and programs in health, education, agriculture and infrastructure. The agricultural projects have been in existence for some years now but no assessment has been done on its impact on agricultural and food security in the country, hence the aim of the present study. The study used mixed method and recruited 180 farmers from 9 communities within the Goldfields Tarkwa and Damang mines catchment area located in the Prestea Huni Valley and Tarkwa Nsuaem Municipalities. The primary data was collected from the respondents by the use of questionnaires and interview guides while secondary data was obtained from related literature and other useful and relevant published materials. Data was analysed using SPSS version 22 at significant p-value <0.01, 0,05 and 0.1. The study revealed that Youth in Organic Horticulture Production (YouHop), Community Oil Palm Production Project and Cocoa Farmers' Support Program are the main agricultural projects provided by the GFGF and the participated farmers receive Training, Personal Protective Equipment (PPEs), Farm Inputs, Farm Tools, Financial and Extension Support. The top 3 problems faced by the beneficiaries were a limited number of a selected farmers for the projects, high extension agent-to-farmer ratio, and inadequate extension service officers. The findings also showed that, GFGF project has highly improved the income of the beneficiaries and about 85% of the farmers were satisfied with the service of the Extension agents. The study also revealed that community acceptance and project

ownership, cost-sharing for services, economic benefits and livelihood impact and sustainable exit plan are factors to influence the farmers' willingness to sustain the projects beyond the GFGF funding. The study concluded that, the GFGF agricultural project is very profitable and has improved the productivity and livelihood of farmers in these communities. The study recommended the expansion of the project reach through partnerships, enhancing extension services and communication, implementing a sustainable exit strategy, and establishing a robust monitoring and evaluation framework to guide informed decisions and maintain project alignment with objectives.

## KEY WORDS

Food security

Food sustainability

Agricultural Projects

Agricultural Extension Services

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I would like to extend my deepest appreciation to the Goldfields Ghana Foundation (GFGF) for their invaluable support and collaboration throughout the study. Their willingness to share insights, provide essential data, and facilitate access to pertinent resources greatly enriched the quality of our research.

Special recognition is reserved for my family, colleagues at work and church CACI FWC, Tarkwa, whose immeasurable contributions have shaped my education and life as a whole.

I acknowledge that I could not have embarked on this journey without the guidance of the Almighty. He is the Alpha and the Omega, the beginning, and the end. To my dear God, I am eternally thankful for your unwavering support and enduring kindness. Your love and mercy know no end, and for this, I am truly blessed.

## DEDICATION

This thesis is dedicated to my wife, Mrs. Wilhemina Osei Boakye, my lovely daughters (Aurelia Safoah Osei-Boakye and Princess-Theodosia Osei-Boakye), my supportive brother Dr. Emmanuel Crystal Osei Akoto and my parents for their kind support, prayers and love.

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| | |
|---|---|
| GFGF | Goldfields Ghana Foundation |
| PHMA | Prestea Huni Valley Municipal Assembly |
| ROI | Return on Investment |
| SDG | Sustainable Development Goals |
| SPSS | Statistical Package for the Social Science |
| UN | United Nations |
| YouHoP | Youth in Organic Horticulture Production |

# CHAPTER ONE

# INTRODUCTION

A broad overview, the problem statement, the research questions, the goal and objectives of the sinvestigation, the significance of the study, the limitations and delimitation of the study, and definition of terms are all provided in Chapter 1 and it ends with summary of all the chapter entails.

## Background of the Study

The world's population is rapidly increasing and according to (UN, 2022) projections, it is expected to increase by nearly 2 billion persons in the next 30 years, from the current 8 billion to 9.7 billion in 2050 and could peak at nearly 10.4 billion in the mid-2080s. The planet should therefore be prepared to handle the anticipated significant population rise. This growing population will call for an increase in food demand. (Falcon, Naylor, & Shankar, 2022) projected that there will be a 50–60 percent increase in total global food demand by 2050. Analysis done by (Hunter, Smith, Schipanski, Atwood, & Mortensen, 2017) shows, that "an increase of approximately 25%–70% above current production levels may be sufficient to meet 2050 food demand but this achievement will be challenging. They continue to argue that, "Although even a 25%–70% food production increase will be challenging, global agricultural output is at least on the right trajectory". One of humanity's greatest challenges in the next century will be ensuring that there is enough high and quality food available. (Viola & Marinelli, 2016). This implies that there will be more pressure on agricultural lands due to the potential increase in demand. Therefore, it is imperative to adopt efficient measures that will help increase productivity per unit area of land to meet the food and nutrition security needs of the growing population (Ali, Agyekum, & Addai, 2021)

Global support for the Sustainable Development Goals has focused attention on efforts to up-scale the adoption of Sustainable Agriculture Practices in developing countries where growth in populations and incomes compromises the resilience of natural resources (Setsoafia, Ma, & Renwick, 2022). Many institutions have credited sustainable agricultural practices as a viable solution that helps tackle the world's feeding problems and worsening environmental issues (Setsoafia, Ma, & Renwick, 2022). The adoption of sustainable agricultural practices has been recommended by many experts and international institutions to address food security (Setsoafia, Ma, & Renwick, 2022). Additional policy efforts are needed to manage food demand by reducing food waste (West, et al., 2014) and shifting diets (Davis, Gephart, Leach, Galloway, & D'Odorico, 2016). We must also halt cropland expansion and ensure that the world's poorest people have secure access to nutritious food (FAO et al. 2015).

Food security is a fundamental aspect of human and social development. Per the 1999 World Food Summit working definition, food security describes a situation in which "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (WFP & FAO, 2021). Ghana faces eminent food insecurity as the average yield has not been growing. In almost two decades, the importation of commercial food and food aid have reached about 4.7% of food needs (Darfour & Rosentrater, 2018). Food production and availability per year is dependent on rainfall during and between growing seasons, and the level of production. This creates food insecurity at household levels, making community areas poor and chronically distressed.

Ghana is generally food secured, but there are pockets of food insecurity existing in all regions as a result of acute limited resources and limited alternative livelihood chances for most people to meet their dietary needs (Darfour & Rosentrater,

2018). Ghana's economy is predominantly agrarian, with almost half of the population engaged across all aspects of the agricultural value chain (i.e., from the producer to the consumer). With the increasing trend of the Ghanaian population, it is projected that pressures on agricultural lands and food production will increase drastically in the near future (Ali, Agyekum, & Addai, 2021). Sustainable agricultural in Ghana is seen as a way to strengthen food security, alleviate poverty in the country and promote private sector growth.

The private sector has a vital role in addressing food security issues, and several corporations have stepped in to provide resources, knowledge, and funding for agricultural projects. Gold Fields Ghana Foundation (GFGF), a subsidiary of Gold Fields Ghana Limited, has played a significant role in the advancement of food security through its agricultural initiatives. Goldfields Ghana's foundation-supported agricultural projects have made a significant impact on food security in Ghana. By promoting sustainable farming practices and capacity building, the foundation has improved crop yields, reduced poverty, diversified food sources, and stimulated economic development in the regions it operates.

**Statement of the Problem**

The challenge currently facing global leaders revolves around the pressing need to alleviate poverty and ensure food security in a world marked by population growth, worsening climatic conditions, and high poverty rates. A report from the World Food Programme (WFP) and the Food and Agriculture Organization (FAO) in 2021 highlighted that 11.7% of Ghana's population, equivalent to 3.6 million people, faces food insecurity. This condition disproportionately affects those living in larger households, households headed by individuals with lower levels of education, male-headed households, and those with limited access to farmland.

In Ghana, addressing food security is not solely the responsibility of governmental agencies. It necessitates a collective effort involving the entire population and non-governmental organizations. The government of Ghana has instituted several agricultural policies aimed at promoting sustainable agriculture and food security. The country is a focus area for Feed the Future, an initiative aligned with the government's commitment to food security. It seeks to harness a shared sense of purpose among civil society, the private sector, and development partners (USAID, 2020).

However, despite these efforts, a study conducted by Armah, Nti, and Otoo (2019) in the rural farming community of Bibiani Ahwiaso revealed that a substantial 94% of the 210 farming households studied face the threat of food insecurity. This persistence of food insecurity occurs despite the existence of reports and policies like the Medium-Term Agriculture Sector Implementation Plan (METASIP) and the Food and Agriculture Sector Development Policy (FASDEP), which aim to enhance agriculture through improved farming technologies and post-harvest support for farmers.

In the year 2002, Gold Fields Ghana established the Gold Fields Ghana Foundation (GFGF), a Community Development Fund, to finance development initiatives, projects, and programs in the host communities of the Tarkwa and Damang mines. Officially registered in 2004, GFGF has since implemented a range of agricultural projects in the Prestea Huni Valley. These initiatives, such as the Youth in Organic Horticulture Production (YouHoP), the oil Palm project, and cocoa farmers' support programs, were designed to generate employment and augment community members' income (Goldfields Ghana, 2022).

Despite their existence for over five years, there is a dearth of reports and studies evaluating how GFGF's agricultural projects have influenced sustainability and food security in Ghana. In 2017, the Ghanaian government introduced the flagship program "Planting for Food and Jobs" to tackle issues of low agricultural productivity and unemployment. It is imperative to assess the impact of the Gold Fields Ghana Foundation's agricultural projects on agricultural sustainability and food security in Ghana.

This research seeks to address this gap. It focuses on GFGF's agricultural projects in the Prestea Huni-Valley Municipality (PHMA) and aims to evaluate their influence on agricultural production, poverty reduction, and food access. Additionally, it aims to uncover the challenges encountered during project implementation and the strategies employed to overcome these obstacles.

**Purpose of the Study**

The study aims to assess the impact of Goldfields Ghana Foundation agricultural projects and extension services on agricultural sustainability in Ghana. In order to achieve the stated goal, the following objectives are set to meet it:

**Research Objectives**

1. To examine agricultural extension services and projects that Goldfields Ghana Foundation provides to farmers in Prestea Huni-Valley Municipality
2. To assess the challenges farmers in Prestea Huni-Valley Municipality face in accessing the agricultural extension services and projects of the Goldfields Ghana Foundation

3. To Assess factors influencing farmer's willingness to sustain agricultural extension services and projects beyond the funding of the Goldfields Ghana foundation
4. To investigate the impact of agricultural extension services and projects of Goldfields Ghana Foundation on the livelihood of farmers in Prestea Huni-Valley Municipality

**Research Questions**

1. What are the agricultural extension services and projects that Goldfields Ghana Foundation provides to farmers in Prestea Huni-Valley Municipality?
2. What are the challenges farmers in Prestea Huni-Valley Municipality face in accessing the agricultural extension services and projects of the Goldfields Ghana Foundation?
3. What are the factors influencing farmers' willingness to sustain agricultural extension services and projects beyond the funding of the Goldfields Ghana Foundation?
4. What is the impact of agricultural extension services and projects of Goldfields Ghana foundation on the livelihood of farmers in Prestea Huni-Valley Municipality?

