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SCHOOL OF GRADUATE STUDIES & RESEARCH**

COURSE TITLE: LONG ESSAY

**TOPIC: THE ROLE OF COMMUNICATION REGARDING THE EFFECT OF
IRRIGATION ON WOMEN EMPOWERMENT**

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DEDICATION

For the tremendous support, belief and encouragements given throughout the academic year, I would like to show my sincerest gratitude to my family especially my wife. Mrs Bessie Yvonne Abiwu-Gleme, my children Mannel, Juanita, Joy and Manfred and above all my mother Mrs Vivian Abiwu –Gleme for the hope, inspiration and immense sacrifice I am forever grateful and indebted. Thank you.

DECLARATION

I, Johnson Abiwu-Gleme , the undersigned solemnly declare that the study titled: **THE ROLE OF COMMUNICATION REGARDING THE EFFECT OF IRRIGATION ON WOMEN EMPOWERMENT IN GHANA**, is based on my own work carried out during the course of study under the supervision of **Dr. Kofi Amponsah Bediako**. I further certify that whenever I have used materials from other sources, we have given due credit to them in the text of the report and giving their details in the references.

NAME OF STUDENT.....

SIGNATURE.....

DATE.....

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ABSTRACT

Irrigation development is very critical to the development of the agricultural sector, this is because it will ensure food security as farmers will be able to crop more than twice a year. This will improve yields and reduce rural poverty by creating rural employment which will help by ensuring yearlong agricultural production. This study examines the role of communication regarding irrigation farming and women empowerment in Ghana.

The main objective of study was to identify the role of communication and the linkages between irrigation and women empowerment by offering an objective review on the subject.

Data for the study was collected from eight (8) farming arrears in one of Ghana's well known irrigation districts namely Keta Municipality. The study has revealed and established that irrigation farmers received very little extension contact, in addition agriculture information and communication gap that deny farmers from accessing irrigation and general farming information still exist, hence the Ministry of Food and Agriculture (MoFA) through its extension officers should empower farmers by giving them training regarding the appropriate choice of crops for irrigation, chemical use and on general good agronomic practices to enhance their productivity.

The study recommended that in order to promote smallholder irrigation in Ghana the knowledge of farmers in the existing irrigation technologies must be facilitated through frequent participation in workshops, training programs. Farmers must also be helped to get the best out of their pumps by being trained on pump selection and maintenance, crop selection and agronomic practices, the handling of crops after harvest and marketing of produce. Financial institutions should also provide access to affordable loans on reasonable terms to farmers to enable them improve their operations.

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CHAPTER ONE

INTRODUCTION

Agriculture as the situation is in many African countries, is the major economic activity in Ghana, contributing about 23% to the gross domestic product (GDP) and employing about 60% of the population (GSS, 2012).

Ghana produces a variety of crops in various climatic zones which ranges from dry savanna to wet forest and which run in east–west bands across the country. The practice was predominantly on a smallholder basis. About 90% of farm holdings are less than 2 hectares in size, although there are some large farms and plantations, particularly for rubber, oil palm, timber cocoa, and coconut and to a lesser extent, rice, maize and pineapples. Yams, grains, kola nuts, form the base of Ghana's economy. The Main system of farming is traditional and heavily dependent on rain fall and still does for all its production.

Ghana depends largely on rain fed agriculture of which women play a key role in most small-scale farming. However, in the era where the government is championing the course of planting for food and jobs with its focus being shifted more to irrigation and green house farming, women need to be given an opportunity to benefit more, since it could lead to empowering them to play their needed role in the family and community at large.

Women empowerment has become a global issue and many countries as well as civil society organization area charting various path in making sure women are empowered and given the opportunity to play various role in family and society. One key area that women may lack empowerment when it comes to Agriculture, which when tackled will help a lot is irrigation farming and the role communication plays in empowering women

The key question in this study is the role of communication regarding the effect of irrigation in women empowerment. In answering this question two approaches were adopted a mixed method approach drawing from both quantitative and qualitative data. Relevant literature was obtained from the Irrigation Development Authority, the Ministry of Food and Agriculture Ghana and other sources were also reviewed.

The first chapter provides the background of the research with emphasis on the contribution of irrigation to agriculture, its effect on women empowerment in the households, society and the nation at large. It also states the justification for the study, the research questions and finally the significance of the study.

Chapter two focuses on literature review, the theoretical and conceptual underpinnings of the role of communication regarding irrigation and women empowerment and finally critically analyzed previous data and its influence on the research.

Chapter Three looks at the various methods used in collecting and interpreting data, the importance of the methods to the research, limitations and the possible solutions in view of the study.

Chapter four is the conclusion and recommendation section. It sums up the relevance and how key is communication regarding irrigation activities to the empowerment of women in the household, communities and the nation at large.

1.1 Background Statement

Over the years, governments have tended to focus on the construction of large-scale irrigation systems with the majority of the systems established in the Northern and the Upper East Regions of Ghana. The performance of these large scale irrigation systems have not however been optimal in terms of anticipated benefits(Korrtenthorstetal.,1989;Alam,1991;Adams,1992).As a result of these short comings, various authors(Adams,1992;Turner, 1994;Namaraetal.,2011)and other stakeholders have advocated for the promotion of small scale and affordable irrigation schemes to boost food production in the country. According to the WorldBank(1985), the budgetary expenditures on irrigation are substantial compared to its limited role in overall agriculture.

Studies have further shown that access to water for farming is a challenge for most rural dwellers especially during the dry seasons. According to E. Bryan and H. EL Didi (March 14, 2019) access to water is a primary concern and challenge for many rural households, whether for drinking and domestic use, or irrigation and livestock use. With climate change driving changing rainfall patterns in many rural geographies, access to small-scale irrigation systems is becoming an increasingly important tool for reducing farm production risks and improving the well-being

of small-scale farmers. But not all farmers are able to access the benefits these systems provide—women in particular are often left out of the picture, for example, in various part of Ghana, irrigation is limited in many communities. Men dig deep into the river bed to access water to irrigate small plots near the river, but women lack access to land near the river and the labor needed to dig the wells. Despite this lack of access, many women still contribute their own labor to irrigate their husband’s plots using buckets or jerry cans. While women farm alongside men and share the same goals for improving their agricultural livelihoods and household well-being, the benefits of irrigation do not accrue equally to men and women, even when they are in the same household. Women face different challenges and unequal opportunities in accessing and benefiting from irrigation technologies. To address these differences and ensure irrigation and water management programs and projects benefit women as well as men, those implementing development projects should consider approaches that take into account the differences in women’s and men’s agricultural roles, as well as context-appropriate channels and communication tools for reaching women farmers. Looking at differences in how the costs and benefits of small-scale irrigation technologies are distributed across men and women within the same households, International Food Policy Research Institute (IFPRI) research in Ethiopia, Ghana, and Tanzania found that women are more constrained in adopting and benefiting from irrigation technologies compared to men.

