



**TECHNOLOGY PROMOTION AND DISSEMINATION AMONG RURAL MICRO
AND SMALL SCALE ENTERPRISES IN ASHANTI REGION OF GHANA: A CASE OF
IFAD/GOG/AfDB SUPPORTED RURAL ENTERPRISES PROGRAMME (REP)**

REPORT

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SDP (2016/2017)

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AUGUST 2018

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LIST OF ACRONYMS AND ABBREVIATIONS

AfDB	African Development Bank
BAC	Business Advisory Centre
FGD	Focus Group Discussion
GOG	Government of Ghana
IDI	In-depth Interview
IFAD	International Fund for Agricultural Development
ICT	Information and Communication Technology
KII	Key Informant Interview
MGF	Matching Grant Fund
MSEs	Micro and Small-scale Enterprises
NBSSI	National Board for Small Scale Industries
REP	Rural Enterprises Programme
REDF	Rural Enterprises Development Fund
RTF	Rural Technology Facilities
SDGs	Sustainable Development Goals
SPSS	Statistical Package for Social Science
USD	United States Dollar

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ACKNOWLEDGEMENTS

I deeply appreciate everyone who has supported me one way or the other through the process of this research. Firstly, my profound gratitude goes to the almighty God for giving me strength to do the work and seeing me through it all. I'll also like to extend my gratitude to the Centre for Sustainable Development, University of Ibadan for training me more on carrying out researches and the International Funds for Agricultural Development for giving me the opportunity to conduct this research.

My profound gratitude goes to my supervisor, Prof Olanrewaju Olaniyan and to my very able lecturer and coach, Dr Olayide Emmanuel for their constant efforts to ensure this research was a reality. A very big thank you also goes to my supervisor on the field, Mr Cletus Kanyenwee and every member of the REP team, I appreciate the kindness and warm welcome, you made my stay worthwhile.

I am also deeply thankful to my informants. Their names cannot be disclosed, but I want to acknowledge and appreciate their help and transparency during my research. Their information helped me complete this research. I am also so thankful to my fellow students whose challenges and productive critics have provided new ideas to my work.

Special thanks goes to my family as they have supported me in every way possible, I really do appreciate all you do. May the good Lord bless you all.

EXECUTIVE SUMMARY

The International Fund for Agricultural Development (IFAD) in collaboration with the Global Masters in Development Practice at the Earth Institute of the University of Columbia New York, United States began a program known as the graduate Win-Win Field practicum for students of the development practice in partner Universities including the University of Ibadan Nigeria, which is the only partner university in Nigeria. The program requires students to travel to different African countries to carry out meaningful research necessary for the development of sectors of the economy with major focus on the livelihood of rural dwellers.

IFAD developed a research topic in partnership with the REP: *Technology promotion and dissemination among rural MSEs in the Ashanti region of Ghana: A case of IFAD/GOG/AfDB supported project.*

This research examines the level of the promotion and distribution of technology amongst Micro and small-scale enterprises (MSEs) in the Ashanti region of Ghana. Study has shown that SubSaharan Africa has a challenge of low adoption of technology. Most MSEs in the region are yet to acquire the appropriate technology for the development of skills, manufacturing of processing equipment making them realize poor yield, income, productivity and struggle with post-harvest losses. According to a study, MSEs in Ghana contribute about 60% to the nation's Gross Domestic Product (GDP), so it is not a sector to be ignored. This study focused on the effect of technology on the performance of rural MSEs and the factors affecting dissemination among rural MSEs. Technology in this study was narrowed to skills training and promotion of processing equipment. There is a need to explore the place of skills training for MSE development. Previous studies have showed how different sectors of ICT— especially gadgets such as phones— have improved the performance of MSEs. However, technology is a vast topic and takes different forms. This study therefore aims to examine how technology is disseminated among MSEs in selected districts in Ghana and the factors influencing the dissemination of technology

Development literature has emphasized the importance of MSEs in the development of a nation. MSEs provide opportunities for people who are unable to get paid employment in large businesses and therefore unable to gain access to the productive market due to different factors

including lack of required skills, age, or lack of geographic mobility. MSEs also serves as a channel for introducing innovations into the market and to serve as a catalyst for economic and societal development of a country.

Primary data were collected from selected districts in the Ashanti region of Ghana by the use of survey questionnaires A multi stage sampling procedure was utilized. Questionnaires were administered to a total of 363 number of MSEs were a. In addition to this, qualitative data was collected through in-depth interviews and focus group discussions with the key stakeholders in the MSE subsector. The data was analyzed using Chi square and t-tests and supported by cross tabulations and inferential statistics. Also research techniques such as Key Informant Interview (KII), Focus Group Discussions (FGD) and In-depth Interviews (IDIs) were used in the course of the study. Descriptive and inferential statistics such as mean, frequencies, percentages, were used for data analysis

Majority of this findings revealed that skills training had a direct effect on the MSEs. It further revealed that there is a high level of awareness of technology and the importance of technology among the MSEs but a comparatively low level of adoption and dissemination of technology due to factors such as inadequate staff, financial constraint, irregular follow up system, delay in release of funds and logistics.

Therefore this study recommends that more attention is given to the MSE sector as it contributes significantly to the country's economy. The result of this study will inform the decisions and policies made in the future by the Rural Enterprises Programme and the Government of Ghana that will help in formulating and implementing policies that will improve the promotion and dissemination of technology in the rural regions of Ghana

Keywords: Technology promotion. Technology dissemination, Rural MSEs, REP

CHAPTER 1: INTRODUCTION

1.1 Problem statement

The dynamic nature of technology has made contributions to its various extant definitions and concepts. The concept of technology is very important in order to clearly understand how technology works and examining how past researches have defined the concept but it's evident that the definition of the concept is not easy. Overtime, different perspectives have been used in defining technology. The concept has attracted the attention of researchers from various fields including Marketing, Agriculture, Organizational management, Anthropology and recently Technology management. (Sazali *et al*, 2011). Irrespective of the research done on the subject of technology, many available literatures are fragmented along various specialties but generally there is yet to be a commonly accepted paradigm). Lan and Young (1996) emphasizes that the definition of technology is varies amongst authors and context of disciplines.

This has made the concept, variables and measures vary from among different studies (Kumar *et al*, 1999). Technology awareness is necessary for technology adoption Ability to create awareness help to bridge the gap between development of technology and its uptake. Technology dissemination fosters the spread of technologies that has been generated, else they may never leave shelf of research institutes and have little or no impact on a society. According to (Prince *et al*, 2014), Ignorance of extant technologies is a major factor that limits the adoption of technology. For instance, in the northern region of Ghana, new or extant technologies are propagated among farmers by group and mass communication. However, each awareness and dissemination techniques has its strengths and weaknesses. Prince *et al*, 2014 claims that although some governmental organizations and non-governmental organizations have used a combination of different techniques for awareness creation to reach out to farmers and other MSEs in Ghana, the awareness and adoption level still seems comparatively low. Arguably, the current dissemination techniques may not have had a remarkable influence on enhancing the awareness level of the farmers and MSEs in the Northern Region of Ghana.

Self-employment has seemed to be the best way of survival for many around African countries since most of them lack very functional systems and support from the government (Ardjouman, 2014). The micro and the small-scale enterprises are seen as the backbone of the overall economic growth and development of any country. Self-employment may lead to setting up small businesses making many individuals speed up their economic growth. Entrepreneurship also

allows majority of people especially those still in formal employment to engage in small businesses which supplement their income as well as providing employment opportunities to others.

Technology is very important in different sectors in recent years as it fosters speed, accuracy, efficiency in any form of production. Technology

In developing countries, especially in Africa, there has been a snail-paced level of development in most sectors especially the rural regions which are not left out as they are often challenged with the issue of financing for development. Different sectors suffer from this slow development especially the micro and small scale enterprises (Arthur, 2013). Micro and small-scale enterprises (MSEs) are necessary for achieving development such as wealth creation, hunger reduction, poverty alleviation and economic growth in a nation which will engender an even distribution of wealth and lead to increased productivity. MSEs are mostly rural and agricultural based and are faced with various challenges including funding for development and limited access to relevant technology which lowers their ability to contribute to the nation's economic growth as it should be. (IFAD, 2011).

Africa today is looking to boost the agricultural sector which could be a major source of revenue for the country, however salient progress have not been made so far especially with the small scale farmers despite the research institutions and the centres distributed around to develop relevant technology. Where the technology exists, they are either outdated, unacceptable or not well spread therefore making the benefit of the technology not fully utilized (Ankomah Mark, 2012). This could be for different reasons for instance, the introduced technology might be rejected by the farmers if it is not an indigenous technique e.g. intercropping. Some of the external experts make decisions on the choice of technology to be used without including the locals which could often lead to neglect of that technology, other times, the farmers are not well educated on how to make use of the technology. For rural development to be possible. Smallholder farmers should be consulted so they can give relevant information as to what they need and not the dictatorship system of the "top-down" approach, this in most cases does not work. Donors and development partner have made efforts to see to it that growth is achieved as it is now a concern.

Key measures to boosting food security and having sustainable agriculture is by engaging the youths by introduction of modern technology, skill training and information. Also agriculture needs to be made more appealing by making it more technology inclined and business oriented making it more attractive to the youths and less risky for operation. Agriculture needs to be rebranded so that it is no longer seen as a profession for the poor but an opportunity for growth in business. (IFDC, 2017).

Agriculture contributes about 60% percent of the Gross Domestic Product of Ghana, employing about 42% of her country's worker, therefore this sector cannot be ignored. However the rural regions in Ghana predominantly into agriculture do not have the relevant technology or skills for farming and production leading post-harvest losses and low yield.

The Rural Enterprise Programme (REP) in Ghana aims at disseminating technologies among rural MSEs through some service providers such as the Business Advisory Center (BAC) and the Rural Technology Facilities (RTF). These bodies are responsible for facilitating training services that will improve the performance of the MSEs. Skills such as Record keeping, Business and waste management and some technical training rendered specifically to persons in the technical fields like Welding and Carpentry. The programme have been able to reach out to a large number of MSEs in the rural parts of Ghana since its first phase in 1996 and has been able to disseminate necessary technologies which has led to the improvement of the MSEs.

This research attempts to examine the level of the promotion and distribution of technology amongst Micro and small-scale enterprises (MSEs) in the Ashanti region of Ghana. Study has shown that Sub-Saharan Africa has a challenge of low adoption of technology. Most MSEs in the region are yet to acquire the appropriate technology for the development of skills, manufacturing of processing equipment making them realize poor yield, income, productivity and struggle with post-harvest losses. According to a study, MSEs in Ghana contribute about 60% to the nation's Gross Domestic Product (GDP), so it is not a sector to be ignored. Small-scale enterprise owners are examined to technology promotion and dissemination through authorities and the use of survey instruments.