**Significance of the Study**

This study will reveal to the public and the communities about the agricultural extension services and projects that Goldfields are offering in the country. This will draw farmers and communities' attention to the location, the number and the kind of services provided, which could increase their participation. This research will be the first of its kind in the country as it will provide report on how the goldfield foundation is helping to improve agricultural sustainability and food security. Agricultural

sustainability and food security is a major concern of the world (Viola & Marinelli, 2016). Therefore, the foundation can gain international applause through this studies and it will also be a source of information upon which researchers can build on.

Ali et al. (2021) did a SWOT assessment of Ghana's planting for food and jobs initiative and reported inadequate financial services as the highest weakness of Ghanaian farmers. The GFGF provides several services of which provision of inputs and fund are included. This study will provide the foundation with the unknown challenges preventing the farmers and communities from having access to their services.

**Delimitation of the Study**

The delimitation of the study was limited to the Prestea Huni-Valley Municipality and the period of 2007 to 2023. The scope of the research included assessing the impacts of Goldfields Ghana Foundation agricultural projects on agricultural production and food security in the Prestea Huni-Valley Municipality. The research also evaluated the strategies employed in ensuring the sustainability of the projects. The research was conducted using both qualitative and quantitative methods. The study used both primary and secondary data sources.

**Limitations of the Study**

The scope of this research is limited to the assessment of the impact of agricultural projects by Goldfields Ghana Foundation on agricultural and food security in the Prestea Huni-Valley Municipality of Ghana. This research does not cover the entire country, and is focused on one region in particular, which may limit its overall applicability. Furthermore, due to the nature of the research, the data collected is limited to quantitative measures of the impact of the foundation's projects. Furthermore, the

data collected may not be representative of the entire population, as it may be biased towards certain areas or regions. Finally, the research is limited by time and resources. The research was conducted over a period of five months, which may not be sufficient to accurately assess the impact of the foundation's agricultural projects on agricultural and food security in the Prestea Huni-Valley Municipality. Furthermore, the resources available for the research were limited, which may have also impacted the results of the research.

**Definition of Terms**

**Food Security** – A situation in which "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life"

**Agricultural Extension** – Agricultural extension is the application of scientific research and new knowledge to agricultural practices through farmer education.

**Sustainable Livelihoods Framework** – The sustainable livelihoods approach is a holistic approach that tries to capture, and provide a means of understanding, the fundamental causes and dimensions of poverty without collapsing the focus onto just a few factors (e.g. economic issues, food security, etc.)

**Sustainable Development Goals** – The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

**Smallholder Farmer:** - A smallholder farmer is often characterized as a family farmer since many rely on relatives' labour to meet production needs, and they typically retain a portion of their harvest for household consumption.

**Food Sustainability:** - Food sustainability refers to growing food in a way that benefits both people and animals, preserves the environment, uses natural resources wisely, ensures farmers can support themselves, and improves the quality of life in communities that grow food.

## Organization of the Study

This study is organized into five main chapters, each addressing a specific aspect of the research question and contributing to a comprehensive understanding of the subject matter. The chapters are structured as follows:

### Chapter 2: Literature Review

This chapter provides a comprehensive review of the relevant literature pertaining to the study. It examines key theoretical frameworks and empirical studies that form the foundation for this research.

### Chapter 3: Methodology

In this chapter, the research design, data collection methods, and analytical techniques are elucidated. It outlines the rationale behind the chosen approach and justifies its appropriateness in addressing the research questions.

### Chapter 4: Data Presentation, Analysis and Discussions of Findings

This chapter presents the findings of the study based on the data collected and the analysis conducted. The results are analysed in light of the research questions and compared with existing literature. Visual aids, such as charts and graphs, are included to enhance clarity. It also explores the implications of the findings and any unexpected results.

**Chapter 5: Summary, Conclusion and Recommendation**

The final chapter summarizes the main findings, draws conclusions based on the research outcomes, and provides recommendations for further research or practical applications based on the study's results.

# CHAPTER TWO

# LITERATURE REVIEW

## Introduction

The core of this Chapter is to survey existing theoretical and empirical literature that relates to the main areas of the study; Goldfields Ghana Foundation agricultural projects on and food security. The essence of this chapter is to place the current study into a broader perspective. The Chapter is broadly divided into two core sections. Whereas the first section examines the theoretical literature that underpins the study, the second focuses on the existing empirical studies.

## Theoretical Review

The theoretical framework for this research is designed to investigate the potential impact of Goldfields Ghana Foundation's agricultural projects and extension services on agricultural sustainability in Ghana, with a specific focus on the Prestea Huni-Valley Municipality. It draws upon several key theoretical concepts to provide a comprehensive understanding of the dynamics at play in the context of sustainable development, resilience, and participatory development. The framework is built on a combination of key theories and concepts relevant to understanding the dynamics of agricultural development, food security, and sustainability.

### Sustainable Livelihoods Framework:

The research employs the sustainable livelihoods framework, as conceptualized by Serrat (2017). This framework is instrumental in examining the complex interplay between society, the environment, and economic development. It allows for an exploration of how Goldfields Ghana Foundation's agricultural projects influence livelihoods in the Prestea Huni-Valley Municipality. The sustainable livelihoods framework posits that development can be evaluated based on factors such as access to

resources, vulnerability to external shocks, and resilience in the face of these shocks (DFID, 2000). This framework is particularly relevant in assessing how these projects impact the level of resource accessibility, vulnerability to external shocks (e.g., climate change or market fluctuations), and the community's ability to adapt and thrive despite these challenges.

**Sustainable Development:**

The Sustainable Livelihoods Framework (SLF) serves as a foundational theory for this study. The SLF, as articulated by the Department for International Development (DFID, 2000), offers a comprehensive approach to assessing the livelihoods of communities. It examines the various dimensions that influence livelihoods, including access to resources, vulnerability, and resilience. The SLF helps in understanding how Goldfields Ghana Foundation's agricultural projects influence the livelihoods of the community in Prestea Huni Valley by improving access to resources, reducing vulnerability to food insecurity, and enhancing the resilience of local communities.

**Resilience Theory:**

Resilience theory, drawing from the work of Folke et al. (2010), provides a lens to understand how communities adapt and cope with external shocks and stresses or challenges. Resilience is vital in understanding how Goldfields Ghana Foundation's initiatives may enhance the ability of local communities to withstand and recover from adverse conditions, including those affecting food security and agricultural sustainability.

**Participatory Development Approach:**

Participatory development principles are woven into the theoretical framework to emphasize the importance of involving local communities and stakeholders in the

design, implementation, and assessment of agricultural projects. This approach recognizes the significance of community engagement and local knowledge in achieving sustainable development outcomes.

Overall, the theoretical framework used in this research synthesizes the sustainable livelihoods framework, the concept of sustainable development, the notion of resilience, and the principles of participatory development. This comprehensive framework facilitates an in-depth exploration of how Goldfields Ghana Foundation's agricultural projects and extension services can impact agricultural and food security in the Prestea Huni-Valley Municipality, taking into account the multifaceted dimensions of sustainable development and resilience.

**Empirical Review**

Food sustainability in Ghana has been a major concern due to factors like population growth, changing climatic conditions, and existing high poverty rates. Goldfields Ghana Foundation's agricultural initiatives in the Prestea Huni Valley have aimed to address these challenges. This empirical literature review provides insights into the impact of Goldfields Ghana Foundation's agricultural projects on food sustainability in the region.

**Assessing the Role of Corporate-Sponsored Agricultural Projects in Food Sustainability**

Several studies have examined the impact of corporate-sponsored agricultural projects on food sustainability. For instance, Smith et al. (2018) study evaluated the contributions of mining companies to agricultural development in host communities. Their findings underscored that such initiatives have the potential to notably amplify both food production and income generation Additionally, the study conducted by Adu

et al. (2018) examined the role of agricultural projects in improving food security in rural Ghana. The research examined how community-based agricultural projects, such as those initiated by Goldfields Ghana Foundation, have led to increased food production, reduced hunger, and improved access to diverse and nutritious food. The study highlighted that such projects contributed significantly to food sustainability by enhancing local food availability and access.

**Agricultural extension services and Projects of Goldfields Ghana Foundation**

Goldfields Ghana Foundation is dedicated to improving the quality of life for local communities in in the Goldfields Ghana catchment communities. the Foundation through its enterprise development program works closely with small-scale farmers and community members to develop sustainable agricultural projects that will help to increase their food security and economic independence (Goldfields Ghana Foundation Policy, 2023). The Foundation has implemented several different agricultural projects and provide several agriculture extension services to these community farmers. These projects include the Youth in Horticulture Production (YouHoP), Cocoa Inputs Support Programme and Oil Palm Production Project (Goldfields Ghana, Programmes and projects., 2022).

**Youth in Horticulture Production (YouHoP)**

YouHoP was initiated in 2016 in collaboration with the German Development Cooperation (GIZ). Under YouHoP, vegetable farmers receive training in best farm practices, including nursery and transplanting, pest and disease identification and control, pesticide application as well as proper harvesting. The farmers also receive training in packaging and marketing of wholesome vegetables, such as cucumber, cabbage, green pepper, lettuce and spring onions. (Gold Fields Limited Media release, 2016 and Daily Graphic Network, 2016.) In 2020, 60 YouHoP farmers received Green

Label Certification thanks to the extension services offered to the farmers. This is additional evidence that the vegetables are grown, harvested, and delivered in safe and hygienic conditions (Gold Fields Limited Media release, 2016). 662 farmers and other community members now have a better quality of life thanks to YouHoP. Additionally, the Promprom Credit Union, which was founded as part of the initiative, provides soft loans to farmers and community members to ensure the sustainability of the programme. ( (Goldfields Ghana, Programmes and projects., 2022)Gold Fields Limited Media release, 2016)

**Cocoa Farmers' Inputs Support Programme**

In 2018, the Cocoa Farmers' Support programme was initiated in host communities of the Damang mine to boost cocoa yields and income of farmers. Under this programme, cocoa farmers receive government-approved fertilisers, farm equipment and training in proper handling and application of agrochemicals. Each year, 120 new farmers join the programme and benefit from inputs for three years, after which they exit. This is to allow as many cocoa farmers as possible to be part of the programme. (B&FT online, 2021 and Gold Fields Limited Media Release, 2018).

**The Oil Palm Production Project**

The Goldfields Foundation Oil Palm Project is an initiative to promotes sustainable oil palm production in the country. The project is to foster a more sustainable and equitable production of oil palm, as well as to reduce poverty and promote job creation in rural areas (B&FT online, 2022). The project is designed to ensure that local people have access to best practice production methods and technologies, while also providing training and extension support to help them achieve sustainable production. The project also aims to build a network of stakeholders in the oil palm sector, ranging from farmers to researchers, government agencies, industry

and development partners. In 2022, 157 community farmers in the Prestea Huni-Valley Municipality, of which 40 percent are women, received more than 23,000 high-yield Tenera seedlings, and training in best farm practices to boost yield and incomes. (B&FT online, 2022, GNA, 2022 and The Daily Statesman, 2022). The farmers were also provided with farming equipment and personal protective equipment.