In Tanzania, while men started utilizing drip irrigation and motor pumps, women in the community still relied on labor-intensive manual irrigation methods, like hauling water with buckets. Even though men and women in a household shared the work on irrigated plots, women had less control over (or even knowledge of) selling the produce and the income generated. In some cases, the decision-making and asset ownership gaps between men and women increased after introduction of irrigation technology, as well as women’s work and time burden.

The IFPRI discussion paper 2020 P:51 further states that women’s empowerment is important to improve the status of women and achieve greater gender equity. It is also an important vehicle for achieving other development goals related to food security, nutrition, health, and economic growth. Unless the various constraints to women’s ability to benefit from the introduction of small-scale irrigation technologies are addressed, women’s empowerment is not a guaranteed outcome of irrigation.

Studies by FAO (2006:1) further state that the agricultural sector plays an important role in many developing countries it contributes to export earnings and is also a source of employment for a large number of people. It is also very important because it ensures food security which is the principal priority in many developing countries. Even though the roles of women vary in other parts of the world, rural women in agriculture seem to engage in similar multiple roles. These are the household tasks of productive duties (child birth, caring for the family members and their home) and the production of food crops, livestock rearing, working for wages in agricultural enterprises, and marketing of farm produce(FAO, 2011:1).

In view of all these there is one key element which plays and facilitates the relationship between irrigation and women empowerment and that is communication. Communication is very key in convincing women to buy into technology and embrace it as part of their agricultural journey of life, in the same vain clear-cut information and proper communication is also needed to really empower women in their field of endeavor.

i_Irrigation:

Irrigation is the artificial application of water to land for the purpose of agricultural production. Effective irrigation will influence the entire growth process from seed,bed preparation, germination, root growth, nutrient utilization, plant growth and regrowth, yield and quality.

Irrigation is the method in which a controlled amount of water is supplied to plants at regular intervals for agriculture. ... In simple words, it is when people supply water to plants to help them grow when there is not enough rain. (Kankam, June 26,2017)

The key to maximizing irrigation efforts is uniformity. The producer has a lot of control over how much water to supply and when to apply it but the irrigation system determines uniformity. Deciding which irrigation systems is best for your operation requires knowledge of equipment, and all of these need information and proper communication to be able to understand irrigations and its application to one's farm for the expected result

ii Empowerment:

According Narayan in a World Bank source book, Empowerment refers broadly to the expansion of freedom of choice and action to shape one's life. It implies control over resources and

decisions. For poor people, that freedom is severely curtailed by their voicelessness and powerlessness in relation particularly to the state and markets. There are important gender inequalities, including within the household. Since powerlessness is embedded in a culture of unequal institutional relations, In adopting institutional definition in the book Narayan further explain empowerment as the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives. (Narayan, June 2002)

Magdalena León (1997), and Jo Rowlands (1995), who emphasize the multifaceted nature of the empowerment process for women in the Global South and developed theories on the links between empowerment and power. They said empowerment differs from holding “power of domination” over someone else (“power over”); it is more of a creative power that can be used to accomplish things (“power to”), a collective political power used by grassroots organizations (“power with”), and also a “power from within,” referring to self-confidence and the capacity to undo the effects of internalized oppression. (Calvès, 2009/4)

Women empowerment is defined as “women’s ability to make strategic life choices where that ability had been previously denied them” (Kabeer 1999) in addition Kabeer (2001) defines empowerment as expansion of people’s ability to make strategic life choices, particularly in contexts where this ability had been denied to them.

Empowerment in agriculture is defined as one’s ability to make decisions on matters related to agriculture as well as one’s access to the materials and social resources needed to carry out those decisions (Alkire et al. 2013).

This clearly point to the fact that access to the right information through proper communication channels when it comes to women in agriculture is a sure way to empowering women to play their vital role in society.

iii Communication:

Communication is an integral part of human existence. It is communication that contributes to success or otherwise of every human activity including agriculture.

According to Keith Davis: Communication is a process of passing information and understanding from one person to another. “It is essentially a bridge of meaning between people. By using this bridge of meaning, a person can safely cross the river of misunderstanding that separates all people.” Charles E. Red Field, point out that “Communication is the broad field of human interchange of facts and opinions and not the technologies of telephone, telegraph, radio and the like.”

D. K. Mc Farland, added that “Communication may be broadly defined as the process of meaningful interaction among human beings. More specifically, it is the process by which meanings are perceived and understanding is reached among human beings.” In addition to that Billy J. Hedge, also said “Communication can be thought of as an attempt to achieve as complete and as accurate an understanding as possible between two or more people. It is an act characterized by a desire in one or more individuals to exchange information, ideas or feelings. This desire is implemented by using symbols, signs, actions and pictures as well another verbal and non-verbal element in speaking and writing.”

Based on the various authors and definitions of communication, Communication therefore is the passing of information, which is necessary for better performance of job or an activity. A manager works through the co-operation of others. Therefore, he or she should communicate the policies, plans, programmes of management to the workers. Communication ends only when it reaches the destination and the desired result gained. In addition, the essential element of communication is that the communicated information should be understood correctly and transferred in the right direction (Saikia).

1.2 Justification For The Study:

In view of the various contributions of women to the development of agriculture, the female population is still battling with many challenges in the sector especially when it comes to the area of irrigation.

Lack of information and proper communication from stake holders in the usage and adoption of technology and irrigation equipment coupled with issues of land acquisitions, lack of finance by women for farming purposes, has really put women far behind the steering wheel and has limited

them to function well in society and in the field of agriculture as water users and planners. This seemed to undermine progress in irrigation farming in Ghana. Despite the various interventions, it seems little effort was made to research into gendered irrigation issues. With the focus of government of Ghana to increase production and food security through irrigation, GSDGA (2010) there is the need to focus on women farmers not only as producers but also empower them by making information and communication accessible and available when it comes to irrigation farming.

This study would capture women's involvement in irrigation farming and the role of communication in empowering them to function very well in their respective roles as opposed to their counterpart men. Studies show that when women are supported and empowered, all of society benefits. Their families are healthier, more children go to school, agricultural productivity improves and incomes increase. In short, communities become more resilient. United Nations Deputy Secretary-General Asha-Rose Migirom confirms this when she highlighted the importance of empowering women to build healthier, better educated, more peaceful and more prosperous societies on the 16 November 2007 at International Women Leaders Global Security Summit in New York. (Migiro, 16 Nov,2007)Empowering women benefits everyone and is essential for cocoa growing communities to thrive. Research shows that increasing women's involvement leads to improved financial management by farmers, better education of youth and more sustainable, thriving communities by Cathy Pieters, Program Director, Cocoa Life, Mondelez International (Pieters, Thursday August 11 2016).