1.2 Objectives of the study

The main objective of the study is to examine the dissemination of technology amongst rural Micro and Small-scale Enterprises and the factors influencing them. The study will specifically:

1. Examine technology awareness and adoption among the MSEs.
2. Examine factors influencing technology dissemination among the MSEs.
3. Evaluate the influence of technology adoption on MSEs' performance in the Ashanti region of Ghana

1.3 Justification of the study

The relevance of technology for MSEs development cannot be over emphasized as seen in various literature. In developing countries, especially in Africa, there has been a snail-paced level of development in most sectors especially the rural regions which are not left out of the fate as they are often challenged with the issue of financing for development. Different sectors suffer from this slow development especially the micro and small scale enterprises. Micro and small-scale enterprises (MSEs) are necessary for achieving development such as wealth creation, hunger reduction, poverty alleviation and economic growth in a nation which will engender an even distribution of wealth and lead to increased productivity. MSEs are mostly rural and agricultural based and are faced with various challenges including funding for development and limited access to relevant technology which lowers their ability to contribute to the nation's economic growth as it should be. (IFAD, 2011).

This study is significant because it reveals the effects of technology for the development of the MSE sector. In this age of advanced technology, it will be quite difficult to carry out business activities without one type of technology or another. There is a high number of MSEs in rural areas of Ghana and it's expected that these MSEs have relevant technologies to grow their businesses, although some MSEs have adopted some technologies and experienced improvement in their business, however quite a number are yet to adopt relevant technology. This study examines the level of technology promotion and dissemination among MSEs. It aims to understand how technology is spread among MSEs by the Rural Enterprise Programme (REP) and factors influencing the dissemination. Findings from this study will guide policy makers in making decisions that will help promote dissemination of technology. It will also help identify

issues affecting the effective dissemination and proffer recommendations that will foster improvement and shape future policies.

1.4 Scope of the study

The study focuses on how technology is promoted and disseminated among MSE in the selected districts in rural areas of Ghana. It focused on the services provided by the Rural Enterprise Programmed (REP), how they disseminate technology among the MSEs. They began the first phase in 1996 and has since then made great efforts in improving the MSE performance by easing access to process equipment and skills training. The target group included beneficiaries of the REP intervention both male and female that own one kind of business or another including business like dress making, rice farming, welding. The Business Advisory Centre (BAC) and the Rural Technology Facilities (RTF) identified as channels to be examined within during this study. This is because they serve as the middleman between the REP and the MSEs in the region.

The study only examines 3 districts of the Ashanti region (Asante-Akim, Ejisu-Juaben and AsanteMampong). 1200 BAC clients were identified through purposive sampling method and simple random method was used to select 363 members for data collection using questionnaires.

CHAPTER 2: BACKGROUND TO THE STUDY

2.1 IFAD/REP

The Rural Enterprises Programme (REP) targets support to the development of Micro- and Smallscale Enterprises (MSEs) by working with the entrepreneurial poor to achieve four main outcomes:

- Business development services;
- Technology promotion and skills development;
- Improved financial services;
- Conducive environment for business start-up and growth.

The Rural Enterprises Programme is targeting these outcomes by developing interventions to 161 districts of the ten regions nationwide. For this the programme benefits from systems and experiences gained over the past sixteen years during two previous phases as a project. In these earlier phases, the project developed significant groundwork of facilities and services within 66 districts.

REP works within the policy initiatives of the Ministry of Trade and Industry (MOTI) with mandate particularly to encourage the growth of the rural MSE sub-economy. The programme maintains a close coordination with the District Assemblies to assist their efforts in improving the local business environment in accordance with the national policy of decentralization. As a national programme, REP is expected to provide an increased role in the coordination of the various stakeholders involved in MSE development; in conformity with the national objectives of poverty reduction through economic growth.

This baseline study assignment has two principal main objectives:

- To assess the present status of the District, Regional and National framework of MSE support institutions (public and private);
- To assess the present status of MSE clients and their communities that was supported by the programme.

A significant aspect of the value of this study has been found in comparisons between those local institutions, clients and communities that fall within the previous (with-project) Districts and the new (non-project) Districts. Logistics of time and budget have not permitted our coverage of all the districts in Ghana for this baseline, and therefore an agreed sampling strategy has been employed. Furthermore, in recognition that each district has its own specific operational environment, there is no such result as an ‘average’ district. Our sampling has therefore been based on an agreed purposive selection of districts for study providing a representation of environments which have been developing with and without REP interventions. The study has, as a result, also been able to consider the effectiveness of many of the previous project strategies and interventions by comparing the results of this baseline between districts with and without the previous phase interventions; but has not been designed specifically as an impact evaluation.

For the institutional aspects, the study has followed a format based on a SWOT analysis; considering the strengths, weaknesses, opportunities and threats that emerge from observations and interviews with key informants. These have been considered on the basis of the institutions themselves and their functions; as well as their effective coordination for an environment conducive to MSE emergence and the present status of MSE clients and communities has also been assessed as a benchmark for on-going progress evaluations to be managed by REP on a periodic basis. To assist this process the structured questionnaire format and purposive sample of MSEs and households has been designed to provide a ready-made facility of a core panel-sample for continued monitoring by REP M&E Directorate.

CHAPTER 3: LITERATURE REVIEW

3.1 Introduction

Studies done on technology transfer have shown a nexus between technology and knowledge connected which has given more attention to research and development process. By scrutinizing the technology definition, there are two basic components that can be identified as ‘knowledge’ or technique; and ‘doing things’. Technology deals mainly with attaining certain result, resolving problems, getting certain tasks by applying specific skills, using knowledge and exploiting assets (Lan and Young, 1996). Technology concept is not associated with the technology that expresses in the product alone but it is also related to the knowledge or information of it used.

As stated in earlier chapters, Micro and small scale enterprises are vital for a country’s economic growth and development. There are numerous MSEs in Ghana and these MSEs are said to contribute about 60% to the nation’s economy. The MSEs vary from agriculturally inclined businesses to primary fabricators and Agro industrialists. They play a major role in fostering sustainable economic growth and creation of jobs in a nation. Bringing MSEs up to speed with the digital revolution is not just a matter of improving their quarterly profits, but also about creating growth and jobs. In this time and age, also known as the digital age, businesses cannot thrive without better use of ICT. Kozak, (2011) emphasized that MSEs experience more growth when they embrace technology

Researchers have defined technology from many different perspectives which has inadvertently generally affected the results and design of the research, the government policies and negotiations around a technology transfer. (Wahab, 2011) defines technology putting it in two major categories:

The aspect of technology involving equipment, techniques products and processing and ii) the aspect that deals with information, the know-how in managing and marketing products, quality control, skilled labour and production.

3.2 Review of conceptual issues

Earlier technology was only connected as an object which is transferred by relying upon a determined yet specifiable set of processes for manufacturing and products. Now studies on technology transfer has linked technology directly with knowledge and attention is given to research and development processes.

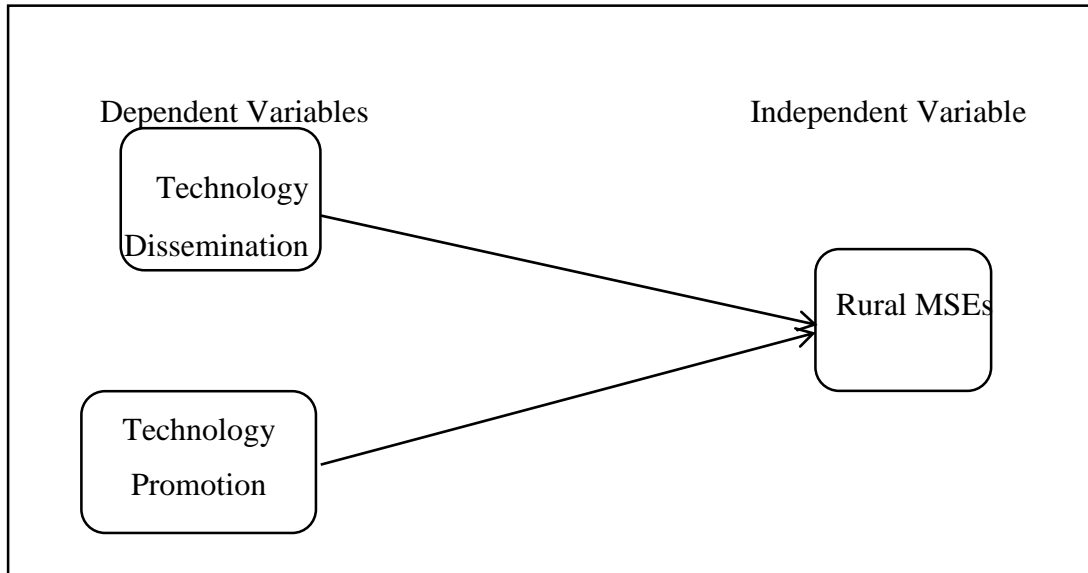
Micro and Small Enterprises (MSEs) are generally referred to as enterprises with up to 50 employees. MSEs are defined as follows: micro enterprises 1-9 employees and small: 10-49 employees.

Table 1 Definition of MSEs

Enterprise Category	Number of Employees	Annual Turnover (N' Million)	Loan Amounts (N' Million)	Total Asset (N' Million)
Micro	≤ 10	≤ 20	≤ 10	≤ 5
Small	$>11 \leq 50$	≤ 100	$>10 \leq 100$	$> 5 \leq 100$

Note: Adapted from Bank of Industry, Nigeria

Matlay and Weathead (2013) observed that SMEs are generally regarded as the 'backbone of the economy'. According to the authors, the business of SMEs constitute majority of economic growth and development in developing countries. In countries like Unites states, 99 percent of their firms are classified as SMEs, and 85% in European Union (Sakal, 2012). Several authors continue to hold the view that the pool of resources that SMEs have, largely no impact in the economy and should be generally left to single sore proprietors or in the dark (Barun, 2011; Bate, 2011). However, researchers have shown that SMEs employ large number of people and greatly contribute to the national income (Berger, 2012; Mingaine, 2013). In this regards, however, studies in China, USA, Kenya and other African countries show that contributions of SMEs are not the same across all the enterprises (Mingaine, 2013; Mutwiri & Mingaine, 2014). According to Reynold (2010) those small enterprises which survive play a much more important role in National development. According to Bates (2011), only about one quarter of all SMEs account for most of the societal contributions in terms of out-of state exports, sales and employments.



Note: Author's concept: A conceptual framework of Technology Promotion and Dissemination among Rural Medium and Small Scale Enterprises.

The conceptual model above shows the relationship between technology dissemination and rural MSEs; Technology promotion and rural SMEs; Technology dissemination and promotion on rural MSEs.

3.3 Review of theoretical issues

Theoretical framework explaining ICT promotion in MSEs suggests several existing theories and different approaches that help to explain and advance the understanding of ICT adoption in small businesses. Prominent among the theories is the 'technology acceptance model' which has been described to stem from the theory of reasoned action and aims at predicting the attitude of potential users towards a new technology by focusing on individual perceptions in evaluating costs and benefits.

Relating this to our conceptual framework which deals with technology dissemination and technology promotion, it is arguable to state that adopting a technology may inform the decision of the adopter to engage more use of technology in the organization's day to day activities and also reaching out to the world to learn more skills and at the same time to minimize cost.