**Challenges of Farmers in Accessing the Agricultural Extension Services and Projects**

Development in Agriculture depends majorly on an extension delivery system that is effective, efficient and runs smoothly (Blum *et al.*, 2020; Oluwasusu & Akanni, 2014). The productive function of the extension service is needful and should be used and utilized in a precise and effective manner (Fiaz *et al.*, 2018). Identifying a suitable extension service depends on indicators such as enough extension agents, frequent visits of the extension agents and valuable and high-quality advice (Ragasa *et al.*, 2013; Thuo *et al.*, 2014). Extension services are provided by both the public and private sector (Raidimi and Kabiti, 2017) and despite their importance, not all farmers access them (Danso-Abbeam, 2022). Researches by Charatsari et al., (2016) and De Rosa et al (2014) also suggest that the involvement of farmers in agricultural extension or training programmes in many countries is poor.

One of the key factors that pose a challenge to farmers in accessing extension service is the lack of resources including transport. In several developing countries, farmers' technological abilities were not effectively enhanced, technology and expertise were not effectively disseminated by extension programs mainly due to inadequate resources (Moyo and Salawu 2018). Antwi-Agyei and Stringer (2021) found out that, most of the farming areas in Ghana are located very far from the extension agents and therefore they required transport to get to these communities. Although some were

provided with motorcycles, majority of them are without means. Related to the transport issue is the poor quality of the road networks in most of the farming communities who are in most urgent need of extension advice. Insufficient funds for extension services and projects adds up to this problem. Saifur et al (2021) reported that the budget allocation for extension projects and service in Bangladesh is not enough and Mapiye *et al*., 2021 also suggests that the government funding is very poor when it comes to extension services and projects in Zimbabwe. smallholder farmers are faced with inadequate funding to carry out strategies suggested by agricultural extension agents (Antwi-Agyei and Stringer 2021; Ebenehi et al., 2018).

Another common challenge is high extension agent-to-farmer ratios which lead to increased workloads for extension agents. Most Africa countries do not reach the desired ratio of 1: 400. Ifejika Speranza et al. (2009) found that the ratio of frontline extension workers to farmers in Kenya was about 1:1000. Chinseu et al. (2019) also surveyed 300 farmers in two districts in Malawi and reported that majority of their respondents (93%) had a designated extension officer working in their area. Out of these, 25% of farmers received monthly visits, 22% received just a visit during the entire farming season and 18% had no contact with extension agents. Akinnagbe *et al.* (2018) has published that the issue of poor extension-worker-farmer ratio exist in Nigeria and Moyo and Salawu (2018) also identified it in Zimbabwe. in Ghana, if all public extension officers are assigned, the ratio of the extension staff to farmer will be around 1 extension officer to about 1300 farmers (McNamara et al., 2014).

A report by Antwi-Agyei et al 2021 revealed that about one-fourth of extension agents were responsible for extension delivery in more than 10 communities in the Upper East region of Ghana. Increased workload leads to a lack of time that could potentially constrain extension agents' efforts to acquire knowledge and competencies

to promote extension for climate change adaptation. When agricultural extension agents are given too many farming communities to handle, the frequency of visits becomes lower, more irregular and this potentially reduces the effectiveness of extension advice.

One responsibility of the extensive agents is to deliver information to farmers. This usually takes place via face to face interaction or via mobile phones. Although, high level of facilitation expertise through efficient communication of extension programme increases farmer's participation, much emphasis should be placed on the provision of adequate, in-depth, diverse and technical information to the farmers (Claire et al, 2020). Saifur et al (2021) did a research in Bangladesh about the problems faced by crop farmers in relation to extension services. Their result indicated that poor communication skills of extension officers was the major challenge of the participants. According to Moyo and Salawu (2018), farmer's agricultural knowledge and skills increase when there is good connection and advice and this affects production. They made this conclusion after identifying poor communication skills among extension agents in Zimbabwe. Petros *et al.* (2018) also reported this same problem as a challenge to farmers in North-Western Ethiopia. Small scale farmers in Chamwino also complained of not getting reliable farming information, and this leads to poor and weak decision-making during their farming phases (Misaki, Apiola, & Gaiani, 2015)

**Factors Influencing Farmer's Willingness to Sustain Agricultural Extension Services and Projects**

If extension services and projects are seen as valuable and relevant to farmers' activities, they are more likely to continue. Farmers are more likely to continue utilizing and supporting these services when they perceive concrete benefits like higher yields, improved productivity, and increased income. The relevance and quality of AES

delivered may influence smallholder farmers' continuation of new practices they have learned (Elias et al. 2016)

A report by Elias et al (2016) showed that farmers in Ethiopia do not find the extension services and projects very relevant as they complained about the appropriateness or relevance of the packages, the communication skills of the officers and the participatory nature of the program. About 45% of the participants showed dissatisfaction while the remaining 55% were okay.

Jona and Terblanche (2015) stated that non-governmental organizations and private institutions offer more relevant and better-quality extension services compared to other sectors. Therefore, in order for the content of an agricultural extension service to be considered appropriate, it must be comprehensible and practical for recipients. When extension services do not meet these criteria, it is unlikely that smallholder farmers will be able to successfully adopt what they have learned (Jona and Terblanche 2015). Some smallholder rural farmers largely have had bad experiences with past climate forecasts and other innovations that didn't meet their expectations (Kabobah et al., 2018).

Some reports have shown that profits from projects have a significant impact on farmers' willingness to participate in extension services and projects. Wang et al (2021) and Castro-Nunez (2016) revealed that the income brought by greenhouse emission reduction and carbon project was the main determinant of farmers' willingness to participate in the projects. Individuals as rational people would take the pursuit of maximum benefits as the goal of behavioral decision-making. Therefore, when farmers in Uganda found out that the expected profit from participating in ecological service projects was going to be higher than the cost input, it became their motivation to

participate in the projects (Geussens et al., 2019). Economic profit factor can be highlighted as the decisive factor for farmers to participate in agricultural projects (Li et al., 2020)

When farmers actively participate in the design, execution, and assessment of extension services and projects, they develop a sense of ownership and responsibility. This involvement increases their willingness to sustain the services because they perceive themselves as key stakeholders. Participatory approaches (such as farmer field schools and community-based programs) entail extension agents working hand-in-hand with farmers in analysing farmers' agricultural systems to identify problems and develop solutions (Moyo & Salawu, 2018). This approach encourages a two-way dialogue between farmers and extension workers or scientists, and also cancel the notion that extension agents have all the knowledge and must instruct farmers (Cook *et al*., 2021). This approach is highly acceptable by farmers as compared to the top-down approach which embeds within the broader rural development agenda and follow a one-way hierarchical transfer of information and technologies from extension agents and research scientists to farmers in order to increase production, grant farmers' access to credit, inputs, and markets (Danso-Abbeam, Ehiakpor & Aidoo 2018; Cook, Satizábal & Curnow, 2021; Davis *et al*., 2019). After Claire et al (2020) reviewed different literatures, their conclusion was that, the studies reflected the promising trends and international interest in the participatory extension approach.

Good connection and advice increase agricultural knowledge and skills, and therefore production (Moyo and Salawu 2018). Access to information therefore plays an important role in influencing farmers' decisions to accept and sustain extension services and projects. In other words, farmers who are more open to finding and using information are also more likely to join extension programme. They are also more open

to discussing farming options with other farmers and their families and indicating a greater interest in reading about and improving their farming practices (Claire et al 2020). Argumentatively, some farmers are also not ready to accept new information. There are new improved varieties of crops and other farming practices (such as when to plant and apply fertilizers), which when properly applied in line with agricultural extension agents' advice, can reduce the vulnerability of farming households with regard to climate change. Yet, because of social beliefs and values, many smallholder farmers find it difficult to do away with old practices (Meijer et al., 2015). Meijer et al. (2015) reported that the uptake of agricultural technologies is greatly influenced by both extrinsic and intrinsic variables that shape the behaviour, knowledge, attitudes and perceptions of adopters of innovation. Kiptot and Franzel (2015) suggested that extension agents usually feel discouraged when some farmers they have trained do not take up the adaptation practices.

**Conceptual Framework**

This research was guided by a conceptual framework that used the Sustainable Development Goals (SDG) framework to assess the impact of GFGF agricultural projects on agricultural and food sustainability in Ghana. The Sustainable Development Goals framework provided the basis for assessing the effectiveness of the GFGF agricultural projects in terms of their contribution to the agricultural and food security of the people in the Prestea Huni-Valley municipality. The Sustainable Development Goals framework also provided the basis for assessing the impact of the GFGF agricultural projects on the socio-economic development of the municipality. The Sustainable Development Goals framework was used to assess the impact of GFGF agricultural projects in three main areas: food security, agricultural productivity, and socio-economic development. The assessment focused on the following indicators:

extension services, agricultural productivity, food access, food utilization, and food stability. The assessment also analysed the impact of the GFGF agricultural projects on the socio-economic development of the municipality. This was done by assessing the impact of the projects on poverty reduction, gender equality, economic growth, education, and health.

The methodology used in this research involved both quantitative and qualitative approaches. The data collection methods included interviews, focus groups, surveys, and document analysis. The data analysis techniques included descriptive and inferential statistics, content analysis, and thematic analysis. The findings of the research were presented using tables and graphs. The results of this research were useful in understanding the impact of GFGF agricultural projects and extension services on agricultural and food security in Ghana. The results were also useful in informing policy makers and other stakeholders on the best ways to improve agricultural and food security in the municipality. Finally, the results were useful in informing stakeholders on the best way to ensure the sustainability of Goldfields Ghana Foundation agricultural projects in the municipality.

## Review of Concept

### Agricultural Extension Services and Projects

In many countries, extension services represent one such example of a formal institution that plays a critical role in supporting small-scale agriculture and in achieving national and household food security (Rickards et al., 2018). Agricultural extension services are very important in building farmers' agricultural knowledge and skills, providing new technology and changing farmers' attitudes (Khan et al., 2012) as well as promoting community development through human and social capital development, facilitating access to markets and partnering with farmers towards

sustainable natural resource management (Bonye et al., 2012). According to Donkor et al. (2016), access to extension services highly improves the adoption of chemical fertilizers and this is the major role of agricultural extension in promoting the adoption of soil improvement technologies.

The majority of farmers in Africa, particularly in Ghana, are located in rural areas and heavily rely on public extension services for information on modern agricultural techniques including soil and water conservation. To ensure that small-scale farming is more productive and successful, a well-functioning agricultural extension system is required. A sound and efficient agricultural extension delivery system is therefore essential for increasing agricultural productivity (Manteaw et al., 2020; Blum et al., 2020). In order to ensure that farmers are informed about cutting-edge production technologies in order to increase adoption and, in turn, productivity and farm revenue, especially in the age of climate change, the Ghanaian government has increased support for agricultural extension services (Anang et al., 2020). Agricultural extension has a duty to help farmers avoid maladaptation in the context of climate change (Antwi-Agyei et al., 2018; Juhola et al., 2016) and raise awareness of the best local adaptations that can be used to manage climate risks (Afsar & Idrees, 2019). Danso-Abbeam et al. (2018) noted that farmers in Ghana's northern area who participated in agricultural extension programs had improvements in welfare due to increases in farmers' income.