1.3 Research Questions

The key questions to be addressed are:

- (1) What is the role of communication regarding irrigation farming and women empowerment?
- (2) What is the role of irrigation development in poverty alleviation and empowerment of women?
- (3) What are the linkages through which irrigation distribution inputs benefits both men and women equally and by extension empowering the woman?

1.4 Significance of the Study

The purpose of this study is to identify the role of communication and the linkages between irrigation and women empowerment by offering an objective review on the subject.

The entire research will explore and employ a mixture of methods both qualitative and quantitative to enable wider collection of information from different sources, for a comprehensive and evidence-based work.

The study would also stress on the need to promote women's participation in irrigation farming and water management and also suggests ways in which women will gain access to information regarding irrigation-based technology and how to use it to achieve maximum result and what communications channels and models to be adopted to help more women adopt irrigation farming.

Furthermore, study would examine women's involvement in irrigation project and the level of empowerment this will bring to them in view of their various roles as opposed to their counterpart men since women's empowerment in irrigation project is least explored.

CHAPTER TWO

LITERATURE REVIEW

2.0 Literature Review

The chapter deals with literature review and explains the meaning and context of communication, ICT in agriculture, demand for information and irrigation. Other issues examine in the chapter are, brief history of irrigation development in Ghana, women empowerment, theoretical and conceptual underpinning of the study as well as review and critic of previous related study.

2.1 Communication

Various scholars and researchers have diverse view on what communication is, the various forms of communication, the importance of it and its impact on agriculture and its related fields.

Communications according to Keith Davis (Davis, 1981) is a process of passing information and understanding from one person to another. John Adair said communication is essentially the ability of one person to make contact with another and make himself or herself understood. According to Newman and summer, “communication is an exchange of facts, ideas, opinions or emotions by two or more persons”. To Louis A. Allen, “Communication is the sum of all the things, one person does when he wants to create understanding in the mind of another. It involves a systematic and continuous process of telling, listening and understanding.” G.G Brown also states that Communication is the transfer of information from one person to another, whether or not it elicits confidence. But the information transferred must be understandable to the receiver. Dr McFarland views communication as a “process of meaningful interaction among

human beings., more specifically it is the process by which meanings are perceived and understandings are reached among human beings” to communicate is to inform, to tell, to show or to spread information.

2.2 Contexts of Communication

Communication can be identify or looked at from various contexts. The first contexts that require consideration is the cog-nitive context, that is the influence our thoughts, have on the way we communicate,

The second context is the individual differences context. Here it considers the nature-nurture debate. In so doing, it helps to consider how individual differences and social roles play a role in the communication process.

Third is the interpersonal context, which refers to the interactions between two individuals, who most often have a relationship with each other.

Fourth is the intercultural context, which focuses on interpersonal communication when two people are from different cultures.

The fifth context is not specifically focused on a setting for communication but on a particular type of communication: the persuasive context. It may interest you to know that persuasion actually takes place in a variety of settings, ranging from inside one person’s mind to the mass media.

The sixth and seventh contexts are closely aligned with the world of work: the group context and the organizational context.

Finally, the eighth context is the mediated context, which is concerned with how technology influences our interpersonal, group, and organizational communication. The ninth and final context is the mass communication context, which focuses on the influence of mass-mediated messages. (<https://www.google.com>, 20019)

Information is becoming a major input in Agriculture, whilst, knowledge and information plays a central role for farmers to respond to opportunities that could improve their agricultural productivity. Information Communication Technologies (ICTs) have therefore continued to be the best hope in developing countries to accelerate their development process (Nyamba & Mlozi, 2012).

Further more Information is essential for facilitating agricultural and rural development and bringing about social and economic change. Unfortunately, most African countries have not devoted adequate attention to providing their citizens with access to information, especially in rural areas, where 70-80% of the African population lives. ICTs facilitates exchange among women from diverse social groups; allow rapid access to information needed for exchanging, buying, producing, and selling products and lead to increased productivity gains (Agu, 2013).

According to Nagamani and Veni,(2016). Information and Communication is a wonderful tool which has benefited lots of people in the world. Information and communication has become the principal determinant of the progress of nations, communities and individual .Information and communication have always mattered in agriculture.

Ever since people started engaging in agriculture activities, information and communication have been sought by farmers from various sources and also from one another in the areas of interest for example getting information on the most effective planting strategy , Where to buy

the improved seed or feed, how to acquire a land for farming, issues of pricing, how to participate and benefits from various government's interventions like planting for food and jobs, planting for export and rural development (PERD) and credit program(World Bank,2011). Farmers in a village may have planted the "same" crop for centuries, but over time, weather patterns and soil conditions change and epidemics of pests and diseases come as well as technology, not to talk about cultural barriers and in adequate extension officers. In all of these, communication, information and technological innovations is the vehicle by which challenges encountered by farmers could be solved and by extension educate them to do better. One essential element of communication is that the communicated information should be understood correctly and transferred in the right direction for the needed result as well as the desired development.

In the African Soil Health Consortiums (ASHC) report and literature review on communicating with smallholders farmers by K.Sones. The report reveals that there is considerable evidence that the information needs of Africa's small-scale farmers are not being adequately met. This unmet need is widely regarded as being a major constraint to increasing productivity, which in turn is essential to improve food and nutritional security for a rapidly growing population and to decrease rural poverty (K .Sones, 2020)..It further states that although the relative importance of and demand for different types of information varies in different situations, there is a consistent demand for information on new varieties, pests and diseases, use of pesticides and fertilizer, as well as weather, credit and markets. However in spite of the massive increase in access to mobile phones across Africa in recent years ,the most frequently used sources of information are still the more traditional ones. Extension services, family, friends and neighbors, as well as agro-dealers are all important face-to-face sources of information and communication. Radio dominates as the

main mass media source. As yet, the internet is hardly used by small-scale farmers. (K .Sones, 2020)..

2.3. ICT and Agricultural Production.

In agriculture, the role of information and communication in disseminating agricultural knowledge has been well established (Das, 2013). Bachhav (2012) stated that, the use of information in agriculture sector is enhancing farming productivity in a number of ways. Providing information on weather trends, best practice in farming, timely access to market information helps farmer make correct decisions about what crops to plant and where to sell their produce as well as buy inputs. According to Richardson et al. (1998) the information needs of farmers change from time to time due to changing agricultural technologies, environmental changes, agricultural policies, and the emergence of agricultural innovations. Some of the challenges that rice farmers and by extension majority of farmers encounter include lack of an effective way to collect farm produce data, record farm input expenses, as well as expenditure on farm chemicals and receive information from other stakeholders (Oluoch & Osida,2015).Information is crucial for increasing agricultural production and improving marketing and distribution strategies (Oladele, 2006)