According to Forman and Goldfarb (2006) Technology Adoption Model (TAM) has over the years become a robust model frequently used in studying acceptance of ICT by the user. It is widely viewed as an information system theory which helps to understand the adoption and use of internet (Gibbs et al., 2007; Davis 1989). The theory gives a better understanding of how adopters accept or reject the use of ICT in their businesses. Although it has been criticized on various grounds: as less comprehensive compared to the diffusion approach which has more innovation characteristics, including time as an essential element of the theory; and for not accounting for the influence and personal control factors on behaviour, including the lack of consideration to other factors such as external influences from the environmental attributes, suppliers, customers and competitors (Manueli et al.,2007; Rogers, 1995; Gibbs et al., 2007; Van Akkeren and Cavaye, 1999).

3.3.1 Medium and small scale enterprises in rural Ghana.

The definition of MSEs varies depending on the subject criteria which could include one or a combination of different criteria such as number of employees, initial outlay of capital, financial strength, relative size and business kind. (Carpenter, 2003). The National Employment Report in Ghana covering the Integrated Business Establishment Survey by the GSS (2015) classified establishments in Ghana into Large, Medium, small and Micro (LMSM) using the number of employees as metric. According to the classification, the large establishments have 100 employees, medium-sized establishment have 31 to 100 employees, small-sized establishment have between 6 to 30 employees and finally the micro establishment with about 1 to 5 employees.

The heterogeneity of micro enterprises notwithstanding, they still go on to become bigger firms as can be seen in earlier chapters therefore, their savings practices below are reviewed within the scope of all three financial sectors - formal, semi-formal and informal. (Dinah, 2017).

3.3.2 Technology Dissemination in Medium and Small Scale Enterprise.

Technology according to Olatunji (2015) plays a very important role in helping SMEs to have hedge over competitors in terms of accessibility to global markets. Duan et al (2002) ascertains that the use of technology in many organizations has assisted in reducing transactional cost, overcome the constraints of distance and have cut across geographic boundaries thereby assisting to improve coordination of activities within organizational boundaries. In fact, technology has the

potential to improve the core business of SMEs in every step of the business process. Minton (2003) supported this assertion by opining that through the use of information technology, SMEs can gain from developing capabilities for managing information, intensive resources, enjoy reduced transaction costs, develop capacity for information gathering and dissemination of international scale and gain access to rapid flow of information.

A study by Lymer, 1997 stresses that technology implementation in the organization which includes SMEs has the potential to reduce costs and increase productivity level. According to them small firms might find cost-effectiveness as a motivating factor to use Internet-commerce for improving communication with trading partners and consumers. Sajuyigbe and Alabi, (2012) also argue that technology dissemination aids strategic management, communication and collaboration, customers' access, managerial decision making, data management and knowledge management since it helps to provide an effective means of organizational productivity and service delivery.

Sakai (2002) study also stressed that the extensive use of ICT can allow micro-enterprises with ideas and technologies to remain small and profitable or generate substantial global sales by exploiting their intellectual property over the Internet. Onugu, 2005 affirms that ICT enables organizations to decrease costs, increase organizational capabilities and also, assist to shape interorganizational coordination. Therefore, the use of ICT can help to lower coordination cost and increase outsourcing in organizations.

Researchers in several studies have identified the drivers and challenges of ICT adoption by MSEs in developing countries. SMEs are broadly known to play a very important role in the economy of a country. Studies have revealed that large organizations generally have the resources to adopt ICTs whereas the SMEs that are desirous to adopt are handicapped by financial and human resources. Although ICTs are much cheaper than before, they still represent a considerable investment for MSEs that usually lack such funds. Besides, SMEs usually do not have the appropriate skills available in-house and thus have to train existing staff or outsource most ICT functions of the organization.

3.3.3 Technology Promotion in MSEs

There is a great need for any country to plan, to manage change in the context of globalization and focus on technology intervention for heightening economic activity within the country to attain economic independence. Developed countries still retain their competitive improvement in the innovative and rapid growing industries of the future. Technological innovation is a key factor in a firm's competitiveness. Technological innovation is unavoidable for firms which want to develop and maintain a competitive advantage and/or gain entry in to new markets (Becheikh et al. 2006). There is a great need for any country to plan, to manage change in the context of globalization and focus on technology intervention and promotion for heightening economic activity within the country to attain economic independence.

Technology promotion according to Hanadi (2013) is influential in improving the performance of SMEs. The research on drivers of technology adoption helps ominously the organizational acuity toward usage of technological innovation. The improved perception of technology leads in the tendency toward usage behavior of innovation at the organizational level. Technology promotion behavior significantly improves organizational performance in term of profit, growth and market share of Indonesia SMEs. Technology promotion benefits SMEs in term of providing guideline to improve their financial make up. Actual usage of technology is instrumental for SMEs to not only improve their business performance but also significantly contribute to the national economic growth.

3.3.4 Technology Dissemination and Promotion in SMEs.

Partnerships between government and the private sector to improve e-readiness and awareness raising amongst the public are also elements of e-leadership. Some governments have adopted strategies and taken actions to realize the much-talked of 'knowledge society' (e.g., Costa Rica, Andhra Pradesh, and Estonia). There is scope within the MSE sector for enterprise associations and other sector institutions to promote awareness of the potential of ICTs and of the challenges that the spread of e-commerce will bring. The adoption and use of ICT can bring benefits in terms of efficiency, effectiveness, innovation, growth and competitive advantages.

Muritala, Awolaja & Bako (2012) also opined that government should support MSEs with modern technology in order to able them to access to the necessary information relating to business opportunities which would enable them to reduce their operating cost and be more

efficient to meet the market competitions. Global financial crisis, internal factors, local infrastructure and government support have been identified as critical for the internationalization of SMEs (He, 2011).

In conclusion, the use of new emerging technology should be encouraged in rural areas in both the business and social sectors, MSEs owners/ managers in rural areas should be made aware of the benefit and the importance using emerging technology to get access into the international markets. They should be made aware of the value of using new emerging technologies such as social media and social networking in promoting their business. The cost benefit of using and advantages of using new emerging technology as international marketing tools for rural MSEs products and services must be clearly understood.

CHAPTER 4: METHODOLOGY

4.1 Introduction

The objective of this study is to analyze the nexus between adoption of technology and the performance of MSEs in the Ashanti region of Ghana. Technology dissemination is believed to improve the performance of MSEs which eventually has a positive effect on the economy.

To gather data for this research, different approaches were employed considering various challenges that may be encountered such as interviewees being unable to give out information for fear of some sort or lack of access to information due to poor record-keeping, because of this primary and secondary data was used in order to make it easier to marry the findings. Random sampling and In-depth interviews was carried out to acquire primary information from authorities in charge of small-scale industries as well as owners of the small-scale enterprises. Other materials such newspapers articles, annual reports, business plans, government's official publications as relevant to the research and necessary documents from the office of the authorities in charge of promoting small-scale enterprises was used for analysis.

4.2 Research design

This section describes the type of survey used in the course of this study. The section aims to define the population, study area, sample size as well as sampling techniques used in selecting the sample size for the study. The study is descriptive and included sources of data collection, analysis and presentation. This study seeks to examine the promotion and dissemination among MSEs in the Ashanti region of Ghana: a case of IFAD/GOG/AfDB supported project. The aim is to examine the role of the REP/BAC in transferring technology in the form of skills training and how necessary equipment is dissemination throughout the MSE sector. Asante-Akim central, Ejius-Juaben and Asante-Mampong municipalities of the Ashanti region of Ghana were used as the scope of field survey. Structures questionnaires were administered to beneficiaries of the REP/BAC intervention and Key Informants Interviews conducted with authorities to get relevant information.

4.3 Time frame

The researcher carried out the research in the period of three months which is the period of the internship program.

4.4 Study area

4.4.1 State of study area

The Ashanti Region of Ghana is located in the southern part of the country. It is the third largest administrative region and occupies a land surface of 24,389km². According to the census conducted in 2011, the Ashanti region is the most populated region with a population of Ghana having a population size of 4,780,380 which accounts for 19.4% of the entire population. The largest city within the region is Kumasi.

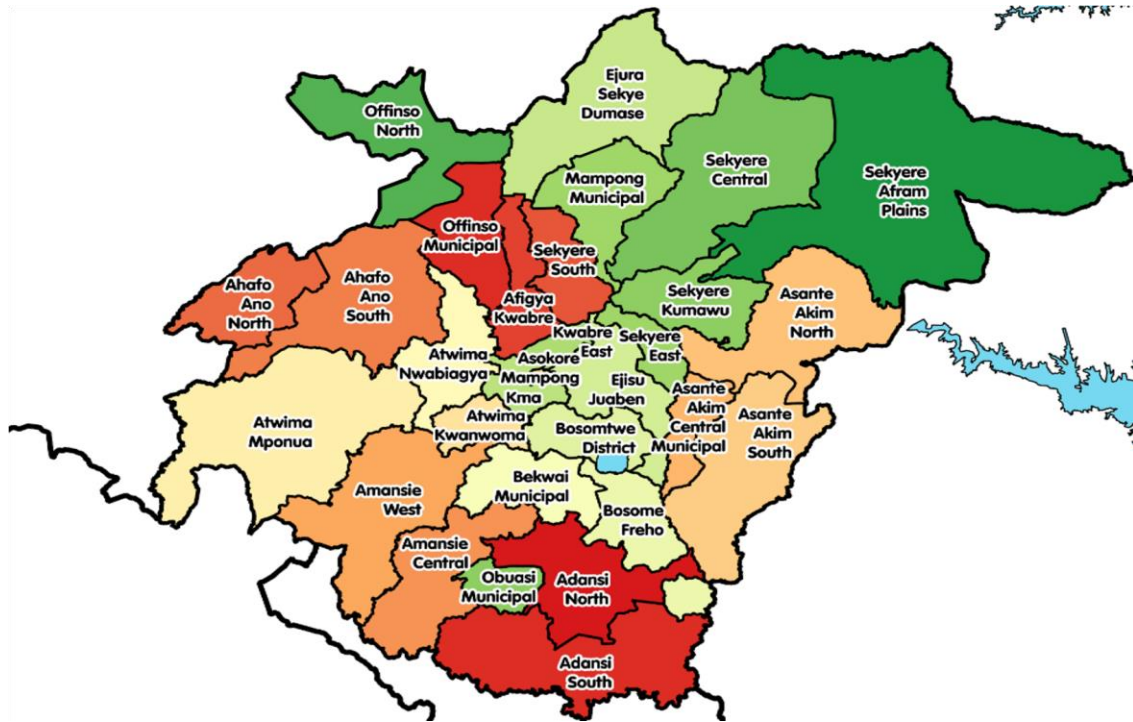
4. 4.2 Population and Sample Design

The target population for this study is made up of the individuals benefitting from the REP BAC/RTF interventions in the districts. Secondary data were obtained from the Business Advisory Centers (BAC)

This research was carried out in three districts of the Ashanti region of Ghana namely, Table 2 shows the different districts

Table 2 Selected districts for the study

Locations	Population size (2010)	Projection (2013)
Asante Akim central district	71,508	75,701
Ejisu Juaben district	124,176	151,407
Asante Mampong	304,815	323,009



363 Micro and small-scale enterprise owners were included as study population from the three locations. However, 380 questionnaires were administered, 17 questionnaires were rejected and 363 analyzed.

The REP was selected as a case study for this research as they are a major organization responsible for MSEs interventions. They carry out their activities through the Business Advisory Centers (BACs). The BAC serves as the field implementing unit in rural areas for the REP.

Table 3 below shows the BAC offices and the information of their available clients.