The government agricultural extension services are not effective due to inadequate resources and many other factors, necessitating the involvement of the private sector. (Raidimi and Kabiti, 2017). Due to Ghana's government’s aim of growing the private sector, private providers of extension services have emerged. Examples of businesses, social purpose enterprises, and organizations that offer

extension services along the agricultural value chain include Blue Town, ESOKO, Farmerline, and Viamo. These businesses provide farmers with farm services like production technologies and market information using information and communication technology (ICT) like mobile phones, internet access, radio, and videos. Over the past few years, Non-Governmental Organizations (NGOs) have become more involved in providing and funding extension services. For example, the Alliance for a Green Revolution in Africa (AGRA) provides financial support for Ghana Extension Systems Strengthening Project (GESSiP) that has the vision of improving smallholder farmers' productivity and incomes in the Bono, Bono East, Northern and Savannah regions of Ghana. Quality extension services, enhanced technology, and sound agronomic practices are the goals of GESSiP. Farmers and other value chain actors benefit from the increased involvement of the private sector and NGOs in extension service delivery. The farmer field school is another method being employed by government, business, and NGOs. Farmer field school, a participatory method to education, technology development, and dissemination, is built on adult learning principles such as experience learning. The concept of farmer-to-farmer extension is also used by some other organizations, including the private sector and NGOs. Extension programmes educate farmer-trainers, who in turn train other farmers. New farming technology can only be embraced by rural farmers who have access to a well-functioning extension system and are aware of them. The availability of high-quality extension services facilitates adoption of farming practices such as soil and water conservation that aims to mitigate the effects of climate change, boost farm productivity, and improve on the general livelihoods of farmers (Wossen et al, 2017; Anang et al, 2020; Suvedi et al, 2017).

According to Manteaw et al. (2020), the extension service delivery in Ghana is exclusively directed at production; and this has much influence on the quality of

attention given to processing, marketing and input supplying. Much attention is given to input supplying, followed by processing and marketing receiving the least. Consequently, the public sector performs poorly extension on input supplying as compared to the private sector. The limited extension attention to processing is due to the lack of relevant processing machinery or equipment while the relatively limited extension delivery with regard to marketing was as a result of most farmers making their own marketing arrangements to sell their produce. (Manteaw et al, 2020)

**Food Security**

Food security is a fundamental aspect of human and social development. The post-2015 development agenda emphasised it in the Sustainable Development Goals (SDGs) (Battersby, 2017). Per the 1999 World Food Summit working definition, food security describes a situation in which "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (WFP & FAO, 2021). It is perceived in the dimension of food availability, accessibility, stability and affordability (WFP, Comprehensive Food Security and Vulnerability Analysis, 2020). The United Nations has specified that individuals should have the basic right to access adequate food and freedom from hunger (FAO, 2015).

Food security is observed at four different levels, starting from individual, household, national to global. These four levels are connected from global, which is the highest level through the national level and household level to the individual level. The linkages are sequential but not causal (FAO, 2014). When there is global food security, it does not guarantee national and household food security. The food security at household level does not also guarantee food security at the individual level. This implies that, the lower levels food insecurity is not necessarily as a result of food

insecurity at a higher level of the linkage. However, food security at a higher level can impact the food security at lower levels of the linkages (Bawa, 2019).

Food security and appropriate nutrition objective have not been well achieved (UN, 2015) and this has become a global problem especially due to the increasing number of people who stay food insecure (McGuire, 2015). Over 1 billion people were predicted to be food insecure and hungry in 2016 globally (FAO *et al.*, 2017) and in 2017, the total number had increased by 16million (Armah, Nti, & Otoo, 2019) with 124 million people from 51 countries facing food security problems (FSIN, 2018). Most countries in the world experience Household food security problems. (FAO, 2017) reported that 815 million people sleep with hunger every night regardless of the sufficient food produced daily to feed the global population. According to FAO, a population of nearly 1 billion people experience chronic hunger. Out of this, about 294.7 million food insecure people are from Africa (FAO, 2015).

Food insecurity is predominantly caused by climate change because of crop-related effects of drier and warmer conditions expected in agricultural regions (Tito et al., 2018). There have been several efforts to fight climate change through reduction of greenhouse gas emissions. This is also negatively affecting food security by raising prices and reducing supply of key agricultural commodities (Hasegawa et al., 2018). Another factors to consider are Conflicts and drought which cause problem of producing, distributing and having access to food. Poverty and high population growth rates also add to an environment already in an unsubstantial ecosystem. (Uozawa, 2017).

In 2015, the State of Food Insecurity (SOFI) published that the sub-Saharan Africa faces the highest hunger problem, where 23.2 % (representing 1 out of 4

individuals) of the population, are hungry. There have been an increased in the number of food insecure individuals in Sub-Sahara Africa from 176 million in 1990 and 1992 to 220 million in 2014 to 2016 (FAO, 2017). Ghana is part of Africa and it is not left out from this situation. A report presented by MoFA (2015) showed that about 5% (1,200,000 people) of Ghana's population faced food security crises and 2 million individuals were estimated to encounter food insecurity shock (FAO, 2016). Recently, the World Food Program (WFP) estimated 99,110 people of the Ghanaian population to be food insecure for the first quarter of 2018 (WFP, 2019). Even though, Dafour and Rosantrator (2016) reported in 2016 that Ghana is implementing measures and plans to curtail its food insecurity, the situation is still on the rise.

Per the 2020 CFSVA, food insecurity in Ghana stands at 11.7 percent, which means that 3.6 million people of Ghana's population are food insecure. Out of the 3.6 million, 5.2% (representing 1.6 million people) are severely food insecure, and 6% (2.0 million people) are moderately food insecure. The Upper east, Northern and Ashanti region have the highest food insecure population with percentages of 18 (implying 0.6 million people), 17 (implying 0.6 million people) and 13 (an implying 0.5 million people) respectively while Oti region has the least (less than 100,000) food insecure population. 200 to 300 thousand populations are food insecure in Eastern and Volta region. The remaining 10 regions have implied food insecure populations ranging between 100,000 and 200,000. (WFP, Comprehensive Food Security and Vulnerability Analysis, 2020).

The agricultural sector plays a strategic role in improving the availability of food and achieving food security (Wegran, 2018). Ba and Fautrel, (2020) suggested some ways through which food security can be increased in Africa. These include; improving agricultural tools and empowering of small scale producers, making

agricultural very attractive to the youth with support from good government policies and the utilization of information and communication technology (ICT) in agriculture. The coming together of governmental agencies, non-governmental institutions and the entire population will help Ghana to address food security issues. For this reason, The government of Ghana has introduced many agricultural policies to promote sustainable agriculture and food security, building on a common purpose shared among civil society, the private sector, and development partners (USAID, 2020)

**Goldfields Ghana Foundation (GFGF)**

As an approach to Cooperate Social Responsibility by the Goldfields Ghana Limited, Gold Fields established the GFGF in 2004, to serve as the main vehicle for funding the company's social investment projects (Gold Fields Ghana, 2022). The Foundation, the first to be set up by a mining company in Ghana, provides funding for projects primarily in education, health, agriculture (Enterprise Development), water and sanitation, and infrastructure. The Foundation has a seven-member Board of Trustees made up of the General Managers of the Tarkwa and Damang mines, the Chief Executive Officer of the Ghana Chamber of Mines, a representative of the Gold Fields Board, members of Parliament for the Tarkwa-Nsuaem and Prestea Huni-Valley constituencies, and the Executive Vice President and Head of Gold Fields West Africa, who is also the chair of the Foundation's Board (Gold Fields Ghana, 2022). The Board meets every quarter to review projects and programmes, as well as approve the Foundation's budget and expenditure.

Funding for the Foundation is primarily through contributions from the Tarkwa and Damang mines, based on their production profitability. For every ounce of gold produced by the mines, one US dollar is donated to the Foundation, in addition to 1.5% of the mines' profits before tax (US$1/oz plus 1.5% of pre-tax profit) (Gold Fields

Ghana, 2022). This is an agreed funding formula, which ensures that the developmental needs of the host communities are directly tied to those of the mines. The Foundation has invested over US$90.8m in development projects and programmes since 2004 (Gold Fields Ghana, 2022).

The Foundation primarily (but not exclusively) focuses on the communities around Gold Fields Group operating mines in Ghana, particularly those directly affected by Group mining activities and where Group employees and their dependents live (Goldfields Ghana Foundation Policy, 2023). Projects of national significance are also funded by the Foundation where these are, within the parameters of the provisions of this Trust Deed, considered appropriate by the Managing Trustees, provided that this shall not detract from the primary focus of the Foundation as contemplated above (Goldfields Ghana Foundation Policy, 2023).

**Chapter Summary**

This chapter has extensively articulated the theoretical formwork, the empirical review and the conceptual reviews that undergirds the present study. The current state of literature on dissertations and theses has also been shown where reviews were done on available on all their parts. The chapter serves as the foundation for understanding the key variables, concepts, and factors that underpin the study.

# CHAPTER THREE

# METHODOLOGY

## Introduction

In this chapter, the focus is on the gathering of essential research data. The section presents details about the research methodology and techniques employed to carry out the study. It outlines the population from which the sample was chosen and provides a description of the sampling procedures used for selection. Additionally, it explores the research design and the approach taken to collect data, primarily through in-depth interviews and questionnaire administration. The chapter also encompasses the organization and analysis of the data. It is structured as follows: research design, research area, population and sampling, research instrument (data collection technique), and data analysis.

## Research Design

This study employed a mixed-method research approach. According to Tegan (2021), "Mixed methods research combines quantitative and qualitative research to address research questions comprehensively. By leveraging the strengths of both approaches, mixed methods research provides a more holistic and thorough understanding compared to using only quantitative or qualitative methods." A comprehensive literature review was conducted as part of a desk study, encompassing institutional publications, journals, periodicals, workshop resource materials, seminars, and conference papers. Additionally, a thorough examination of documents and archival records from the GFG and the GFGF policy was undertaken to gather secondary data. The internet was also utilized as another valuable source of information for this study.

**The Study Area**

The study was conducted in the Goldfields Tarkwa and Damang mines catchment communities located in the Prestea Huni Valley Municipal Assembly (PHMA) in the Western Region of Ghana. The mine has thirteen (13) main catchment communities in the PHMA; these include Aboso, Amooanda, Bompieso, Damang, Huni Valley, Kyekyewere, Koduakrom, Nyamabekyere, Pepesa, Huniso, Samahu, Tebe, and Abekoase,

The Municipality falls within the rainforest belt with the height of trees ranging from 15 – 40 meters. The temperature ranges between $26^0$C in August and $30^0$C in March. Relatively humidity is generally high throughout the year between 70 – 80% in the dry season and 75 – 78% in the wet season. Prestea Huni Valley Municipal Assembly (PHMA) shares its borders with several other districts. To the north, it is adjacent to Wassa Amenfi Central, Upper Denkyira East, and Wassa Amenfi East. To the east, it connects with Twifo Ati Morkwa and Wassa East. On the west, it borders Wassa Amenfi West, and to the south, it adjoins Nzema East and Tarkwa Nsuaem. The municipality's capital town is Bogoso. PHMA is estimated to have a total population of 229,301 with 117,744 males and 111,557 females (Ghana Statistical Service, 2021). The majority of the workforce about 31.5% are engaged in agriculture (Ghana Statistical Service, 2014).