2.4 Demand for information

There is widespread consensus that Africa's small-scale farmers' information needs have not and still are not being adequately met. In 1995, Obidike a Nigerian author noted: "The non-provision of agricultural information is a key factor that has greatly limited agricultural development in developing countries" (Ozowa 1995). Ten years later Ferris (2005) argued that "in most African

countries lack of accurate and relevant agricultural information by small-scale farmers is a major factor constraining efforts to improve the agriculture sector”. More recently Obidike (2011) noted that Nigerian farmers still face constraints in trying to access agricultural information including: lack of access roads for regular visits by extension officers, poor attitudes of some extension staff. Aside this factors the following also contributes massively to the challenge of access to information this includes, illiteracy and inability of radio and television stations to broadcast agricultural information programmes in native dialects. The situation in other sub-Saharan African countries is broadly similar

A further study of small-scale women farmers in Eastern Cape Province, South Africa found their main information needs related to weed control, especially after manure application; pests and diseases of crops and livestock; poultry feeds, predators and theft; soil fertility and seed dormancy (Yusuf et al 2013)

Ghana’s situation is a prevailing menace, the country is fighting to deal with especially the challenge of women access to water and proper information on irrigation farming using the appropriate channel of communication to access this information in order to empower them for maximum productivity. Most women will prefer to use the tradition method of farming instead of innovation through technology all because it is challenging getting the right information from the right sources on the acquisition ,the operation and maintenance of the irrigation farming,

To address these differences and ensure irrigation and water management programs and projects benefit women as well as men, those implementing development projects should consider approaches that take into account the differences in women’s and men’s agricultural roles, as

well as context-appropriate channels for reaching women farmers. (Elizabeth Bryan, Hagar El Didi, March 14, 2019)

Looking at differences in how the costs and benefits of small-scale irrigation technologies are distributed across men and women within the same households, IFPRI research in Ethiopia, Ghana, and Tanzania found that women are more constrained in adopting and benefiting from irrigation technologies compared to men. (Elizabeth Bryan, Hagar El Didi, March 14, 2019)

In Tanzania, while men started utilizing drip irrigation and motor pumps, women in the community still relied on labor-intensive manual irrigation methods, like hauling water with buckets. Even though men and women in a household shared the work on irrigated plots, women had less control over (or even knowledge of) selling the produce and the income generated. In some cases, the decision-making and asset ownership gaps between men and women increased after introduction of irrigation technology, as well as women's work and time burden. (<https://www.ifpri.org/blog>) Unless constraints to women's ability to benefit from the introduction of small-scale irrigation technologies are addressed, women's empowerment is not a guaranteed outcome of irrigation.

From the numerous ideas presented by various scholars about communication. Two things come out clearly. Firstly, the exchange of facts, ideas, opinions or emotions, and secondly, the receiver should receive in the same spirit with which these things are being communicated to him.

One key issue to all of these is that communication and information must be geared towards the development of the people or target group as such the information, the expected change and

adoption of the change should be well understood by the target audience and must be owned by the people as well.

In summary according to M.W. Cuning communication can be defined “as a process of transmitting information, ideas, facts, opinions, attitudes, feedbacks, problems, difficulties etc. from top level to bottom level and from bottom level to top level as well as from person to person i.e. intraocular with a view to meaningfully understanding them by others so that activation and interaction can be achieved and ensured in proper direction.”

In conclusion Development Communication is and should be one of the key new normal in championing the course of women in irrigation farming leading to their empowerment

2.5 Irrigation

Irrigation is defined widely as the practice and process of applying water to the soil in order to supplement the natural rainfall and provide moisture for plant growth (Uphoff, 1986). To Dupriez and De Leener (2002), irrigated cultivation is agricultural production using irrigation water in addition to rainfall. In addition irrigation is also defined as "human intervention to modify the spatial or temporal distribution of water for the production of agricultural crops"

In all there are two key sources of irrigation water these are surface water and groundwater. Surface water for example is obtained in ponds, lakes, rivers and seas whereas that of groundwater is obtained underground in liquid or vapor state. Chamber (1988) suggested that from a farmer's perspective and point of view, a good irrigation service involves the delivery of "an adequate, convenient, predictable and timely water supply for preferred farming practices." Garg (1989) also demonstrated that irrigation success considers the degree to which water

volume and quality, and the time of irrigation events match the requirements of plant throughout the season. A desired outcome occurs when the volume, quality, and timing of water deliveries would generate maximum crop yield. Irrigation may therefore be defined as the science of artificial application of water to the land, in accordance with the crop requirements throughout the crop period for a total nourishment of the crops.

2.6 Brief History of Irrigation Development in Ghana

Irrigation is an age-old art was practiced for thousands of years in the Nile Valley. Egypt claims to have the world's oldest dam built about 5000 years ago to supply drinking water and for irrigation.

In Ghana Irrigation farming has existed about century ago, however formal irrigation started in the early 1960 (Namara et al. 2011:4). The Ghana Irrigation development Authority (GIDA) is the constitutive organization or body in charge of Irrigation Agriculture in Ghana. It is a semi-autonomous institution within the Ministry of Food and Agriculture (MoFA) Since 1960 when it was established, GIDA has moved through several phases and rebranding. It was formally called the Land Improvement and Preservation Unit of the Ministry of Food and Agriculture (MoFA) (GIDA, 2006).The mandate at that time was Soils and Water Conservation. The unit was later upgraded to the Land Planning and Soil Conservation Unit. GIDA was finally established in 1977 following a decree SMC (Supreme Military Council).Currently the core functions of GIDA are to formulate, develop and implement irrigation and drainage plans for all year round agricultural production in Ghana (GIDA, 2009). Specific responsibilities include " Identification and site selection, designing and constructing of irrigation facilities (dams, ponds,dugouts etc.),

Disseminating adaptive of irrigation technology to farmers and the provision of technical services to farmers among others” (Namara et al.2011)

GIDA’s core areas of mandate are food crop irrigation, water for livestock and aquaculture. The strategy of the government of Ghana at the initial stages was to encourage farmers to participate in irrigation farming. As a result farmers were given free services such as 'free water supply to their plots, no payments of support from farmers towards running and maintenance of project equipment, vehicles, canals, drains and even farm ditches. The cost was bore by the government and its donor partners like Japan, Tawian,China etc in addition to that farm inputs such as improved seeds, fertilizers and other agro-chemicals and mechanized services were either heavily subsidized or provided free of charge' to framers (Sam-Amoah and Gowing 2007). The irony of the matter is that in spite of all these farmers failed to increase their yield considerably because of lack of devotion to the state asset. (ibid, 2007) as well as total lack of ownership by farmers which may be due to largely lack of proper communication and information of the project to the framers.

The Government of Ghana was no longer able to finance the operation and management of the increasing numbers of schemes because of lack of funds for maintenance and repair works leading to the deterioration of most of the schemes. The introduction of the structural adjustment programme led to the transfer of irrigation scheme from state owned to beneficiary farmers.