Table 3 Study and number of registered clients.

Study areas (Municipalities)	Total No of clients
Asante-Akim central	520
Asante- Mampong	400
Ejisu Juaben	280

3.5 Nature and sources of data

Primary and secondary sources of data was used in the course of the research, data was obtained through focus group discussions (FGD), in-depth interview (IDI), Key informant interview (KII) and questionnaires as well as existing data from relevant authorities in charge of MSEs. The

study consisted of both qualitative and quantitative research methods. Interviews, non-structured observation and document analysis were the main means of collecting data that were used for descriptive purposes. A research journal was kept for daily entry of data and observations. Topic guides were used for semi-structured interviews. These included general questions with probes. More formal questionnaires for both individual farmers and farmer groups were then developed based on this information and from document analysis. The individual instrument included 48 questions, while the group questionnaire had 66. The researcher developed questionnaires based upon similar survey instruments from studies in Kenya. Advice and input from key informants and research colleagues was also sought. Questionnaire content was mainly guided by initial information elicited from farmers and farmer groups, however, during the preliminary phase of the study. The Institutional Review Board of the University of Florida approved the study design and instruments prior to data collection

3.6 sample method

Open and closed ended questionnaires were issued to MSE owners and authorities to gather the needed information to carry out the study.

3.7 Reliability of Instrument.

The questionnaire employed for the primary data in this study was pilot-tested at Akinyele LGA a benefitting LGA and found very reliable. It led to rework before the main study was conducted. Although the respondents may be subjective, the questionnaire is still able to capture relevant and needed information based on their opinions. Using Statistical Package for Social Sciences (SPSS) that data were analyzed.

3.8 Questionnaire.

The questionnaire is structured in that it brings out maximum information about the beneficiaries of the group. The questionnaire contains both closed and open ended questions. The open ended questions enables the respondents express themselves as well as possible, giving detailed answers to question asked while the closed ended questions required the respondents to give direct

answers as the researcher researches further to get more clarification from other sources so as to add more meaning to the information received.

The questionnaire seeks to gather personal information about the respondents, type of business operated, methods of skills acquisition obtained from the BAC/RTF, access to the MGF and REDF, the loan tenure, level of technology currently operated upon. The questionnaires were administered to the respondents and responses were collected immediately, except in a few cases where the respondent asked for additional time to complete the questionnaire. This enabled smooth collection of data for entry, analysis and result presentation. The schedule of the questionnaire used is attached as an annexure to this chapter.

3.9 Analytical Technique

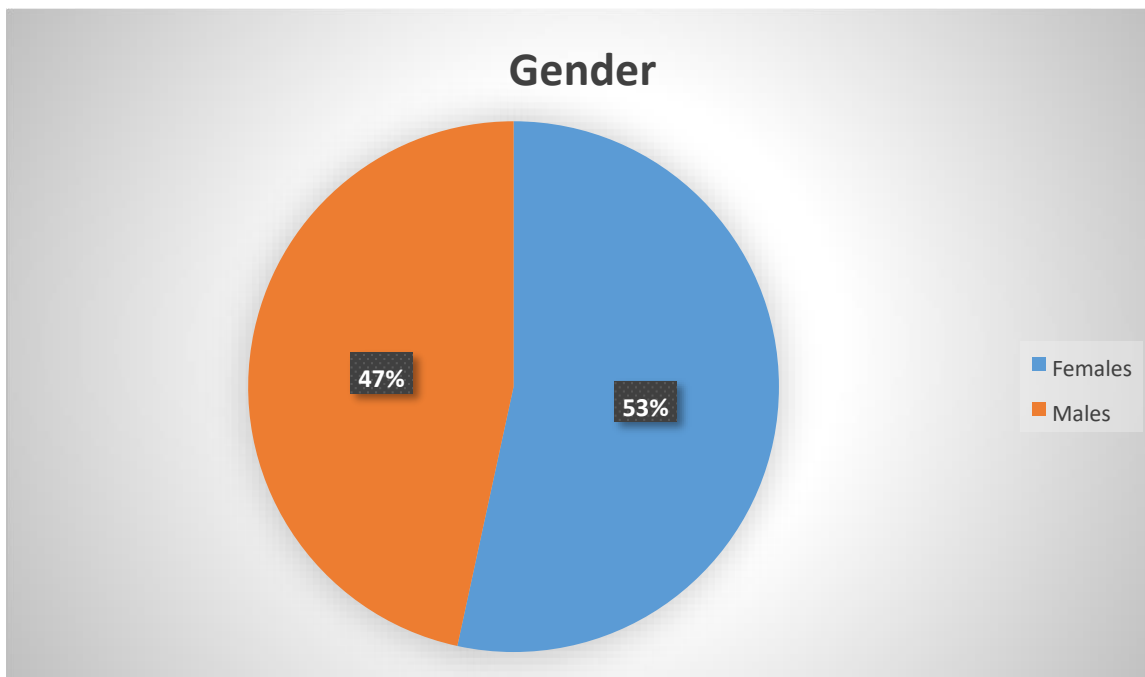
Descriptive statistics and cross tabulations was used to describe the socio-economic characteristics of the beneficiaries' households and for qualitative and quantitative data analysis as well as inferential statistics. Data was presented in illustrative graphs and tables

CHAPTER 5: RESULTS AND DISCUSSION

5.1 Socio-Demographic Information of Respondents

This section presents information about the sex, age, marital status, educational qualification, visits from extension agents, years of experience, beneficiary status of the respondents. The information provided here is analyzed using frequency count and percentage.

Figure 5. 1 Gender of the respondent



As displayed in the above chart, majority of the respondents are females. The REP also focuses on empowering women in their trade making them active in the MSE sector and contribute their quota as much as is possible.

Figure 5. 2 Age distribution of the respondents.

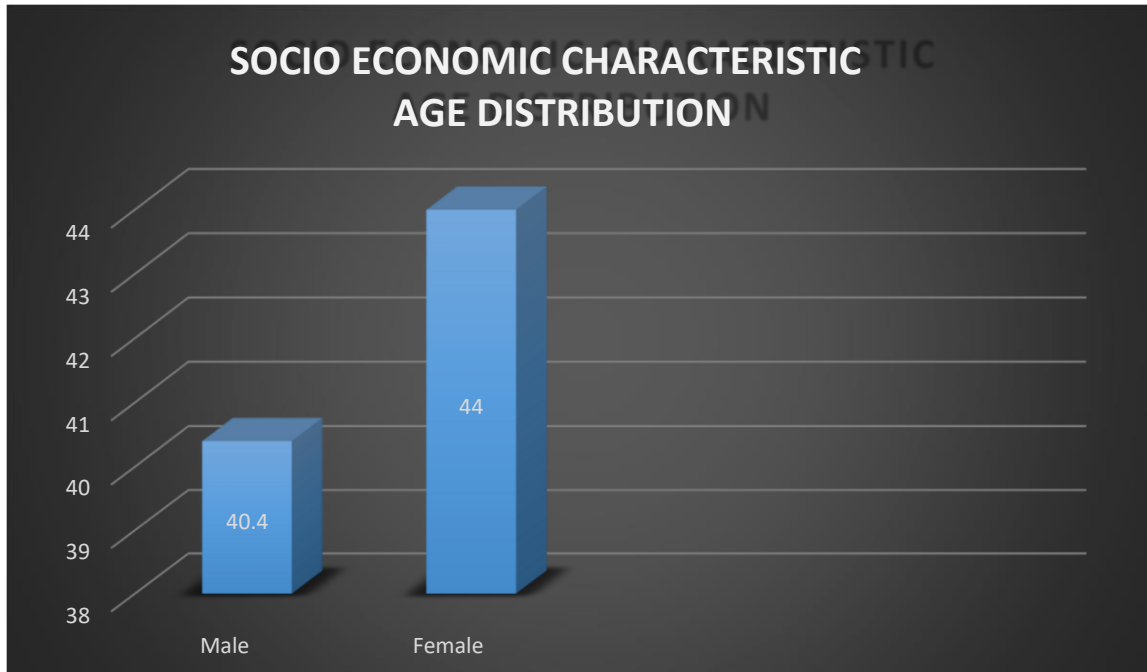


Fig 5.2 shows the ages of respondents with age range from 18 years to 70 years and mean age of 40.4 years while females have an age range of 25 years to 65 years with a mean age of 44.0 years. This indicates that the respondents are in their productive and active age. Performing tasks is easier at this age since they still possess youthful energy for even herculean activities. However, from the study, it shows that the youths are not very much involved in farm based activities as it is considered a tedious task. Provision of modern farming equipment may help attract younger people to the sector. The graph reveals that the beneficiaries are in their active age and have the likelihood of moving out of poverty and reducing food insecurity which are major issues to be addressed on the SDGs.

Figure 5. 3 Marital status of respondents

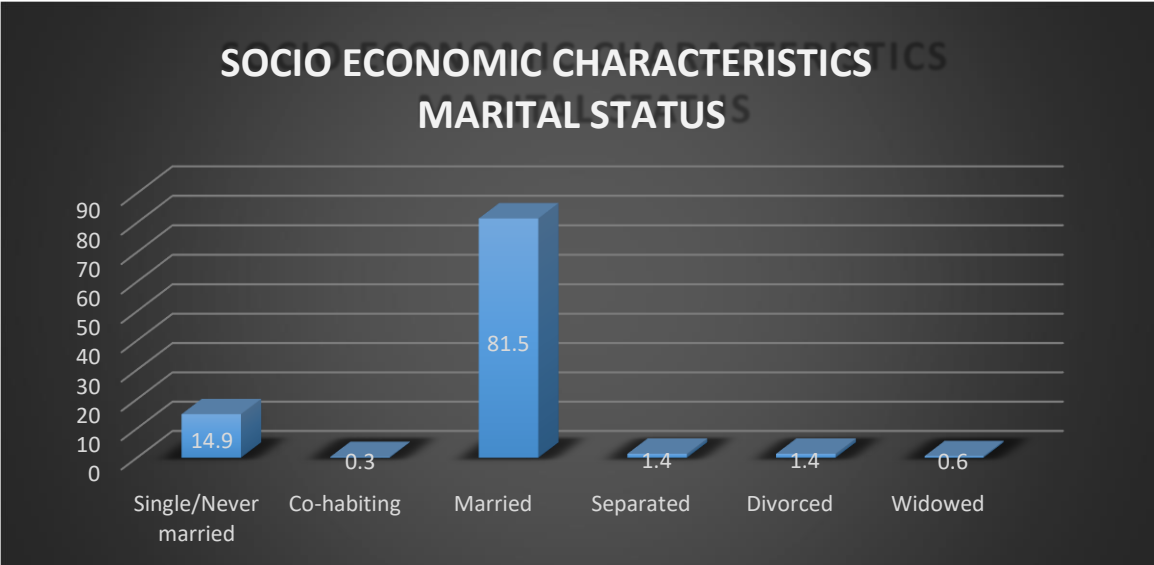


Fig 5.3 displays the marital status of each beneficiary, indicating that 14.9% of them are yet to be married, 0.3% are co-habiting, 81.5% are married, the separated and the divorced population is 1.4% while the widowed is 0.6%. This goes to point out how marriage is viewed in Africa. Being married in Africa depicts responsibility and maturity, hence everyone is supposed to get married at some point, preferably before the age of thirty and start up a family. Various reasons including religious belief has contributed in greatly slashing down the number of people in the separated and divorced category.