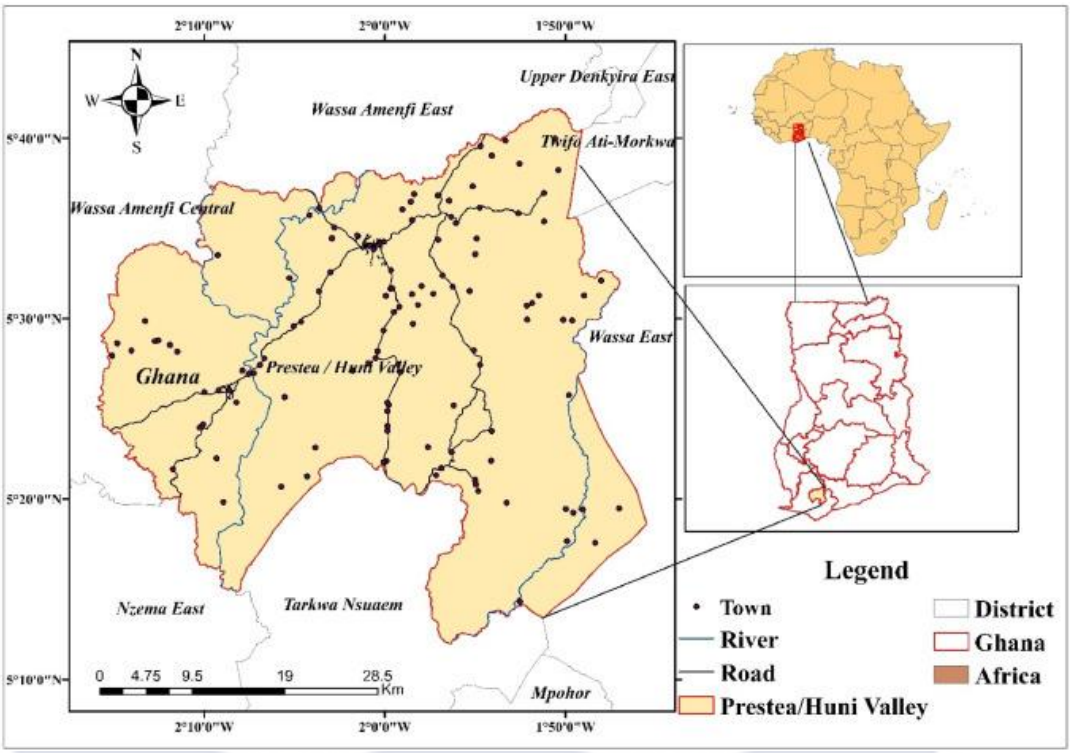


**Figure 1: Map of Prestea Huni Valley Municipality**

## Sample Size and Sampling Technique

The study respondents were selected using multiple sampling methods, including purposive sampling and convenience sampling techniques. McCombes (2019) describes purposive sampling as a type of sampling, also known as judgement sampling, which involves the researcher using their expertise to select a sample that is most useful to the purposes of the research. Purposive sampling was used to select farmers from PHMA who are/have enjoyed the GFGF agriculture projects.

Convenience sampling is a method of collecting samples by taking samples that are conveniently located around a location or Internet service (Edgar W. T and Manz O. D, 2017). The convenience sampling was used to select 200 respondents who were readily available and easy to reach to be interviewed. In all the study was able to collect the views of 200 respondents. These respondents were made up of 180 farmers who

answered the questionnaire, 10 lead farmers, 5 community leaders and 5 GFGF staff who were also interviewed on the sustainability of the agriculture projects of GFGF.

**Data Collection**

The data collection for this study involved two main sources: primary and secondary data. Primary data was gathered through the use of questionnaires and interview guides in the field, while secondary data was obtained from relevant literature and other published materials. To provide empirically grounded answers to the research questions concerning the impact of GFGF Agriculture and Extension Project, the researcher conducted a qualitative case study with some elements of quantitative data analysis.

**The Design of Field Survey**

The field survey was designed with the aim of fulfilling the study's objectives. To accomplish this, a combination of personal interviews as well as structured and semi-structured questionnaires were developed as primary data collection tools.

**Questionnaires and Interviews**

The study utilized both self-developed questionnaire and a semi-structured interview guide. A questionnaire is a research instrument utilized in surveys, containing meticulously formulated questions intended to elicit self-reported responses covering a range of general and personal subjects (Gravetter and Forzano, 2009). The questionnaire was grouped into four (4) distinct sections. Section A covered the socio-demographic data of the respondents. Section B took information from the respondents on GFGF agricultural projects and extension services while Section C looked at the constraints of respondents in accessing the GFGF agricultural projects and extension

services. Lastly, Section D captured the impact of GFGF agricultural projects and extension services on the livelihood of the respondents.

As per Ogah (2013), a semi-structured interview guide serves as a data collection tool in which an interviewer engages in guided interaction with the interviewee, relying on a set of general questions while allowing for follow-up questions to emerge organically based on the conversation's direction. This interview guide was employed to collect data from community leaders, lead farmers, and GFGF on the farmers' willingness to sustain GFGF agriculture projects and extension beyond GFGF support. While written records were kept of all interview responses, some interviews with community members were not recorded to ensure their comfort and promote candid responses.

**Data Analysis**

The data collected was analysis using both quantitative and qualitative analysis. The quantitative data was analysed by using simple descriptive statistics such as frequencies and percentages with the aid of Statistical Package for Social Sciences (SPSS). The results were then presented in tables, pie charts and bar chart. Thematic analysis was used to examine the qualitative data that was collected. The findings were discussed in relation to relevant literature.

**Ethical Issue**

In this study, the researcher committed to upholding the highest ethical standards throughout all stages of our research. Several key ethical concerns had been identified and addressed. First, informed consent was of utmost importance. Prior to any data collection, the researcher clearly explained to the people the purpose of the research, the nature of their involvement, and the potential implications of the study.

Participants had the right to provide or withdraw consent at any point during the research process. To protect the privacy and confidentiality of individuals and communities, data was anonymized, and stringent data security measures were implemented to safeguard sensitive information. Additionally, the researcher dedicated to engaging with the affected communities, respecting their values and customs, and seeking their input throughout the research process. The researcher ensured a fair and equitable distribution of the benefits of the agricultural projects, actively monitored for conflicts of interest, and conducted a comprehensive risk assessment to minimize harm and maximize benefits. Transparency and accuracy were the guiding principles in data collection, analysis, and reporting, while environmental impact and sustainability were addressed transparently in the research findings."

# CHAPTER FOUR

# DATA PRESENTATION, ANALYSIS, AND DISCUSSION OF FINDINGS

## Introduction

This chapter deliberates on the analysis of the outcomes from the data collected through interviews, observations with the analysis made from the previous chapters' and responses from respondents on the survey questionnaire administered, following the research methodology outlined in the previous chapter. Also, the study analysed some documents from the organization which was relevant to the research.

## Socio-Demographic Characteristics

This section presents the characteristics of the various information obtained from the respondents. The parameters here are the age characteristics, sex, level of education, marital status, and the number of dependants of each respondent.

## Gender Distributions

Table 1 shows the gender distribution of the respondents. From table 1, there was a higher percentage of men as compared to women. Out of the 180 questionnaires administered, 114 representing 63.3% were males and 66 representing 36.7 were females. This clearly shows that in Ghana, more males are engaged in farming activities than females, as revealed by (SRID, 2001) that approximately 39% of the farm labour force is women and the remaining 61% are males. This finding concurs with that of Ankrah et al, (2020) who reported a higher percentage of males than females engaging in maize farming and Abdulai et. al., (2017) who indicated that vegetable farming is dominated by males while the marketing of vegetables is also dominated by females. It confirms the report of Beyuo and Ernest (2013), who recorded 80.5% of male farmers and 19.5% of female farmers in the upper west region of Ghana. The reason why limited females are involved in farming is because they face challenges in acquiring farm land

and the few they acquire too are less fertile (Abebe et al., 2020). According to Nyantakyi-Frimpong (2020), only a handful of women in Ghana are land owners, therefore this affects the number of women in farming.

**Table 1: Gender Distribution Table**

| Sex | Frequency | Percentage (%) |
|---|---|---|
| Male | 114 | 63.3 |
| Female | 66 | 36.7 |
| **Total** | **180** | **100** |

Source: Field Survey (2023)

**Age Characteristics**

The ages of every respondent were gathered as part of the survey. Six respondents were in the age range 18 – 25, representing 3.3% and 13 (7.2%) were within 26 – 35 year group. The majority of the respondents were aged 36 and above representing 89.4%. The study reveals that, majority of the farmers in the study area are above 35 years which means that the youth in these areas are not participating in farming. According to the 2017/2018 Ghana census national report, the population of youth (15 – 35years) and adults (above 35 years) in agricultural households are 36.6% and 27.8% respectively. Despite the high proportion of the youth, the absence of the youth and lack of interest is very much noticeable. The study was conducted in mining communities and therefore conforms to the findings of Funoh (2014), who explained that artisanal mining operations in some communities are rated as being more lucrative than food crop farming. White (2012), Tafere and Woldehanna (2012), also observed that youth prefer and aspire to occupations outside agriculture since non-farming occupations are perceived to be more economically rewarding, stable, and not "back-breaking". Also, ACDI/VOCA (2018) reported that, despite the many strategies

adopted by the Government of Ghana and other stakeholders to attract youth to the agriculture sector, most young people in Ghana shy away from farming because of perceptions that farming is tedious and underpaid work traditionally done by older generations.

**Table 2: Age Distribution**

| Age group | Frequency | Percentage (%) |
|---|---|---|
| 18 – 25 | 6 | 3.3 |
| 26 – 35 | 13 | 7.2 |
| Above 35 | 161 | 89.4 |
| **Total** | **180** | **100** |

Source: Field Survey (2023)

**Marital Status**

Figure 1 below shows the distribution of the marital status of the respondents. A majority of the respondents 153 representing 85% were observed to be married, 10 with 5.6% were observed to be single, 9 of the respondents representing 5% were divorced and 8 with 4.4% were widowed. This is similar to the study by *Worlanyo et al (2022)* with 82%, 6% and 3% of married, single and divorced farmers and that of Beyuo and Ernest (2013) with majority of their respondents (88.10%) being married. Marriage is mostly perceived in communities as a sense of being responsible and therefore for most married individuals to take good care for the food and other domestic needs of the family, they engage in farming activities (Beyuo and Ernest 2013)