The World Bank in 1986 reviewed the irrigation sub-sector, as a result of the Structural Adjustment Programme (SAP) the review came out clearly that, the irrigation sector in Ghana was not performing well to produce maximum returns as compared to the amount of money invested in the irrigation infrastructure. As such a new strategy was introduced by the World

Bank to make irrigation development in Ghana sustainable. Emphasis was laid on the Government of Ghana focusing on small scale, Low cost irrigation system and to improve the operation and maintenance of existing schemes in order to enhance efficiency and reduce the cost to the Government. Government should implement a water charge that is geared towards full cost recovery and GIDA should pass on the task of management to farmers groups and private investors (GIDA and JICA, 2004).

The World Bank suggestion based on the structural adjustment programme led to the establishment of Farmers Participatory Irrigation Management' (PIM) Which began in 1987 with the legislative instrument LI350 introduced to restructure the operation, maintenance and management with the inclusion of farmer participation in entire project management. The Dawhenya and Weija Irrigation Schemes were the two projects that started the PIM. However it was not successful because the implementation process did not take into consideration the concerns of farmers' rather it used a "top down approach" which often makes the farmers recipients and not participants of whole process.

2.7 Types of Irrigation Systems

There are many different types of irrigation systems, depending on how the water is distributed throughout the field. Some common types of irrigation systems include, surface irrigation, drip irrigation, sprinkler irrigation, centre pivot irrigation, lateral move irrigation, sub irrigation, manual irrigation. The different types of irrigation system can be found in the appendix.

In light of evidence that women's limited access to agricultural technology is an important constraint to women's agricultural productivity (von Braun and Webb 1989; Quisumbing 1995;

Peterman et al. [2010](#)), increasing technology adoption among women farmers has emerged as a key strategy to close the gendered productivity gap in agriculture while also promoting women's empowerment and advancing broader welfare outcomes. Agricultural technologies can help women farmers—particularly small-scale, resource-poor women farmers to produce more; add value, manage risk, and use less energy, time, and natural resources. These production and quality improvements can enable women to maximize the returns to their limited time, labor, land, and capital (Doss [2001](#)).

Given these expected benefits, research has sought to understand what keeps women's observed rates of agricultural technology adoption low. The literature has shown that men and women have different preferences and face different types and severity of constraints to adopting technology (Doss [2001](#); Doss and Morris [2001](#); Carr and Hartl [2010](#); Quisumbing and Pandolfelli [2010](#); Ragasa et al. [2014](#)).

Technology adoption can be understood as three phases: awareness, tryout, and continued adoption (Lambrecht et al. [2014](#); Lindner et al. [1982](#)). Each phase presents certain challenges for women farmers. Awareness is limited by factors such as women's mobility and access to information and extension services that would help them learn what technologies are available, how to acquire them, and how to use them (Doss et al. [2003](#); Ragasa et al. [2014](#)).

Try out is limited by access to and control over the land, water, labor, inputs, and other assets required to use the technology (Ani et al. [2004](#); Drechsel et al. [2006](#); Meinzen-Dick et al. [2011](#); Ragasa et al. [2014](#); Johnson et al. [2016](#)); access to capital or credit to invest in the technology (Tiwari [2010](#); Ragasa et al. [2014](#); Doss et al. [2003](#); Olwande et al. [2009](#)); access to social networks, learning, and social capital to reduce perceived risks associated with technology

adoption (Conley and Udry [2001](#); Magnan et al. [2014](#); Hunecke et al. [2017](#)); and appropriateness of design, including affordability, cultural acceptability, and suitability for women's specific agricultural tasks and physical requirements (Quisumbing and Pandolfelli [2010](#)). Thus, many of the constraints that technology promises to alleviate are the same constraints that hamper adoption in the first place.

2.8 Women Empowerment:

Empowerment is the process of raising awareness, capacity building that lead to greater variety of participation, greater decision making power, control and transformative action (Ratmen, 2013). Empowerment is also known as raising the spiritual, educational, social, economic and political strength of individuals in all spheres of life (Ratmen, 2013)

It is also defined as “women's ability to make strategic life choices where that ability had been previously denied them” (Kabeer 1999). Empowerment is midway in the change processes that benefit women at individual, household, community and broader levels. At the most basic level, innovations can benefit women simply by improving their well-being in terms of health, nutrition, income, life span, etc. Beyond vital improvements in well-being, changes can result in women's empowerment, where women gain agency and resources to make decisions, build confidence.

Empowerment has both intrinsic as well as instrumental value. “The most common use of the term "empowerment" refers to increasing the power of the low-power group, so that it more nearly equals the power of the high power group” (Bhadra, 2001, p. 61). According to Sushama Sahay (1998), “Empowerment is an active, multi-dimensional process which enables women to

realize their full identity and powers in all spheres of life”. It implies decentralization of power and authority in the deprived, oppressed and powerless people who have not been able to participate in decision making and implementation of policies and programs of both government organizations as well as in societal matters. Empowerment of women is not only essential but also imperative for all round development of a country. The term empowerment has been defined by Arundhati Chattopadhyaya (2005). She holds that, “Empowerment is multi-dimensional and refers to the expansion of freedom of choice and action in all spheres (social, economic, and political) to shape one’s life. It also implies control over resources and decisions”. Further the term empowerment is defined as “the process of gaining control over one’s own life while supporting and facilitating others’ control over their lives” (Aspy & Sandhu, 1999, p. 24). Goodrich describes empowerment as “a benevolent but unilateral transaction in which one person enhances another’s ability to feel competent and take action, that is, enhances another’s power-to” (Patricia, Darlington & Mulvaney, 2003, p. 12).

Despite several definitions of empowerment in literature, this study adopts the definition of the World Bank which defines the term empowerment as “the process of increasing the capacity of individuals or groups to make choices and to transform those choices into desired actions and outcomes. Central to this process are actions which both build individual and collective assets and improve the efficiency and fairness of the organizational and institutional context which govern the use of these assets” (Chattopadhyay, 2005, p. 27).

2.8 Types of Empowerment

It is evident from the above discussions that different authors and organizations have tried to define the term ‘empowerment’ from their own perspectives. It ranges from self-strength to

efficiency building of women. However, empowerment of women now can be categorized into five main parts these are; social, educational, economic, and political and psychological. Social Empowerment

a. Social Empowerment

It refers to the enabling force that strengthens women's social relations and their position in social structures. Social empowerment addresses the social discriminations existing in the society based on disability, race, ethnicity, religion, or gender. Empowerment as a methodology is often associated with feminism. Broadly put, the term empowerment is defined as "a multi-dimensional social process that helps people gain control over their own lives. It is a process that fosters power in people for use in their own lives, their communities and in their society, by acting on issues they define as important" Retrieved from (<http://www.joe.org/joe/1999/october/comm1.php>).