Figure 5. 4 Level of education of respondents.

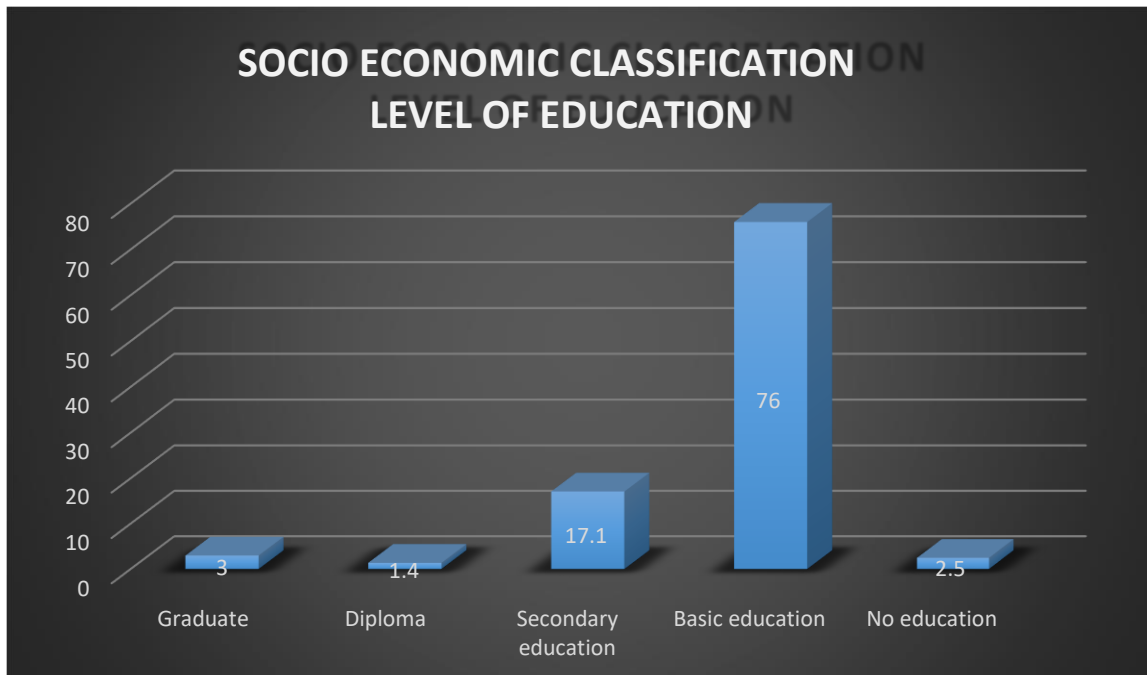
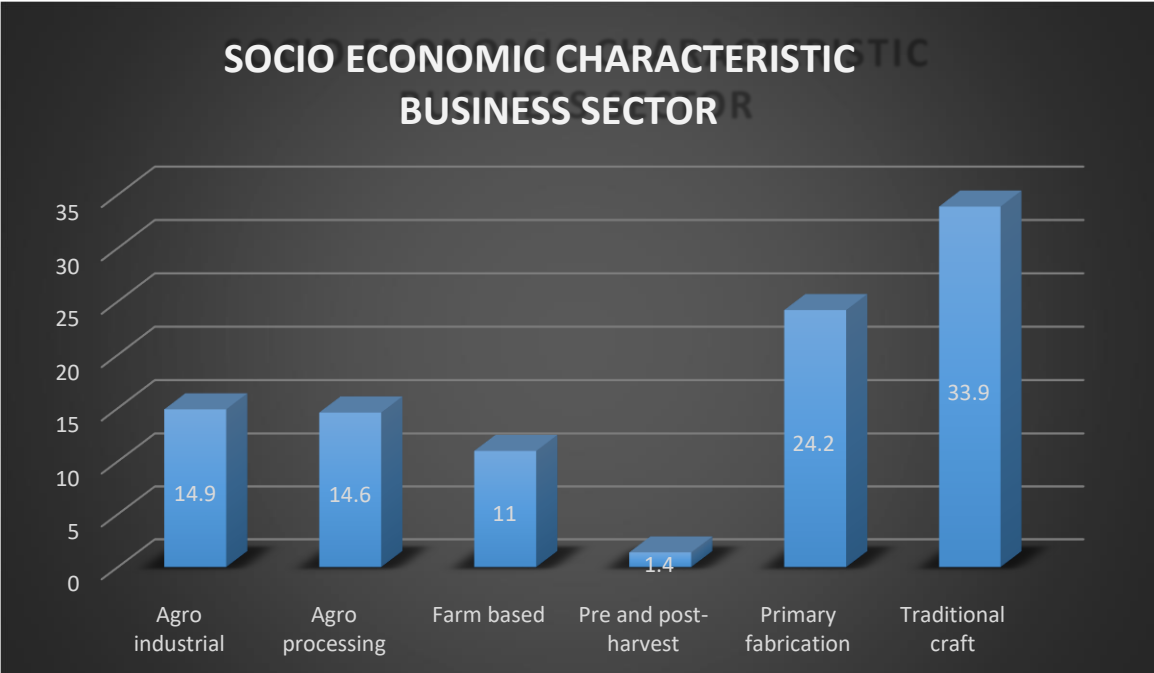


Fig 5.4 above reveals the level of education of beneficiaries. It highlights that majority of the beneficiary have basic education followed by the next majority being secondary education. 3.0% and 1.4% went beyond the secondary school and attained a higher level in education. Only 2.5% of the population had no form of formal education. The role of education in the place of development cannot be over emphasized. It plays a vital role in the success of the MSEs. The result shows an average level of literacy amongst the MSE holders. High education among rural MSE will help ease the process of acquiring knowledge, skills and for effective communication. Exposure to formal education also creates individuals to opportunities to grow one's business.

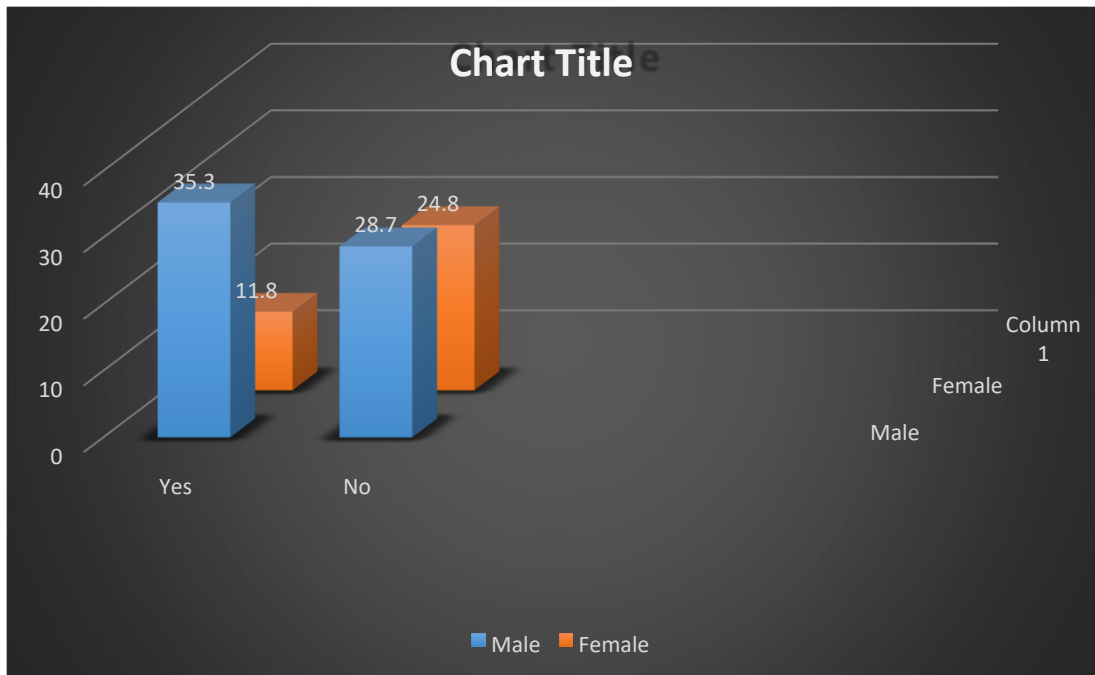
Figure 5. 5 Business sector of the respondents.



The Fig 5.5 above reveals that beneficiaries are involved in wide range of activities having the most beneficiaries in the traditional craft category with a percentage of 33.9% of the respondents. It is closely followed by Primary fabrication at 24.2% then Agro industrial at 14.9%, Agro processing at 14.6%, farm based activities at 11.0% and finally pre and post- harvest activities at 1.4% making it the lowest of the categories.

5.2 Examine awareness and adoption of technology among the MSEs

Figure 5. 6 Level of awareness of the beneficiaries



The figure above reveals that 35.3% of males are aware of the RTF and 28.7% of females aware of the RTF while 11.8% of males are unaware of the RTF and 24.8% of females are unaware. The RTF mainly deals with training individuals in the business of primary fabrication such as welders, auto-mechanics and electricians. This sector is mostly dominated by the males having no females at all. This explains why they have more access to the RTF since they receive technical trainings and start up kits from the RTF. The women in the Agro industrial and in the agro processing sector have received more equipment from the RTF than any other sector. This explains why the males are more aware of the RTF than the females.

Figure 5. 7 No of beneficiaries that have received training support

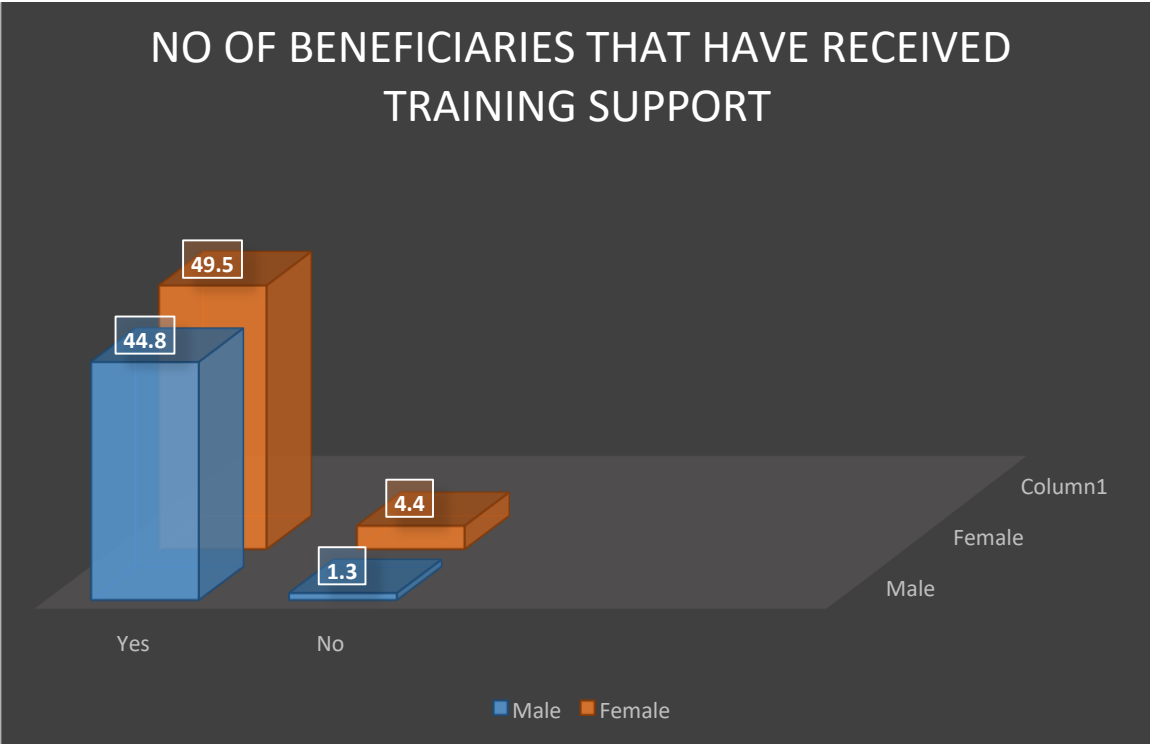


Fig 5.7 indicates the number of respondents that have received any form of trainings from the REP through the BAC or the RTF. It reveals that 44.8% of males and 49.5% of females had received trainings which has helped enhanced their business. 1.3% of males and 4.4% the respondents had not received any form of training from the REP/BAC which could be because they were newly introduced to the REP/BAC or they have intentionally not received trainings or that they do not belong to any groups or associations. Females have received more of the trainings than males according to the result displayed. In most African countries, it is the females that avail themselves for meetings as such.