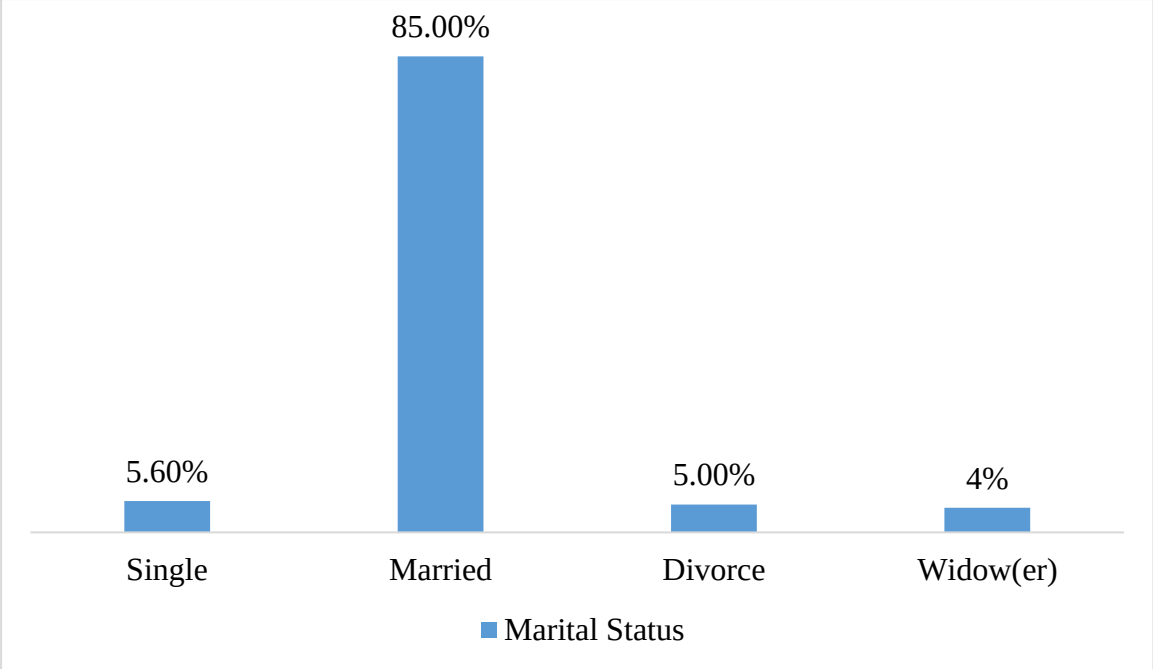


**Figure 2:Marital Status of Respondents**

Source: Field Survey (2023)

**Educational Background of the Respondents**

Responses on education were categorized into four (4) groups indicating the level of education of farmers from no formal education (None) to tertiary level. The result revealed that about 12.2% of farmers had attained secondary education, 44.4% had attained basic education, 41.7% had no formal education, and only 1.7% had attained tertiary education. This reveals that approximately about 59% of the respondents had a formal education. This is not in consistent with the report of Beyuo and Ernest (2013) Who had 77.48% of farmers not to attain formal education. They based their argument on the (Ghana News Agency, 2012) which reveals that most farmers indulge in small scale farming for a living and therefore education is not necessarily important to them, but According to Kolawole, O.D. et., al (2014), high literacy levels have an indirect impact on agricultural productivity as new technological advancements and information require a certain level of formal education and training.

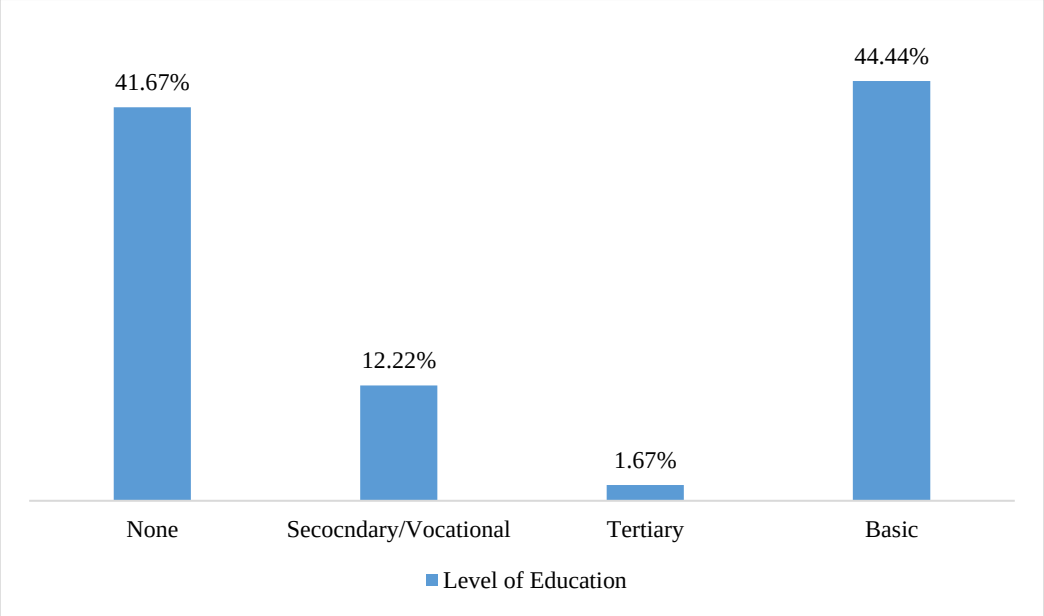


**Figure 3: Educational Level of Respondents**

Source: Field Survey (2023)

**Number of Dependants of the Respondents**

The table 3 below demonstrates the number of dependents of the subjects in the study. They are put in the group of 1 – 3, 4 – 6, 7 – 10 and above 10. Sixty-one of the respondents had 1 to 3 dependants, representing 33.9%. majority of the subjects (79) with a percentage of 43.9% had 4 – 6 individuals depending on them and 31 respondents also had 7 to 10 dependents representing 17.2%. The number of respondents who were taking care of more than 10 individuals are 9 and have a percentage of 5. Isitor et al. (2016) also reported about 70% of the farmers having a family size of 4 – 6 which is similar to our studies. This probably may increase the cost of living of the farmers. Also increase household size has a high probability of making farmers less efficient in their production (Ajayi and Olutumise,2018).

**Table 3: Number of Dependents**

| Dependents | Frequency | Percentage (%) |
|---|---|---|
| 1 – 3 | 61 | 33.9 |
| 4 – 6 | 79 | 43.9 |
| 7 – 10 | 31 | 17.2 |
| Above 10 | 9 | 5.0 |
| **Total** | **180** | **100** |

Source: Field Survey (2023)

**Agricultural Extension Projects that GFGF Provides to Farmers in the Prestea Huni-Valley Municipality**

Figure 4 represents the agricultural projects by GFGF. From the study, it was observed that GFGF provides three major agricultural projects to farmers in the Prestea-Huni Valley Municipalities. All 180 respondents were engaged in one or two of these projects. The major agricultural projects by the GFGF are;

a. Youth in Organic Horticulture Production (YouHoP)
b. Community Oil Palm Production Project and
c. Cocoa Farmers' Support Programme

The majority of the respondents (66 farmers) as shown in figure 4 were engaged in the YouHoP project and the number of farmers that were engaged in the Oil Palm Production and the Cocoa Farmers Support Program are almost the same (48 and 47 respectively). About 12 of the farmers were engaged in both the YouHoP and Oil Palm Production while only 7 combine the YouHoP and the Cocoa farmers programme. The YouHoP project basically involves the training of farmers in vegetable production. Vegetables are very high-value crops, which form part of almost every meal. The high consumption of vegetables puts a huge demand on vegetables, which therefore present a ready market. It also has the capacity to boost income. This makes it clear for the

YouHoP project to receive the maximum participation among the others. Probably, some of the farmers have knowledge about the benefits of vegetable production or possess available lands (Djokoto *et al. 2017*) and have therefore combined vegetable production with their tree crop farming. About 19 farmers in the study are practicing this diversification. Similar situation was observed in the study by Ali (2015). Most of the farmers in his study diversified their major farming systems with other arable crops, particularly vegetables. Such practice (crop diversification) helps farmers to access income from different crops rather than depending sorely on one crop type. The extent to which Ghanaian farmers diversify their crop production is very low and therefore should be encouraged to start such productions. (Djokoto *et al. 2017*).

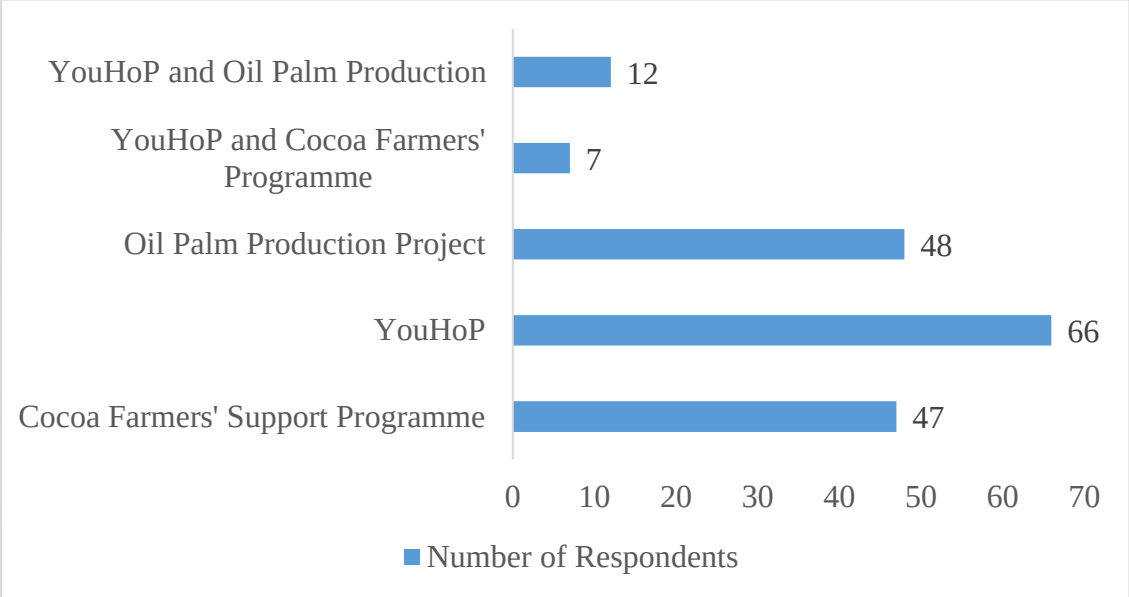


**Figure 4: Agriculture Projects by GFGF**

Source: Field Survey (2023)

**Kind of Support Farmers Benefited from the GFGF Agricultural Projects**

The result from Table 4 shows that the farmers who participated in the agricultural projects by GFGF received about 6 different kinds of support. All the farmers (100%) responded that they had received farm inputs. The fact that all the

farmers had received farm inputs suggests that this support (farm inputs) is a central component of the GFGF agricultural projects. Farm inputs could include seeds, fertilizers, pesticides, and other inputs that directly contribute to agricultural production. Ensuring that all farmers received these inputs indicates an effort to provide essential resources for their farming activities. it is reported by Sheahan and Barrett, (2016) that most farmers depend on common inputs such as improved seeds, chemicals and inorganic fertilizers to improve their harvest productivity. This makes it reasonable for the GFGF to supply all the beneficiaries with such support. This finding conform to that Masinjila and Lewis, (2018) who reported that, In Republic of Tanzania, the Government initiated the National Agricultural Input Voucher System (NAIVS) program which was able to reach about half of Tanzanian farmers, helping them to increase the application of modern farm input. On the other hand, When the performance of the Farmer Input Subsidy Program (FISP) in Malawi dropped, there was a massive reduction in the use of farm inputs by the farmers (Duchoslav and Kenamu, 2018).