A nearly similar definition has been given by Valsamma Antony (The Kurukshetra, February 2006, p. 27). She considers that, "Empowerment of women is a multi-dimensional process, which should enable the individuals or a group of individuals to realize their full identity and powers in all spheres of life." Empowerment of women means enjoyment of equal rights, equal status and freedom of self-development with men.

b. Economic Empowerment

Economic empowerment is the crying need of this hour. "Wage employment means economic power" (Elliott, 2008, p. 86). Through employment women earn money and it enables women and girls to become 'bread earners', contributing members of households with a strong sense of their own economic independence. "Economic empowerment is a powerful tool against poverty" (Biswas, 2010, p. 27). The Djakarta Declaration (1994) critically examines that, "empowerment of women is not only equal consideration; it was a necessary precondition for sustainable economic and social development." Without economic self-sufficiency other rights and scopes

remain meaningless to the people. Economic empowerment can be described as a means by which the poor, landless, deprived and oppressed people of all societies can be freed from all kinds of deprivation and oppression; can directly enjoy the benefits from markets as well as household; can easily manage a square nutritious food and fulfill basic requirements such as house, cloth, medicine and pure water etc.

c. Political Empowerment

Participation of women in the political field and in various decision-making bodies is an important tool for empowerment. The participation of women at all levels of governance structures is the highest need of this hour for women's actual empowerment. Alida Brill (2000) holds that, "Without our own voices being heard inside the government areas and halls of public policy and debate, we are without the right to accountability – a basic establishment of those who are governed." In other words, "Empowerment is not giving people power; people already have plenty of power, in the wealth of their knowledge and motivation, to do their jobs magnificently. We define empowerment as letting this power out" (Blanchard, Carlos, & Randolph, 1996). It encourages people to gain the skills and knowledge that will allow them to overcome obstacles in life or work environment and ultimately, help them develop within themselves or in the society." Without political participation it would be very difficult for women to increase effectiveness, capacity, challenging the existing power structure and patriarchal ideology. Politics decide who will get what and how much. Hence, empowering women politically is the highest need of the hour.

d. Psychological Empowerment

Through psychological empowerment women not only transgress the traditional and patriarchal taboos and social obligations, they also transform their selves and subjectivities. When women

join educational institutions, political parties or decision-making bodies; hold white color jobs, take decisions and travel different places; occupy land and wealth they feel psychologically powered and build their self- confidence, recognize their self-worth and take control of their own income and body

e. Educational Empowerment

“Traditional concepts recognize higher education as an instrument of personal development. It helps in growing an individual’s intellectual horizons, wellbeing and potential for empowerment” (The Kurukshetra, September 2012, p. 25) P.H. Sethumadhava Rao (2001) considers that, “The most important thing is that they (the women) need to be given free and compulsory education so as to make them aware of the rights and duties and possible free legal aid so that they can fight their cases without spending money.” An educated mother is a one thousand fold superior to a mere lecturer. Education creates self-confidence, self-esteem, self-sufficiency to a person. It brings light of hope; increases social, political, intellectual, cultural and religious consciousness; broadens the length of mind; removes all kinds of bigotry, narrowness, superstition and enhances fellow-feeling, tolerance etc.

Kiran Devendra (2001) stresses the importance of health, education and self-esteem of women. Devendra feels, “Empowerment of women would mean equipping women to be economically independent, self-reliant, have a positive self-esteem to enable them to face any difficult situation and they should be able to participate in developmental activities.” Devendra believes that empowered women will be able to participate in decision-making, policy formulation and implementation of different policies and programs. Education plays a great role in this sphere.

Information Technology and media (both electronic and print) are assuming pivotal roles in dissemination of knowledge to the people and bringing the world nearer to one's reach. In the present day situation it is not possible for any society to think about empowerment without the incorporation and utilization of IT. The outstanding feature of empowerment lies in its very term 'power.' Shaikh N. Meera and D.M.U. Rao (The Yojana, February 2003, Vol. 47, p. 29) consider that, "The empowerment process is one where women find time and space of their own, and begin to re-examine their lives critically and collectively."

Poverty and illiteracy are intertwined with one another. Poor people are mostly uneducated or lowly educated. This mass of uneducated people feels one kind of powerlessness. They feel some invisible forces from outside are controlling their lives. This powerless and inferior attitude creates a sense of intimidation. They began to depend on fortune, luck, destiny and above all God or supernatural elements. With attainment of education and knowledge women can overcome these problems. In this regard Renana Jhabvala (2001) feels that, "Empowerment is the process by which the disempowered or powerless people can change their circumstances and begin to have control over their lives." It is a process by which the disempowered can change the equation of power, their living conditions and their existing unequal conditions.

2.9 Theoretical and Conceptual Underpinnings of Study

i.Theoretical Review

There are various theories on communication which is applied or use by many for various reasons and interest .For the the purpose of this study in relation to the role of communication regarding irrigation and women empowerment, the Diffusion Theory will be applied since the

introduction and acceptance of irrigation technology in farming which is an innovation is a new era and path for many women comparative to the traditional rain fed practices.

2.10. Diffusion

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system (Everett Roger, 1961). An **Innovation** is an idea, practice, or object perceived as new by an individual or other unit of adoption (Rogers, 2003).

2.11 Theory

The diffusion of innovation theory analysis how the social members adopt the new innovative ideas and how they made the decision towards it. Both mass media and interpersonal communication channel is involved in the diffusion process. The theory heavily relies on Human capital. According to the theory , innovations should be widely adopted in order to attain development and sustainability. In real life situations the adaptability of the culture played a very relevant role where ever the theory was applied. Rogers proposed four elements of diffusion of innovations they are

2.12 Innovations – is an idea, practice, or object perceived as new by an individual. It can also be an impulse to do something new or bring some social change. These concepts of innovation focus on advancing social and economic progress, as well as addressing the needs of the underserved and engaging them directly in innovation processes. Our definition of innovation aligns largely with the emerging concept of “social innovation,” emphasizing not only progress and social change, but also social justice as an important element. Phills, Deiglmeier and Miller (2008) define social innovation as “a novel solution to a social problem that is more effective,

efficient and sustainable, or just than existing solutions and for which the value accrues primarily to society as a whole rather than private individuals.

2.13 Communication Channel – The communication channels take the messages from one individual to another. It is through the channel of communication the Innovations spreads across the people. It can take any form like word of mouth, SMS, any sort of literary form.

2.14 Time – It refers to the length of time which takes from the people to get adopted to the innovations in a society. It is the time people take to get used to new ideas. For an example consider mobile phones it took a while to get spread among the people when it is introduced in the market, likewise that of irrigation. To when and how innovations are best poised to empower women. Contextual factors cover multiple political, economic, social, technological and environmental spectrums. They include a broad range of conditions shaping a society, such as legislative policies, social movements, war and conflict, macroeconomic trends, trade agreements, gender norms, financial systems, educational attainment, infrastructure, shocks and crises (from financial upheaval to natural disasters). A supportive setting and environment as well as opportune timing can mean the difference between success and failure of an innovation.