Figure 5. 8 Beneficiaries of the start-up kit

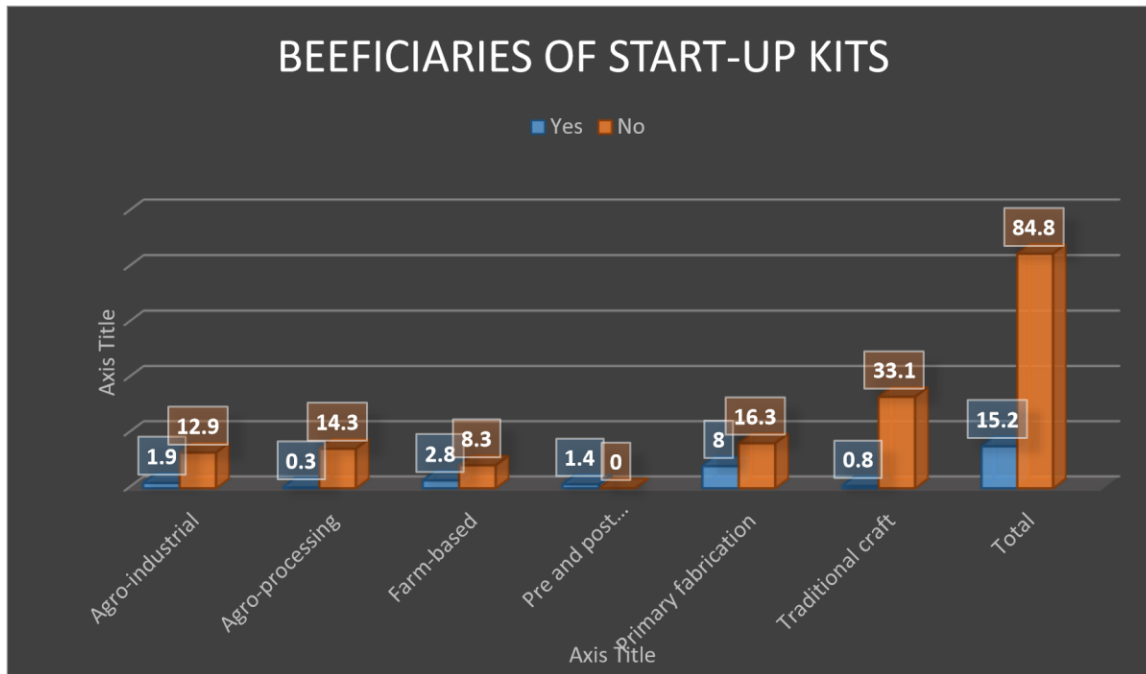


Fig 5.8 above displays the number of business owners that has benefitted from the start-up kits. It reveals that 84.8% of the respondents are yet to receive the start-up kits and 15.2% had received the kits having the majority from the Primary fabrication sector followed by the farm-based sector and the least group from the traditional craft sector. During an interview with one of the BAC officials, it was discovered that the auto-mechanics, the welders, the wood workers and electricians under the primary fabrication sector have received more start-up kits than other sectors. Most of the individuals in the sector had undergone training in the RTF and acquired the start-up kits given at the end of their training. The Farmers and Palm oil processors have also received these kits which has helped grow most of their businesses.

5.3 Examine factors influencing technology dissemination among the MSEs

Table 4 No of apprentices per business owner

How many apprentices do you have?	Frequency	Percentage (%)

0	192	52.9
1-5	108	29.8
6-10	29	8.0
11-15	3	0.8
16-20	0	.0
21-25	0	.0
26-30	0	.0
31-35	1	0.3

Table 5 No of workers per business owner

How many workers do you have?	Frequency	Percentage (%)
0	221	60.9
1-5	100	27.5
6-10	31	8.5
11-15	2	0.6
16-20	2	0.6
21-25	2	0.6
26-30	0	.0
Family members	5	1.4

Table 6 Interviewee's response on training of employees.

Do you organize trainings for your apprentices/workers?	Frequency	Percentage (%)
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Yes	177	48.8
No	14	3.9
Not applicable	172	47.4

Table 5.1.8, 5.1.9 and 5.1.10 above reveals that about half of the business owners have workers and or apprentices and give the workers/apprentices one form of training or the other. The definition of technology dissemination in this study deals with the spread of information and technologies from one person to another through various means of communication. Every knowledge and new skill acquired from the training support rendered by the REP through the BAC and RTF is further passed unto the apprentices and workers.

Table 7 Membership of association

Do you belong to any Association?	MALE		FEMALE		TOTAL	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
YES	161	44.4	160	44.1	321	88.4
NO	8	2.2	34	9.4	42	11.6

Table 5.1.11 reveals that more males belong in an association than females. 44.4% of males belong in an association while 2.2% males do not belong to any kind of association. For the females, 44.1% belong to an association and 9.4% of the female population not belonging to any kind of association. According to an interview held with a BAC official on how the skills training is organized, it was revealed that skills training are only organized for groups of about 20 since it involved a lot of logistics which means individuals that are beneficiaries of the REP/BAC/RTF intervention, if not in any association are likely not to have access to information about trainings thereby not receiving relevant skills training.

Table 8 No of trainings held

How often are the trainings held?	Frequency	Percentage (%)
Weekly	11	3.0
Monthly	49	13.5
Quarterly	99	27.3
Every six months	144	39.7
Yearly	54	14.9
Not applicable	6	1.7

Figure 5. 9 Frequency of training

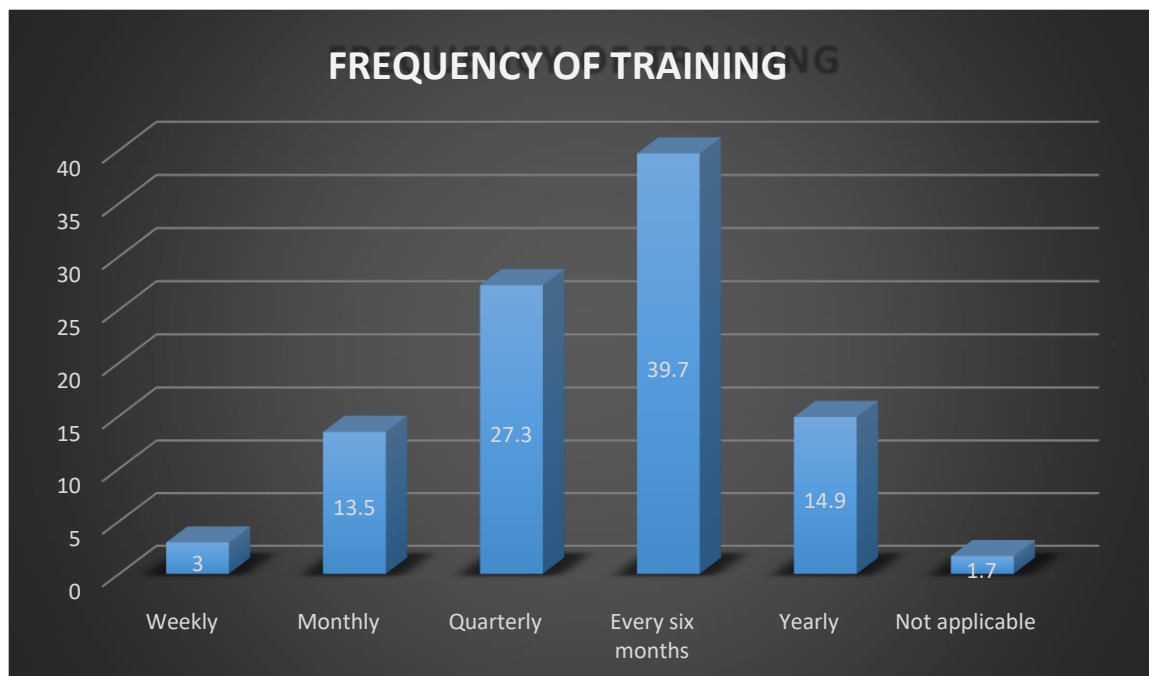


Table 8 and Fig 5.9 above shows the frequency of training received by the respondents. Majority of the respondents (39.7%) claimed they receive training every six month, followed by 27.3% that receive training quarterly, then 14.9% yearly, 13.5% monthly and 3.0% weekly. Those that receive training yearly added that the training was quite inconsistent hence they are unable to grasp relevant skills they need. This is sometimes as a result of low staffing of the BAC and logistics to organize the trainings.

Table 9 MGF beneficiaries

Are you a beneficiary of the MGF?	Yes (%)	No (%)	Total (%)
Agro industrial	3.9	11.0	14.9
Agro processing	7.2	7.4	14.6
Farm based	5.2	5.8	11.0
Pre and post harvesting activities	1.4	.0	1.4
Primary fabrication	14.9	9.4	24.2
Traditional craft	2.5	31.4	33.9

Table 10 RDEF beneficiaries

Are you a beneficiary of the RDEF?	Yes (%)	No (%)	Total (%)
Agro Industrial	0.6	14.3	14.9
Agro Processing	.0	14.6	
Farm based	.0	11.0	
Pre and Post harvesting	1.4	.0	
Primary Fabrication	7.7	16.5	
Traditional craft	0.8	33.1	

Table 11 Reasons for not accessing the MGF

Reason for not accessing the MGF	Frequency	Percentage (%)
Not aware	33	9.1
High interest rate	106	29.2

Delay in disbursement of loan/fund	52	14.3
Difficulty in accessing loan	1	0.3
Short loan tenure	6	1.7
Not interested	1	0.3
Yet to apply	50	13.8
Not applicable	113	31.1

Table 12 Reasons for not accessing the RDEF

Reason for not accessing the RDEF	Frequency	Percentage (%)
Not aware	200	55.1
High interest rate	77	21.2
Delay in disbursement of loan/fund	2	0.6
Difficulty in accessing loan	4	1.1
Short loan tenure	1	0.3
Not interested	1	9.9
Yet to apply	42	0.3
Not applicable	36	11.6

Evaluate the influence of technology adoption on MSEs' performance.