About 149 farmers representing 82.78% benefited from the training and extension supports. The fact that 149 farmers received training and extension support is a positive indicator of the project's focus on capacity-building. Training and extension help farmers acquire new skills, knowledge, and techniques, enhancing their ability to make informed decisions and improve their farming practices. About 74.44% and 86.70% agreed to had received personal protective equipment (PPE's) and working tool respectively. Only few farmers (15%) indicated that, they received financial support, and this is in the form of loans from the Promprom Credit Union, a credit union establish by the GFGF to support farmers especially the YouHoP farmers.

These findings collectively underscore a comprehensive approach by GFGF in supporting the participating farmers. This holistic approach is likely to have a more significant impact on farmers' livelihoods and overall agricultural productivity.

**Table 4: Kind of Support these Farmers Benefited from the Agricultural Projects**

| S/N | Activity /Supports | Frequency | Percentage of Respondents |
|---|---|---|---|
| 1 | Training | 149 | 82.78 |
| 2 | PPEs | 134 | 74.44 |
| 3 | Farm Inputs | 180 | 100.00 |
| 4 | Financial Support | 28 | 15.56 |
| 5 | Working/Farm Tools | 156 | 86.67 |
| 6 | Extension Support | 149 | 82.78 |

Source: Field Survey (2023)

**Challenges Farmers in Prestea Huni-Valley Municipality Face in Accessing the Agricultural Extension Services and Projects of the GFGF**

Table 4 below identified the constraints/challenges faced by the farmers in PHMA in assessing the agricultural extension services and projects of GFGF. A limited number of selected beneficiary for GFGF projects, high extension agent-to-farmer ration, extension service officers not enough, inadequate resources, not frequent visit by the extension officers, inadequate information, not from the catchment communities and poor communications were some challenges the farmers faced in assessing the GFGF agriculture extension services and projects. The study revealed that, the most pressing constraint of the farmers was the limited number of beneficiaries for the project, with a mean rank of 3.51. The fact that there is a limited number of selected beneficiaries for the GFGF projects suggests that not all farmers who could benefit from these initiatives are able to access them. This is parallel to that of Elias et al. (2015) who reported that the farmers in Ethiopia were dissatisfied and did not participate in extension services and projects because they found it to be irrelevant despite their

government reviewing and renewing the national strategies for participatory extension system (MoANR 2017).

The second challenge of the farmers was the high extension agent – to – farmer ratio, followed by inadequate extension service workers and their less frequent visit. With a high extension-to-farmer ratio, it becomes difficult for extension agents to provide personalized support and guidance to each farmer. This can hinder effective knowledge transfer and hinder the adoption of new practices. This challenge is in line with Saifur et al**.** (2021) who ranked limited number of extension workers 4$^{th}$ in his study. These challenges were earlier identified in Pakistan by Baloch and Thapa, (2018), Zimbabwe by Akinnagbe *et al.* (2018) and in Nigeria by Moyo and Salawu (2018).

However not enough extension officers, not frequent visit by the extension officers, inadequate resources and inadequate information about the project followed sequentially ranked as 3$^{rd}$, 4$^{th}$, 5$^{th}$, and 6$^{th}$. Poor communication and not from the catchment communities were not a pressing need in this study. They were ranked 7th and 8th respectively by the farmers, but the most perceived challenge reported by the farmers of Saifur et al. (2021) was poor communication skills. This skill too cannot be overlooked in the work of extension agents. Good communication, connection and advice is known to increase farmer's agricultural knowledge and skills which reflects in their production (Moyo and Salawu, 2018). The GFGF's project is located within these catchment communities which makes it very easy for the farmers to assess and therefore regarding it as a minor.

**Table 5: Constraints of Famers in PHMA in Accessing the Agricultural Services and Projects of GFGF**

| Constraints | Mean Rank | Position |
|---|---|---|
| A limited number of a selected beneficiary for the projects | 3.51 | 1st |
| High extension agent-to-farmer ratio | 3.69 | 2nd |
| The extension service officers are not enough | 3.78 | 3rd |
| Not frequent visits by the extension officers | 4.32 | 4th |
| Inadequate resources | 4.95 | 5th |
| Inadequate information about the projects | 5.04 | 6th |
| Poor communication skills | 5.25 | 7th |
| Not from the catchment communities | 5.46 | 8th |

Source: Field Survey (2023)

**Factors Influencing Farmer's Willingness To sustain Agricultural Extension Services and Projects Beyond the Funding of GFGF**

According to Setsoafia, Ma, & Renwick (2022), the adoption of sustainable agricultural practices has been recommended by many experts and international institutions to address food security. A total of 20 respondents were interviewed, with 10, 5 and 5 being lead farmer of the various agricultural projects, community leaders and management of GFGF respectively on the factors influencing farmer's willingness to sustain agricultural extension services and projects beyond the funding of Goldfields Ghana Foundation.

**Community Acceptance and Project Ownership**

The community leaders and the lead farmers recommend that it is important to involve or have the community members identify their own needs. *GFGF should involve us in selecting our own projects and also allow us to manage the project*, a lead farmer commented. This will help them take ownership of the project and will increase the willingness of the farmers to sustain the projects even after the exit of the donor

(GFGF). According to Moyo & Salawu (2018), when farmers are given the chance to actively participate in the design, execution, and assessment of extension services and projects, they develop a sense of ownership and responsibility. This involvement increases their willingness to sustain the services because they perceive themselves as key stakeholders. This response from the community leaders is what is referred to as Community Acceptance and Project Ownership. Peter et al., 2015 explained this as having in-depth knowledge about what the community needs for all its development and fully involving them to own and accept the results of the community project. Thus, allowing the Community members to be part and parcel of every aspect and process of the projects. The benefit of this is that, the stakeholders involved will help promote project support and this will result in free participation of the community without any hesitation. One of the greatest resources that can be found in a community is the minds and ideas of the community members, therefore, embracing community acceptance and project ownership perfectly directs projects toward sustainability (Peter et al., 2015)

**Cost-Sharing for Services**

Staff of the GFGF also believe that if farmers are allowed to pay for part of the services they enjoy, this will help them sustain the projects after GFGF has ended the support. When project is impactful and perceived valuable by farmers, they are willing to contribute or pay for the services provided (Durba and Venkatachalam, 2015), as observed in a study in Tanzania where farmers enjoyed improved agricultural extension service and farm inputs which led to increasing their willingness to pay on sustainable agricultural (Shee et. al. 2020). In a study conducted in China, farmers showed interest in payment towards sustainable agricultural lands even though they were not pleased with the ecological environment of existing agricultural lands, which affects sustainability (Yang et al 2019). On the other hand, not all farmers will support this

proposal. This is because farmer's willingness to pay for projects depends on several factors (Ning et al, 2019). Some farmers are not willing to pay for services as was seen in the study of Hatice et. al. 2020. In their study, 44% of farmers were unwilling to pay while about 23% also would pay but on some conditions.

**Benefits and Livelihood Impact**

All the respondents believe that, farmers are willing to sustain the projects when they earn more benefits like increased income in the projects and also see a high impact of the projects on their livelihood. This point raised by the respondents is similar to Wang et al (2021) and Castro-Nunez (2016). They reported that farmers willingly take part in agricultural projects such as greenhouse emission reduction and carbon projects due to the increased income. It is easier for agricultural sustainability to exist including its projects, when farmers are satisfied with the income they obtain from their production (Aydogdu, 2017). Since Elias et al. 2016 reported that farmers are more likely to continue utilizing and supporting agricultural services and projects when they perceive concrete benefits like higher yields, improved productivity, and increased income, the respondents in this study are echoing a necessary factor.

**Sustainable Exit Plan**

According to the respondents, all the GFGF agricultural projects should be designed with an exit plan and sustainability plan to promote the continuity of the project after the GFGF has left. Numerous project outcomes are lost after some NGO and other organizations for rural development leave because they are frequently forced into providing ongoing assistance for grassroot organization (Khan 2012). An example was the the Rwanda Global Saemaul Undong (SMU) Program. When the program ended, the Gihogwe Banana Producers' Cooperative nearly collapsed (Sunghye and Sang-ho 2020). The exit strategy is a crucial tool for choosing the right techniques to

support long-term transformation and project outomes. Cuéllar-Gálvez et al, (2018) developed an intervention model for projects and social change and emphasized the significance of an exit strategy to ensure that change will remain sustainable once the project is completed. From what Sunghye and Sang-ho (2020) observed in Rwanda, they suggested that aid agencies should possibly create an exit plan from the initial planning stage and the project should also be carried out under a specific plan so that the participants can achieve self-reliance and sustainability.

**Impact of GFGF Agricultural Projects and Extension Service on Livelihood of Farmers in PHMA**

The table 6 above shows the regression analysis of respondents on how the GFGF extension services has impacted their lives. Views of the respondents were grouped into four (4) categories; farm management, improve farming, cooperate formation, and external support. From the regression analysis table, it was revealed that extension service has helped farmers manage their farms and helped farmers improve living conditions were the variables among the rest that had a statistically significant impact on the average income of farmers and both had a positive effect on the average income of farmers. The positive coefficient of these variables indicates that, as these variables increase by a unit, the average income of farmers is also estimated to increase by GHc1944.924 and GHc2,351.56 (farm management and cooperate formation respectively). This finding conforms to the report of Moahid et al. (2021) that agricultural extension services have a beneficial influence on the net income of individuals who avail themselves of these services, primarily because they contribute to enhancing the managerial facets of farming. Qwebe et al (2022) also concluded in their study that, extension services have the duty to improve the livelihood of rural famers.

**Table 6: Regression Analysis of Impact of GFGF Extension Service on Livelihood of Farmers**

| Independent Variables | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | | |
| (Constant) | 14848.056 | 901.172 | | 16.476 | .000 |
| Farm management | 1944.924 | 903.685 | .157 | 2.152 | .033** |
| Improved farming | -1387.071 | 903.685 | -.112 | -1.535 | .127 |
| Cooperate formation | 2351.557 | 903.685 | .189 | 2.602 | .010** |
| External support | 510.893 | 903.685 | .041 | .565 | .573 |
| a. Dependent Variable: Average income | | | | | |

NB: **significant at 5%

Source: Field Survey (2023)

**Income Level of Farmers**

Table 7 indicates the average income and average expenditure associated with production in 2022 and 2021. The minimum average income of the respondents was GH¢ 450 whilst to the minimum average expenditure was find out to be 250. Also the maximum average income earn of the respondents was GH¢ 90,000.00 with GH 20,000.00 been the maximum expenditure. Gross margins and the Return on Investment (ROI) were estimated at GH¢ 12,153.75 and 451.09%. The findings revealed that, GFGF project in the PHMA is highly profitable and benefiting its beneficiaries. The kind of supports GFGF provided definitely helped the farmers to improve their productivity which results in a huge income. This is in line with the study of Momoh et al (2018) who observed a significant higher income in farmers who participated in agricultural services and training centre project in Nigeria. It was found out during the interviews with the respondents and the GFGF staffs that GFGF bears all the cost of

farm inputs such as seeds, fertilizer, agrochemicals and extension services without the farmers paying for them. The only cost the farmer bear is the labour cost, this account for the high profit margins in the GFGF agricultural projects in the PHMA.