2.15 Social System – Interrelated network group joint together to solve the problems for a common goal. Social system refers to all kinds of components which construct the society like religion, institutions, groups of people etc



2.16 Theories of Gender Equality

Theories of gender equality are used to explain the strategies that can be utilised to empower women in society (Lipset, 1959; Rostow, 1960; Bell, 1999). Examples of these theories include:

1. The classical development perspective.
2. The human development perspective.
3. The historical legacies perspective, and
4. The institutional design perspective.

However for the purpose of this study, the human development perspective will be adopted

2.17 The Human Development Perspective

The Beijing Declaration (Section 13) considers the empowerment of women as the *sin qua non* of social political and economic development in any given nation: Women's empowerment and their full participation on the basis of equality in all spheres of society, including participation in the decision making process to power, are fundamental for the achievement of equality, development and space (Fourth World Conference on Women 4).

In the past scholars believed that women's empowerment was enhanced by encouraging financial institutions to extend lines of credit to women (Agha, 2000; Kishor, 1997; Hashemiet al 1996). Educated women have the capacity to fight against cultural practices that condemn

women to oppressed position in society (Murphy and Graham, 2008). Women who are highly educated gain more access to knowledge, information and new ideas (Maslak andSinghal, 2008). Therefore the human development perspective relates women's empowerment to cultural practices of capacity building through education, training and development (Inglehart and Norris, 2003; Inglehart and Wezel, 2005)

2.18 Review and Critique of Previous Related Studies

Though a lot have been done by Government and various players (NGOs) and in the area of information and communication disseminations, women in irrigation farming continue to lack information in addition to various factors which prevent them from communicating accordingly to the appropriate sectors in the agriculture value chain. This is evidence in the submissions by the following scholars and authors..According to Ozowaa a Nigeria author, "The non-provision of agricultural information is a key factor that has greatly limited agricultural development in developing countries" (Ozowa 1995). Ten years later Ferris (2005) also argued that "in most African countries lack of accurate and relevant agricultural information by small-scale farmers is a major factor constraining efforts to improve the agriculture sector". More recently Obidike (2011) noted that Nigerian farmers still face constraints in trying to access agricultural information including: lack of access roads for regular visits by extension officers, poor attitudes.

Consider, for example, the Upper East Region of Ghana, where water for irrigation is limited in many communities without a dam. Men dig deep into the riverbed to access water to irrigate small plots near the river, but women lack access to land near the river and the labor needed to dig the wells. Despite this lack of access, many women still contribute their own labor to irrigate their husband's plots using buckets or jerrycans.

2.19 Conclusion

To address these differences and ensure irrigation and water management programs and projects benefit women in particular as well as men, stakeholders implementing development projects should consider approaches that take into account the differences in women's and men's agricultural roles, as well as context-appropriate channels for reaching women farmers.

(Elizabeth Bryan, Hagar El Didi, March 14, 2019)

Unless the numerous constraints to women's ability to benefit from the introduction of small-scale irrigation technologies are addressed, women's empowerment is not a guaranteed outcome of irrigation.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents a description of the study area and the research design used in the study. It also considers the population of the study, sampling techniques and sampling size, and data collection procedures, types of data and methods of data analysis. It further deals with the methodology, highlighting on the techniques and data collection methods used as well as the research limitations of the project.

3.1 Research Design

In order to satisfy the objectives of the research, a mixed method approach was held. A Mixed methods approaches can be defined as those which combine qualitative and quantitative approaches (Creswell, 2013). This approach was chosen for this study because of the complexity of the subject under investigation (Ivankova et al., 2007). This gave a more in-depth understanding of the role of communication regarding irrigation farming and women empowerment.

3.2 Population of Study/Study Area

The study was carried out in Keta Municipality in the Volta Region. The districts was purposively selected because of the prevailing small holder irrigation schemes in the farming communities of the districts.

Mugenda and Mugenda (2003) describes a target population as a complete set of individual cases or objects with some common characteristics to which researchers want to generalize the results of the study.

Keta Municipality is mainly an agricultural district, with the majority of the population engaged in crop farming, livestock keeping, fishing and other related trading activities. Farm sizes are small in the municipality compared to other parts of the Volta Region. The average farm size is about 0.5ha. The municipality is one of the major vegetable producers in the Volta Region. It is well known for its shallots production along the flood plains of Angaw and Keta Lagoon sand streams ,and in the depressions created by some wealthy farmers. The main shallot producing areas are Anyanui, Agbledomi, Dzita, Atorkor, Srogbe, Whuti, Woe and Tegbi. Other vegetables such as okra, tomato and pepper are extensively cultivated either as purest and soras intercrops depending on the season, with alluvial soils along the lagoons. (www.ghanadistricts.com).

3.3. Data Collection

Primary source of data for this study will be collected through interviews using a semi-structured questionnaire, which will be administered to 80 respondents in 8 farming areas in Keta . 10 questionnaires will be administered in each of the 8 areas in Keta namely Anyanui, Agbledomi, Dzita, Atorkor, Srogbe,Whuti,Woe and Tegbi.

Semi-structured interview is a blend of both structured and unstructured questionnaire. As such have the merits of the two. For interviewees, the constructed part of semi-structured interview provides a general overview of the concept. It helps to draw an impartial comparison from the interviewers, which very essential for qualitative studies.

The unstructured part of semi-structured interview gives the interviewer more space to ask for clarification various answers and also to express the flow of thoughts, due to its nature the interviewers most often feel less stress during the interview

3.4 Limitations of study

The study looked at the impact of communication regarding irrigation farming and women empowerment. Some limitations were encountered in the execution of the study. Some were expected, but others were quite unexpected like the Corona Virus (COVID 19) pandemic. A prior understanding of these limitations may help in understanding the shortfalls that may arise in later chapters and also on conclusions drawn at the end of the study. Other challenges were due to time and budget constraints which allow only one district in the Volta region to be surveyed. Other districts and regions should be covered for further research.

CHAPTER FOUR

CONCLUSION AND RECOMMENDATION

4.0 Conclusions

This study has been motivated by the fact that women who are the principal actors in ensuring household food security in rural areas rely on agriculture, yet they face low levels of empowerment in agriculture due to lack of information and communication. With the aim to inform policy, this paper identifies the dimensions of communication regarding women's empowerment in irrigation agriculture that impact on their households' vulnerability to food insecurity. In agriculture, women can be empowered through crop management skills, irrigation farming skills, farm financial management skills, improved level of water use security, animal husbandry skills and weed and pest management skills.

In the economic arenas, women can be empowered in economic agency, financial capital, human capital, vocational skills and physical capital forms of empowerment. The socio-cultural inhibitions affect women's participation in agriculture and make their households vulnerable to food insecurity. Therefore, empowering women in these socio-cultural aspects that create hindrances to improved agricultural production among women is crucial for reducing their household vulnerability to food insecurity.