5.4 Influence of technology adoption on MSEs' performance

Table 13 Effect of technology on the income of the respondents

Has your income increased since you had the training?	Frequency	Percentage (%)
Yes	354	97.5
No	9	2.5

Figure 5. 10 Effects of technology on income of beneficiaries

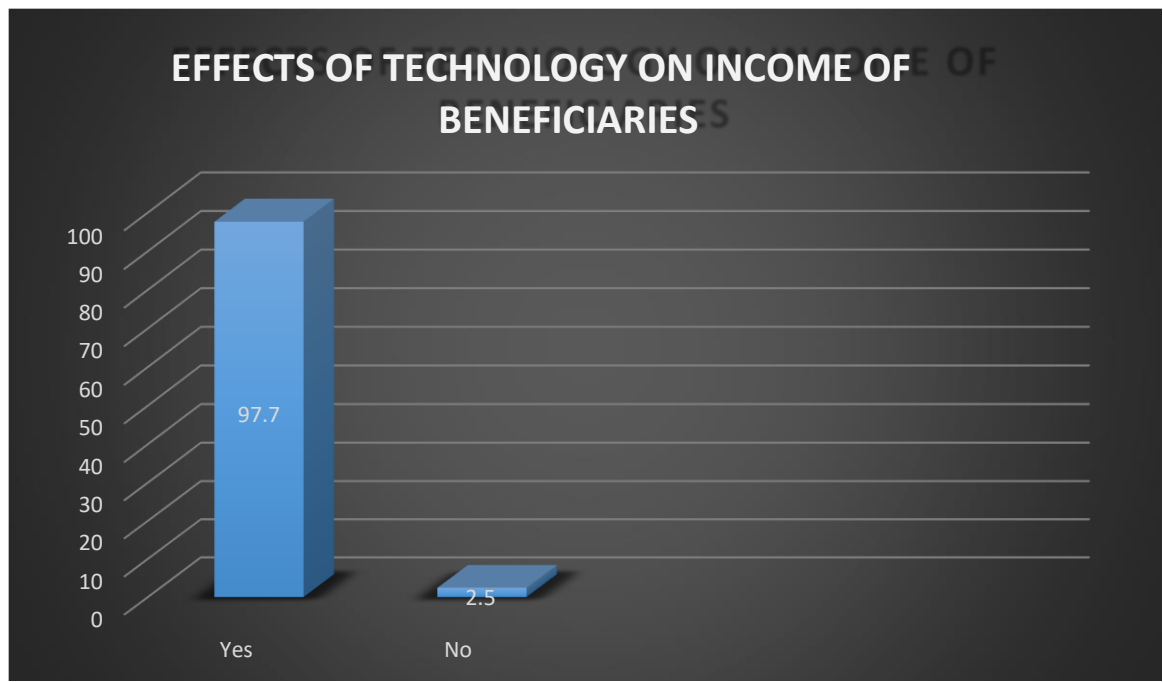


Table 13 and Fig 5.10 above reveals the effects of the technology on the income of respondents. According to this study and the results displayed under Objective two, it indicated that above 90% of the beneficiaries have received one form of technology or the other from the BAC/RTF. Some business owners, especially in the primary fabrication business sector have received both training support and equipment from the RTF as well as individuals from the agro-processing group but the latter group do not receive training from the RTF. From the above table and graph the income of 97.7% of the respondents had increased while 2.5% of them claimed their income has yet to increase. This shows that the skills training rendered to the beneficiaries have given them new business strategies for improving their income and overall business.

In an In-depth Interview with a beneficiary of the REP, a 43 years old female dress maker had this to say:

“I have been running this business for years without any knowledge of record keeping, with the intervention of the REP, I have learnt record keeping and have been able to keep tracks of my sales and business progress”.

A 31 year old male welder had this to say;

“I was trained under a welder and when I decided to start my own business, there were things I still didn’t know of, but with the intervention of the REP, I got exposed to the knowledge of new technology in the welding business that has helped my production”.

Table 14 Monthly income of beneficiaries

How much income made the weekly/monthly after training	Frequency	Percentage (%)
More	351	96.7
No changes	12	3.3

Table 15 Monthly produce of respondents

How much do you produce weekly/monthly after the training	Frequency	Percentage (%)
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More	351	96.7
No changes	12	3.3

Table 16 Effects of training on businesses of the respondents.

Has your business improved as a result of the trainings?	Male	Female	Total
Yes, a great deal (%)	19.0	31.4	50.4
Yes, a small deal (%)	25.3	20.9	46.3
No changes (%)	1.7	0.6	2.2
N/A (%)	0.6	0.6	1.1
Total (%)	46.6	53.4	100.0

Figure 5. 11 Business improvement

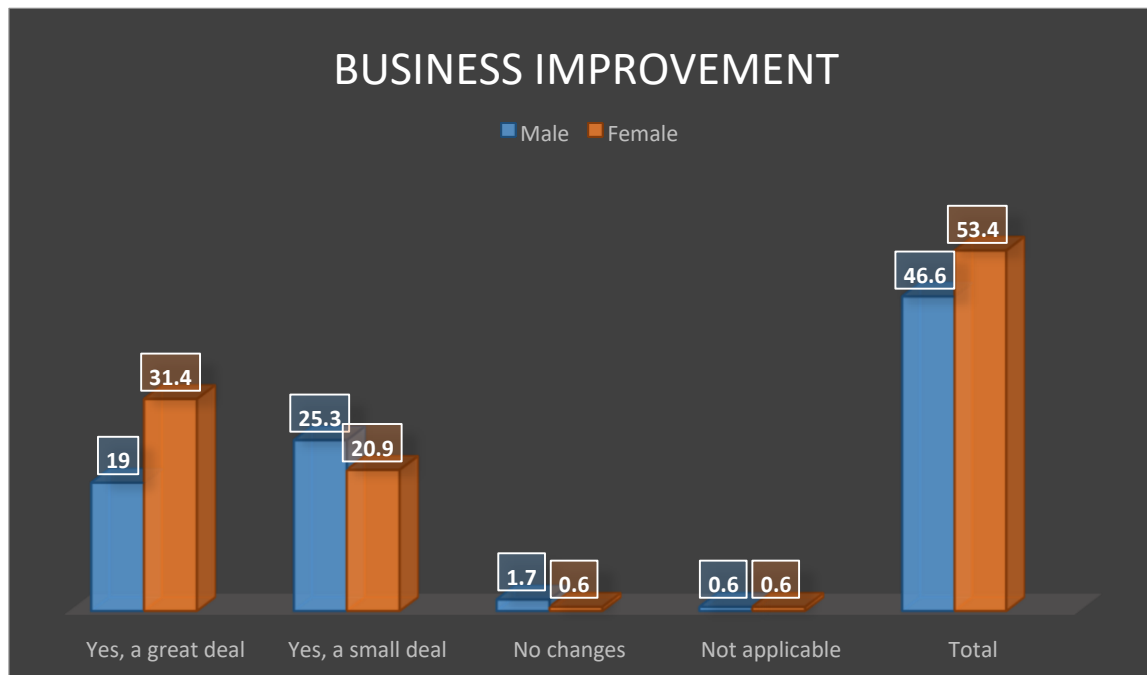


Table 14, 15, 16 and Fig 5.11 reveals the effect of the skills training received on their business performance. It shows that 31.4% of females experience more improvement in their business compared to the males at 19.0%. 25.3% females felt the impact of the training in their income and production but not greatly as earlier stated while 20.9% males' businesses improved as well but not greatly. This could be as a result of inconsistent trainings as some had revealed that they receive trainings just once a year which is not sufficient to gain the skills necessary to improve their businesses. 1.7% males experienced no changes as a result of the training while 0.6% females also experienced no changes. The percentage of businesses that improved as a result of the intervention of the BAC/RTF is higher than the percentage of businesses that did not improve. This points to the importance of technology dissemination among rural enterprises.

CHAPTER 6: CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study highlighted the pattern of technology dissemination among rural enterprises through skill trainings and acquisition of relevant technology. From the results revealed, it is apparent that a number of benefits are derivable from technology which proves that technology is germane to the growth and development of any business in an economy. Although, there is no generally accepted definition of a Micro and small scale enterprise yet, some studies have defined it as the National Economic Reconstruction Fund (NERUND) put the ceiling for small-scale industries at 10 million naira. Section 37b(2) of the Companies and Allied Matters Decree of 1990 defines a small company as one with: an annual turnover of not more than 2 million naira; and net asset value of not more than 1 million naira. The study reveals that the introduction of relevant technologies to the MSEs greatly improved the income and production of the businesses which points to the importance of technology dissemination for business advancement. Majority of the MSE holders are unable to access the Matching Grant Fund and Rural Development Fund because of the high interest rate of the loans, these funds are provided to enable the MSEs purchase equipment that can improve productivity. The REP intervention through the BAC and the RTF has greatly improved the MSEs performance. It helped to kick start some businesses and consequent trainings has enabled the MSEs improve their production processes. There is a good level of technology dissemination as skills passed unto master craft persons is transferred to their workers/apprentices.

6.2 Policy implication and Recommendations

Having completed this study, the following can be recommended

1. Interest rate: It was revealed from the study that majority of the respondents could not access the MGF and RDEF due to the high interest rate on the loans
2. The REP should encourage the MSEs to create a better relationship with their respective banks to ease access of loans.
3. The REP should provide MSEs with start-up kits to enable them begin a business after receiving trainings.

4. Provide the BAC with more staff to enable consistent follow up of the MSEs.
5. The Government of Ghana should help subsidize the interest rate on the loans given by the banks
6. MSE owners should ensure to gain registration status as that will facilitate their adoption of necessary technology to encourage transaction over the internet which will in turn improving their productivity and competitiveness.
7. To raise productivity and global competitiveness, MSEs owners should invest in getting equipment and skills training because they have been proven to significantly improve performance in business.

6.3 Limitation to the study

Data collection was conducted with good level of cooperation from the respondents as they were willing to talk about some issues faced but there was a language barrier. The language barrier was not considered a major issue since it was easily abated with the help of the interpreters. Also the integrity of the enumerators was questionable, however this challenge was tackled by daily review of feedbacks by the respondents.

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https://www.theseus.fi/bitstream/handle/10024/94173/My_Thesis_Copy.pdf?sequence

APPENDICES

Appendix 1: Questionnaire

CENTRE FOR SUSTAINABLE DEVELOPMENT, UNIVERSITY OF IBADAN, NIGERIA

Dear Respondent,

This questionnaire is for research purposes. Please endeavor to respond to the questions appropriately and honestly. Your responses will be kept in utmost confidentiality and anonymous to the public. Thank you for your cooperation.

Questionnaire No..... Date.....

Enumerator.....

Location.....GPS: (Longitude) (Latitude)

.....