**Table 7: Income and Expenditure of the Respondents**

| Category | Average Income | Average Expenditure | Gross Margin(Profit) |
|---|---|---|---|
| Minimum | 450.00 | 250.00 | |
| Maximum | 90000.00 | 20000.00 | |
| Mean | 14848.0556 | 2694.3056 | **12,153.75** |
| ROI (%) | | | **451.09%** |

Source: Field Survey (2023)

# CHAPTER FIVE

# SUMMARY, CONCLUSION AND RECOMMENDATION

## Introduction

After presenting the results of the study and discussing them, this chapter goes on to summarise the findings of the study. It also finalises this study by providing conclusion drawn from the study and making recommendations for various stakeholders.

## Summary of key findings

Gold Fields Ghana (GFG) is the leading gold mining company and contributes to the nation's tax revenue and socio-economic development. In quest to perform its cooperate social responsibility, the company has established a foundation (Gold Fields Ghana Foundation) to provide funds for its projects in specific areas such as agriculture in the surrounding communities.

With respect to the foundations agricultural projects, male participants dominate and majority of farmers (58.7%) had received at least a basic education. The highest household size and age group were 4 – 6 and 35 years above respectively. The study showed that the agricultural project constitutes 3 major programs and they were; Youth in Organic Horticulture Production (YouHop), Community Oil Palm Production Project and Cocoa Farmers' Support Programme of which the YouHop received the highest participation. Under these programs, the participants were provided with Training, PPEs, Farm Inputs, Farm Tools, Financial and Extension Support. The findings also showed that, GFGF project has brought a great shoot up in the income of the farmers. In the study, Farmers who spent more on production and those with large farm size were likely to earn higher than farmers who spent less and those with small farm size. More than 85% of the farmers were satisfied with the service of the

Extension agents. The study revealed that farmers' community acceptance and project ownership, cost sharing for services, economic benefits and livelihood impact and sustainable exit plan are the factors that will influence farmers' willingness to sustain the agriculture projects. The most pressing challenge of the farmers was that a limited number of people are usually selected for the program.

**Conclusion**

The primary aim of this study was to assess the effects of GFGF's agriculture projects and extension services. The findings of the study clearly indicate that this objective has been successfully accomplished. The study can be concluded that GFGF implements three major agriculture projects for farmers in PHMA, specifically the Youth in Organic Horticulture Production (YouHoP), Community Oil Palm Production, and Cocoa Inputs Support Program. The study further reveals that all farmers participating in the GFGF projects received farm inputs for their production, training and extension support, personal protective equipment (PPE), and working/farm tools through the GFGF projects. These exceptional services and advantages have led to a noticeable increase in agricultural productivity and a subsequent rise in the income of the beneficiaries.

The study can conclude that certain challenges hindered the farmers in PHMA from fully accessing the GFGF agriculture projects. These challenges encompass a restricted number of selected project beneficiaries, an imbalanced extension agent-to-farmer ratio, not enough extension officers and not enough frequent visits by the extension officers. It is deduced from the study that farmers exhibit a willingness to sustain the GFGF projects under specific conditions. These conditions include active involvement in project identification and management, the opportunity to contribute financially to the services they avail, and the assurance of heightened benefits such as

increased income and perceptible positive impacts on their livelihoods. Additionally, all GFGF agricultural projects should be strategically designed with comprehensive exit and sustainability plans to ensure the seamless continuation of the projects even after GFGF's involvement concludes.

Furthermore, the study concludes that the GFGF agricultural project in the PHMA stands as a highly profitable endeavour that genuinely benefits its beneficiaries. The expansive reach of GFGF's agricultural extension services and projects has undeniably left a positive imprint on the livelihoods of farmers within PHMA. This, in turn, contributes significantly to enhancing the nation's agriculture and bolstering food security.

**Recommendation**

To overcome the challenge of limited beneficiaries, it is recommended that, GFGF consider expanding the reach of its projects. GFGF should Explore partnerships with local organizations, government agencies, and community leaders to identify and include more farmers who can benefit from the projects. This can enhance the projects' overall impact on the agricultural sector.

It is recommended that GFGF improve Extension Services and Communication. Given the high extension agent-to-farmer ratio and inadequate number of extension officers, it's important to invest in enhancing the extension services. This could involve partnering with the Department of Agriculture (MoFA) extension agents to provide extension support to the beneficiaries of the projects and to encourage more frequent visits. Clear communication channels should also be established to provide timely and relevant information to farmers, enhancing their engagement and understanding of the projects.

To ensure the continuity of the GFGF agricultural projects even after the organization's involvement, it's important to design and implement a comprehensive exit strategy. This strategy should outline how the projects will be sustained, funded, and managed once the GFGF's support ends. It could involve building partnerships with local institutions, establishing community-based organizations, or facilitating capacity-building among farmers to manage the projects independently.

It is recommended that, GFGF establish a robust monitoring and evaluation framework to track the ongoing impact of the projects. Regularly collect data on agricultural productivity, income levels, and other relevant indicators. This information can guide informed decisions, identify areas for improvement, and ensure the projects remain aligned with their objectives.

**Suggestions for Future Studies**

The area for further research that emerge from this study include further research to delve into the characteristics of the selected beneficiaries and assess the factors influencing their selection. Investigate whether the current selection criteria lead to the most effective distribution of project benefits. This can help identify ways to ensure a more equitable and inclusive selection process.

Also, Research effective strategies for developing and implementing sustainable exit plans for development projects. Again, Investigate the dynamics of community involvement in project identification, management, and decision-making.

Furthermore, conduct a comprehensive economic analysis to quantify the costs and benefits associated with the GFGF agricultural projects.

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# APPENDIX

## Questionnaire A

Dear Sir/Madam

I am required to conduct research on a chosen topic as part of the academic requirement for the award of a Master of Science in Monitoring and Evaluation. Could you kindly dedicate a few minutes of your time to respond to the questionnaire on **Agricultural** Sustainability and Food Security in Ghana? It pertains to the **Impact Assessment of Goldfields Ghana Foundation Agricultural Projects and Extension Services**. Your participation is highly valued and greatly appreciated.

Write or tick [ ] the appropriate response to each question.

### Section A: Household Demographic Characteristics

1. Gender: Male [ ] Female [ ]
2. Age: 18 – 25 [ ] 26 – 35 [ ] Above 35 [ ]
3. Community ……
4. Occupation ……
5. Level of education: Basic[ ] Secondary/Vocational [ ] Tertiary [ ] None [ ]
6. Marital Status: Married [ ] Single [ ] Divorced [ ] Widow (er) [ ]
7. Number of dependants: 1 – 3 [ ] 4 – 6 [ ] 7 – 10 [ ] Above 10 [ ]
8. Do you have other sources of income? Yes [ ] No [ ]

### Section B: Goldfields Foundation Agricultural Projects and Extension Services

1. How long have you been involved in agricultural activities in the Prestea Huni-Valley municipality? ……
2. Are you a beneficiary of any Gold Fields Ghana Foundation Agriculture Projects?
   Yes [ ] No [ ]
   a. If yes, what type of projects?
      i. YouHop [ ]
      ii. Cocoa Support Programme [ ]
      iii. Oil Palm Production Programme [ ]
   b. What is the average farm size (acre) cultivated? ……
   c. If No, why? ……
3. What are the kinds of support you benefited from the agricultural projects?
   Training [ ]
   PPEs [ ]

Farm Inputs [ ]
Financial Support [ ]
Working/Farm Tools [ ]
Extension services [ ]
Others (Specify)……

4. Goldfields Ghana Foundation agriculture projects and extension services helped you?

**Please, select the number that corresponds to how the statement applies to you.**

**1= Strongly Disagreed 2= Disagreed 3= Neither 4= Agreed 5= Strongly Agreed**

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. GFGF agriculture project has helped improve my livelihood | | | | | |
| 2. I consider GFGF agriculture projects has help me in meeting other non-food household commitments such as paying of school fees for my children, meeting costs of medication and other expenses. | | | | | |
| 3. I consider extension officers' use of field visits in guiding me helpful | | | | | |
| 4. I consider extension officers' use of demonstrations in guiding me helpful | | | | | |
| 5. Extension officers help me adopt new transplanting technology for seedlings | | | | | |
| 6. Extension officers introduced me to innovative ways to prepare our lands for planting | | | | | |
| 7. Extension officers guide me to adopting innovative ways of managing my farms | | | | | |
| 8. Extension officers guide me to adopt new technology for pest and disease control | | | | | |
| 9. Extension officers guide me to adopt innovative ways for fertilizer and pesticide applications | | | | | |
| 10. Extension officers assist me in adopting innovative ways to identify disease-infested crops | | | | | |
| 11. Extension officers provide me with timely information about marketing and other financial issues | | | | | |
| 12. The timely and correct information I receive from extension officers helps me make an informed decision about my farm. | | | | | |
| 13. Extension officers help me get access to farm inputs from the Goldfield Ghana Foundation | | | | | |
| 14. Extension officers assist me to get access to farm inputs from agricultural suppliers | | | | | |
| 15. Extension officers assist me to get financial support from banks, microfinance institutions, etc. | | | | | |

**Section C: (Challenges Farmers Face in Accessing the Agricultural Extension Services and Projects of the Goldfields Ghana Foundation)**

1. What are the constraints you encountered in accessing the GGF agricultural projects? Please rank the constraints from smallest to highest (for example, if your constraints are 5, rank them from 1 – 5 with 1 being the most pressing and 5 being the least pressing) in the table below.

| s/n | Constraints | Ranking |
|---|---|---|
| 1 | Not from the catchment communities | |
| 2 | Inadequate information about the projects | |
| 3 | A limited number of a selected number of beneficiary for their projects | |
| 4 | The extension service officers are not enough | |
| 5 | Not frequent visits by the extension officers | |
| 6 | Inadequate resources | |
| 7 | High extension agent-to-farmer ratio | |
| 8 | Poor communication skills | |
| 9 | Others: (Specify): | |
| 10 | | |

**Section D: Impact of Agricultural Projects and Extension Services of Goldfields Ghana Foundation on the Livelihood of Farmers**

1. What is your total income earning?

| S/N | Production Year | Income Earn |
|---|---|---|
| 1 | 2021 | |
| 2 | 2022 | |

a. What is your total expenditure?

| S/N | Production Year | Income Earn |
|---|---|---|
| 1 | 2021 | |
| 2 | 2022 | |
| | Total | |
| | Average Income | |

## Questionnaire B

Questionnaire number …….

**Factors Influencing Farmer's Willingness to Sustain Agricultural Extension Services and Projects Beyond the Funding of Goldfields Ghana Foundation**

1. What factors of agricultural extension services have been found to affect the willingness of farmers to continue service usage after the end of Goldfields Ghana funding?.....
2. How do agricultural extension services affect the long-term sustainability of farmers in Ghana? ……
3. What strategies can be implemented to influence farmers' willingness to sustain the agricultural extension services and projects beyond the funding of the Goldfields Ghana Foundation?

   ……

   ……

   What should Goldfields Ghana Foundation do to help farmers to sustain the Agriculture Projects and Extension Services?

   ……

   ……
4. How do various socio-economic factors affect the willingness of Ghanaian farmers to sustain agricultural extension services beyond the end of Goldfields Ghana funding?

   ……

   ……