The media provide family farmers with a means to exercise their rights, for example, rights to expression and opinion, media democracy, cultural and linguistic rights, and rights to seek, receive and impart information and ideas through any media.⁴¹ A pluralistic and free media system provides a number of benefits to society. Media enable access to information, widely diffuse knowledge, serve as "watch dogs" on governments, private sector and civil society, and

provide platforms for citizens to express their voices in a “return path” back to the government. (Food and Agriculture Organisation of the United Nations 2014 -**Farming For The Future** - Communication Efforts To Advance Family)

For example in Ghana Akkufuo Mmre Nie (Farmers Time) programme on Net 2 television and Ayeekeo on U TV which are all agriculture and farmer oriented programmes are very good source of information ,education to farmers and serves as a feed back to stakeholders for decision making and action.(utvghana.com or despitemedia and net2tvgh.com)

4.1 Policy Recommendations

Based on the above conclusions, this study recommends that

- ▶ Irrigation farmers received very little extension contact. Hence Ministry of Food and Agriculture (MoFA) through its extension officers should empower farmers by giving them training regarding the appropriate choice of crops for irrigation, chemical use and on general good agronomic practices to enhance their productivity.
- ▶ There is the need to bring together stakeholders to discuss collaborative efforts to reduce household vulnerability to food insecurity through empowerment of women.
- ▶ The government should put in place institutions that address the socio-cultural and customary aspects that create hindrances to improved agricultural production among women.
- ▶ The Ministry of Agriculture and various NGOs must collaborate with various media organization to come out of agriculture programmes in the various community radios to serves as as source and medium of dissemination of Agriculture information and communication to all farmers especially women.

► Empowerment agencies should target to improve women's sense of agency to reduce vulnerability to food insecurity.

► Women farmers should be assisted in accessing the physical capital resources the most pressing issue affecting the expansion of the smallholder irrigation was working capital. In order to promote irrigation farming in Ghana farmers must be supported with micro-credit facilities for the acquisition of inputs especially low cost irrigation pumps

► It is therefore recommended that credit institutions provide loans to the farmers at reasonable interest rates to enable farmers purchase them.

► Adoption of equipment for irrigation should be encouraged by the Government, and Non-Governmental Organizations (NGO's). Farmers should be encouraged to go into ground water use for their ventures where applicable since it was found to be reliable and available all year round.

In addition to the above and as stated earlier in the literature review that the way to resolving the challenge of communication gap in irrigation farming and women empowerment is Development Communication.

A study based on Food and Agriculture Organization of the United Nations 2014 (**Farming For the Future** -Communication Efforts to Advance Family Farming). Highlighted the reasons for which Development Communication is the way to go. Communication for Development (ComDev) is a participatory approach to development that ensures the voices and views of all stakeholders, regardless of their social status, age, gender or ethnicity, are heard and acknowledged. The United Nations defines Communication for Development as a process that "allows communities to speak out, express their aspirations and concerns, and participate in the decisions that relate to their development." The first World Congress on Communication for Development defined Communication for Development as "a social process based on dialogue

using a broad range of tools and methods. It is also about seeking change at different levels including listening, building trust, sharing knowledge and skills, building policies, debating and learning for sustained and meaningful change.”⁶⁵.The discipline of Devcom is still not fully valued by policy-makers, development actors or even the general public, especially in the context of agricultural policies. Far too often it is confused with publicity or information-dissemination activities. This is an important distinction. Information dissemination tends to be “monologic” or one-way delivery of a message from a “sender” to one or more passive “receivers” who have no opportunity to interact with the message or the message sender. In comparison, DevCom is intended to be interactive and “dialogic.” It can include information, but its primary function is to engage people in a dialogue, to encourage them to share ideas and perspectives, and through this sharing create local knowledge and plans of action. The difference between information Communication for Development approaches are said to be “rights based” in that they are grounded in a collection of interrelated human rights, in particular the UN Right to Development (1986). The first World Congress on Communication for Development (WCCD 2006) stated in its *Rome Consensus* that a rights-based approach to communication for development was necessary to the attainment of the Millennium Development Goals (MDGs).³⁴

A rights-based approach can provide a useful framework for addressing issues of participatory development and empowerment around family farmers and women in particular and their claims for rural facilities and services that fulfill their right to development.

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APPENDIX

Surface irrigation

Water is distributed over and across land by gravity, no mechanical pump involved.



Drip irrigation

A type of localized irrigation in which drops of water are delivered at or near the root of plants.

In this type of irrigation, evaporation and runoff are minimized.



Sprinkler irrigation

Water is distributed by overhead high-pressure sprinklers or guns from a central location in the field or from sprinklers on moving platforms.



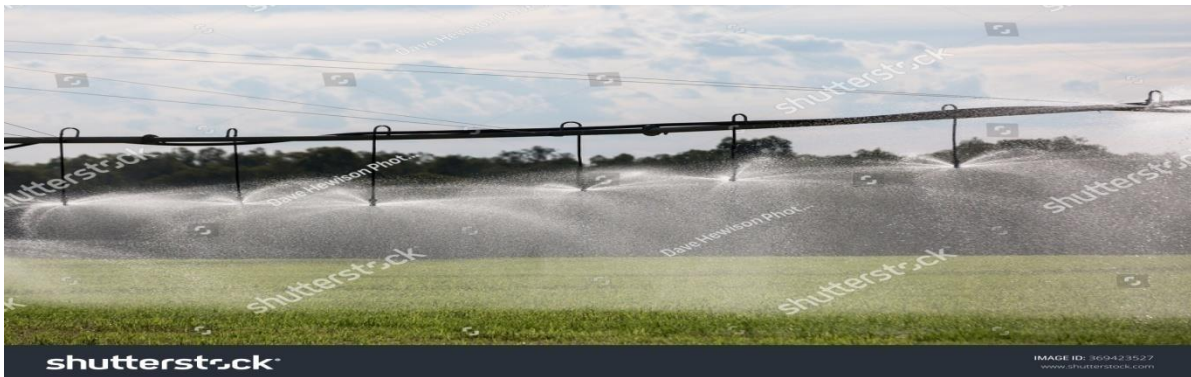
Center pivot irrigation

Water is distributed by a system of sprinklers that move on wheeled towers in a circular pattern. This system is common in flat areas of the United States.



Lateral move irrigation

Water is distributed through a series of pipes, each with a wheel and a set of sprinklers, which are rotated either by hand or with a purpose-built mechanism. The sprinklers move a certain distance across the field and then need to have the water hose reconnected for the next distance. This system tends to be less expensive but requires more labor than others.



Sub-irrigation

Water is distributed across land by raising the water table, through a system of pumping stations, canals, gates, and ditches. This type of irrigation is most effective in areas with high water tables.



Manual irrigation.

Water is distributed across land through manual labor and watering cans. This system is very labor intensive. (<https://www.cdc.gov/healthywater/other/agricultural/types.html>)

(Centers for Disease Control and Prevention(CDC), October 2016)