<u>SECTION A: SOCIO-DEMOGRAPHIC INFORMATION</u>		
S/N	Question Statements	Responses
A.1	Gender of the respondent	1. [] Male 2. [] Female
A.2	Position of the respondent in the business Phone No:.....	1. [] Sole-owner 2. [] Co-owner 3. [] Worker 4. [] Other specify.....
A.3	Age (as at last birthday in years)	
A.4	District/ Village of the respondent	

A.5	Marital status of respondent	1. <input type="checkbox"/> Single/ Never married 2. <input type="checkbox"/> Co-habiting 3. <input type="checkbox"/> Married 4. <input type="checkbox"/> Separated 5. <input type="checkbox"/> Divorced 6. <input type="checkbox"/> Widowed
A.6	Highest educational attainment	1. <input type="checkbox"/> Graduate 2. <input type="checkbox"/> Diploma 3. <input type="checkbox"/> Secondary education 4. <input type="checkbox"/> Basic education 5. <input type="checkbox"/> No education 6. <input type="checkbox"/> Others specify.....
A.7	Religion of respondent	1. <input type="checkbox"/> Islam 2. <input type="checkbox"/> Christianity 3. <input type="checkbox"/> Traditional 4. <input type="checkbox"/> Other(s) specify.....
A.8	What is the name and sector of your main/primary business activity?	1. <input type="checkbox"/> [] Agro Industrial/specify type..... 2. <input type="checkbox"/> [] Agro Processing/specify type..... 3. <input type="checkbox"/> [] Farm Based/specify type..... 4. <input type="checkbox"/> [] Pre- & Post harvest Activities/..... 5. <input type="checkbox"/> [] Primary Fabrication/..... 6. <input type="checkbox"/> [] Traditional Craft/..... 7. <input type="checkbox"/> [] Other(s) specify.....
A.9	Do you engage in another/secondary business activity?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No
A.10	If yes in 'A.9' what is the name of the business?	.....
A.11	Do you have a bank account?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No

A.12	Do you have savings in your bank account?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No
A.13	How many workers do you have?	.....
A.14	How many trainees do you have?	.....
A.15	When did you start the main business activity?	1. <input type="checkbox"/> Less than a year 2. <input type="checkbox"/> 1 up to 5 years 3. <input type="checkbox"/> 6 up to 10 years 4. <input type="checkbox"/> More than 10years
A.16	Are you a REP/ BAC client?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No
	When was your first contact with the BAC/REP	1. <input type="checkbox"/> 1996 – 2000 2. <input type="checkbox"/> 2001 – 2005 3. <input type="checkbox"/> 2006 – 2010 4. <input type="checkbox"/> 2011 – 2014 5. <input type="checkbox"/> 2015 6. <input type="checkbox"/> 2016 7. <input type="checkbox"/> 2017 8. <input type="checkbox"/> 2018
A.17	Is the business formally registered?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No
A.18	If yes in ‘A.17’ above how long have you registered the business?	1. <input type="checkbox"/> Less than a year 2. <input type="checkbox"/> 1 up to 5 years 3. <input type="checkbox"/> 6 up to 10 years 4. <input type="checkbox"/> More than 10years
A.19	Indicate the main areas where you provide your services to customers	1. <input type="checkbox"/> Outside of district 2. <input type="checkbox"/> Within the district 3. <input type="checkbox"/> Both within and Outside the district
A.20	Do you belong to any association or cooperative group?	1. <input type="checkbox"/> Yes 2. <input type="checkbox"/> No
A.21	If yes in ‘A. 21’ above,	

	what is the name of the group?	.....
A.22	How long have you been a member?	Please state number in years.....
A.23	Did the REP/ BAC create the association you belonged to?	1. [] Yes 2. [] No
A.24	For how long the association have been formed?	.....

SECTION 2: TECHNOLOGY AWARENESS AND ADOPTION

No.	Questions /Statements	Response	
2.1	Are you aware of the BAC/REP?	1 [] Yes 2 [] No	
2.2	How did you hear about the BAC	1 [] Television. 2 [] From BAC officials 3 [] From colleagues 4 [] From Association 5 [] Other/specify.....	
2.3	Have you received support from the BAC/REP?	1 [] Yes 2 [] No	
2.4	Have you received support from the Rural Technology Fund (RTF)?	1 [] Yes 2 [] No	
	Have you received support from your association in the form of skill trainings?	1 [] Yes 2 [] No	
2.5	What support have you received from the BAC and/or the RTF? (you can choose	BAC	RTF

	more than one option)	1 [] Counselling 2 [] Training 3 [] Loan 4 [] Trade shows 5 [] Other / Specify	1 [] Counselling 2 [] Training 3 [] Equipment 4 [] Trade shows 5 [] Other / Specify
	What type of technology do you currently operate with? - Manual	1 [] Manual 2 [] Mechanical 3 [] Automatic	
2.6	Have you received any support services from other organisations apart from the BAC/ REP/ RTF?	1 [] Yes 2 [] No	
2.7	If the answer to 2.6 is Yes, what is the name of this organisation?	..... .....
2.8	Do these organizations organize skill training workshops for you?	1 [] Yes 2 [] No	
2.9	What kind of skill and knowledge have you acquired?	REP	Non- REP
2.9.1	Record keeping	1 [] Yes [] No	[] Yes [] No
2.9.2	Waste management	2 [] Yes [] No	[] Yes [] No
2.9.3	Marketing strategies and packaging	3 [] Yes [] No	[] Yes [] No
2.9.4	Business Orientation	4 [] Yes [] No	[] Yes [] No
2.8.5	Financial management	5 [] Yes [] No	[] Yes [] No
2.8.6	Business management	6 [] Yes [] No	[] Yes [] No
2.8.7	Use of internet/ phones for marketing products	7 [] Yes [] No	[] Yes [] No
2.8.8	Technical apprentice	8 [] Yes [] No	[] Yes [] No

2.8.9	Other(s) specify	.........
2.9	Do the agencies continually keep you updated on the skill and knowledge relevant to your business?	1 [] Yes 2 [] No
2.10	Did you receive certificate (s) for the training(s) attended?	1 [] Yes 2 [] No
2.11	Do you organize trainings for your apprentices/workers?	1 [] Yes 2 [] No
	What type of training or assistance has your association or group received	1. [] In Group Dynamics 2. [] In Leadership Skills 3. [] In Advocacy Skills 4. [] In Occupational safety 5. [] In Environmental Management [] Other specify.....
	Have the training or assistance received through your association made your business more profitable?	6. [] Yes 2. [] No
2.12	How often do you organize these trainings?	1 [] Very often 2 [] Often 3 [] Not often
2.13	Do your apprentices attend the BAC skill training programs?	1 [] Yes 2 [] No

Which skills training was most beneficial to your business growth? Multiple choices allowed	1	<input type="checkbox"/> Record keeping
	2	<input type="checkbox"/> Waste management
	3	<input type="checkbox"/> Marketing strategies and packaging
	4	<input type="checkbox"/> Business Orientation
	5	<input type="checkbox"/> Financial management
	6	<input type="checkbox"/> Business management
	7	<input type="checkbox"/> Use of internet/ phones for marketing products

SECTION 3: FACTORS INFLUENCING TECHNOLOGY DISSEMINATION

No.	Questions/Statements	Response
3.1	How many trainings have you received from the BAC/ REP?	.....
3.7	Was the period of training enough for you to learn?	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No
3.8	How often are the trainings held?	1 <input type="checkbox"/> Weekly 2 <input type="checkbox"/> Monthly 3 <input type="checkbox"/> Every six months 4 <input type="checkbox"/> Yearly
3.9	Are you comfortable with the number of trainings you have had?	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No
3.10	Are you a beneficiary of the matching grant fund?	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No
3.11	Are you a beneficiary of the development fund (Loan through the BAC)?	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No
3.12	If the answer to 3.11 is no, state why	...............
3.13	If the answer to 3.10 and 3.11 is Yes, how did you access the matching grant and development	1 <input type="checkbox"/> As an Individual business operator 2 <input type="checkbox"/> Through the Association

	fund?	
3.14	How long was the duration of paying back the loan you received?	.....
3.15	How easy was the process of accessing the loan as an individual business operator?	1 [] Very easy 2 [] Moderately easy 3 [] Not easy
3.16	How easy was the process of accessing the loan through the association?	1 [] Very easy 2 [] Moderately easy 3 [] Not easy
3.17	Which way did you find it easy to pay back the loan received?	1 [] As an Individual business operator 2 [] Through the Association
3.18	How do you consider the interest rate of the loan?	1 [] High 2 [] Moderate 3 [] Low
3.19	Have you accessed any loan from another financial institution apart from the BAC/ REP?	1 [] Yes 2 [] No
3.20	Have you purchased any equipment through the help of the BAC/REP/other supporting organization?	1 [] Yes 2 [] No
3.21	If the answer to 3.14 is no, state why	..........
3.22	Has your income increased since you had the training?	1 [] Yes 2 [] No
3.23	How much do you produce weekly/monthly after the training?	1 [] More 2 [] No changes 3 [] Less
3.24	How much income do you make weekly/monthly after the training?	1 [] More 2 [] No Changes 3 [] Less

3.25	Do you need to acquire more skill training?	1 [] Yes 2 [] No
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SECTION 4: FACTORS INFLUENCING TECHNOLOGY DISSEMINATION

No.	Questions /Statements	Response
4.1	Have you ever purchased an equipment with your money?	1 [] Yes 2 [] No
4.2	Have your association purchased any equipment with the matching grant/development fund?	1 [] Yes 2 [] No
4.3	List challenges faced during trainings?	..... ..... .....
4.4	What was the quality of equipment received?	1 [] High quality 2 [] Moderate quality

		3 [] Low quality
4.5	What is the cost of maintaining the equipment?	1 [] High cost of maintenance 2 [] Moderate cost of maintenance 3 [] Low cost of maintenance
4.6	Are you encouraged to acquire more equipment from the RTF to grow your business?	1 [] Yes 2 [] No
4.7	If the answer to 4.27 is no, state why	...............

SECTION 4: INFLUENCE OF TECHNOLOGY ADOPTION ON MSE PERFORMANCE

4.8	Has your business improved through the intervention of the BAC technical training programs?	1 [] Yes, a great deal 2 [] Yes a small deal 3 [] No Change 4 [] No, It actually declined
4.9	Has the training improved the marketability of the product?	1 [] Yes 2 [] No
4.10	Has the BAC supported you in achieving your plans?	1 [] Yes 2 [] Somewhat 3 [] No
4.11	Do you now use the internet (social media) to market your products?	1 [] Yes 2 [] No
4.12	Do you think you have acquired enough skill and knowledge from the training?	1 [] Yes 2 [] No
4.13	What new skill do you need to make your business more effective?	
4.14	List about five things the BAC/ RTF should do to improve the skill training and equipment	..... ..... ..... ..... .....
4.15	What further opinions/ ideas would you make to REP/BAC to enable them provide some more innovative and better services to support the association in future?	i..... ii..... iii..... iv.....

THANK YOU.

Appendix 2: Pictures



Workers at the Rural Technology Facilities

Oil palm producers of Ejisu-Juaben district





Focus Group discussion at Konongo, Asante-Akim district of Ashanti region of Ghana.
Rural Technology Service Centre Mampong district Beekeepers association of Edom-Krom



BAC office at Asante-Akim of Ashanti region of Ghana.