

The Role of Robust ICT in Fostering Agricultural Extension, Rural Development and Food Security

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Abstract: *It is of great need to know how Information Communication Technology (ICT) can help in developing agricultural extension which will in turn lead to rural development and food security fostering. Achieving optimum effectiveness and efficiency in agricultural extension services are at the mercy of effective communication of the agricultural information available to the farmers. This paper explains the seeming old media as mode of communication which are not fully maximized in agricultural extension. It is proposed that ICTs should be integrated with the old communication media.*

Keywords: ICT, Food security, Rural Development

1. Introduction

The role of ICT in agriculture is a developing field which focuses on the enhancement of agricultural extension, rural development and fostering of food security. The quantum leap in ICT can be maximized for services and information that are relevant to farmers which in turn create an enabling environment for sound and remunerative agriculture. Despite all the advantages of ICT it is noted that all the ICT initiatives are not commensurate with the difference between various regions, especially in the quantity and level of telecommunication, information and also the effort of private, individual and public organizations and discerned nature of distinctiveness of demand of each farmer in various areas. On account of this, there has been in so many ways failures, successes, experience gained and lessons learned[3]. The usage of ICT will bring notable impact on not only the farm productivity but also in food fostering and rural development especially for the intended beneficiaries who use the equipment made available for them in a meaningful way to cater for their needs. It has been deduced that the major challenges in adopting ICT in rural areas are localizing information passed across in their own language and also ICT illiteracy. One major area in ICT's usage for development is clearly observed in virtually some of the ICT driven resourfulness, is the participatory of the humans effort which shows that it is human desperation in information knowledge transfer to farmers and people living in a community[12]. There is a dire need to comprehend the degree to which ICT initiatives can help to solve the need of farmers in other to develop a better solution need to address farmers needs yet to be met. The sole aim of the research is to study the major ICT initiatives in agriculture extension ,rural development and food security fostering. Hunger has really affected human In the course of history and has become a major issue. It has been observed that attention has only been shifted to face the issue of agricultural sustainability and food security which is the main problem globally. This problem has been triggered most especially by the influence of changes in climate[10]. In this research, the ICT in food security means marking adequate food system

available and the accessibility to it can be accessed via Information Communication and Technology. Agricultural extension is at the very heart of rural development and food security which will be determined by the influence of agricultural extension services. The major link in bringing about improved agricultural practices and rural development is the ICT via human interface [1][14]. Concern is not only with teaching and securing adoption of a particular improved practice but with changing the outlook of the farmer to the point where he will be receptive to and on his own initiative, continuously see means of improving his farm business and home.

2. Agricultural Extension, Rural Development and Food Security Overview

Agricultural extension is broadly known to play an important role in upturning agricultural productivity, boosting food security and also enhancing rural sustenance. Agricultural extension provides various services especially for rural farmer to help them handle the new challenges tackling agriculture. Agricultural extension is known as a non formal educational function which is used by any organization that propagates information with the essence of boosting skills, aspirations and providing concrete knowledge. It is also known as an organizational equipment to maximize and enhance development. [17]from his explanation claims that extension is a science which focuses on the innovation,transformation and knowledge application structured to promote changes in complex behaviours of people in the light of trying to help them live a better life via acquiring new dimension of enhancing their professionalism and establishments. He tried to look at extension from the basic perspectives which are: to broadcast important information, to apply the disseminated information and to help people to use it in other to help themselves. If agricultural extension is well taken care of, it will promote rural development and food security. Some ministries of agriculture have extension unit which focuses soon mixed agricultural system and crops and also various specific area such as forestry, fisheries and livestock etc. Some of them

provide extension services.[6] viewed the role of extension from a contemporary perspective as to passing knowledge across to both urban and rural purchasers and help them to locate their challenges and also to deal with them based on their own resources. He proposed that extension has three major areas which are: (i) Social aspect: This deals with the health of the buyers, develop their leadership skills, and also breed passion for development. (ii) Educational aspect: This deals with correcting of the attitudes of people. (iii) Economic aspect: This includes enlightening the buyers on how to increase income, show them new ways of financial management and good ways of preserving food. He proposed that the applications of extension are not restricted to farmers alone, but also to other members of the community who wish to gain from the available extension services such as extension education. The major mistake made by so many people is that of the restrictions placed on agricultural extension services to only help farmers to acquire their planting inputs of which it covers a broad spectrum of services which involves; enhancing production, boosting marketing strategy, storage, human resources and development etc. [4]. Rural development and food security fostering are not independent of Agricultural extension. It is also very important to note that extension is a weak weapon when it tries to stand alone. But it is a powerful weapon when combined with ICT [9]. Extension has multifaceted dimensions. It combines communication and educational techniques in breeding rural development and food security fostering.

3. Traditional Mode of Communication and Information Inadequacy in Agricultural Extension, Rural Development and Food Security

Since communication is said to require a degree or level of commonness among people for a genuine communication to take place. Communication is therefore defined as the process which encapsulates the transfer of thought or an idea from the mind of one individual to that of another. It means that communication which is said to be a process needs at least two people, both the sender and a receiver, the mode of communication notwithstanding, therefore a genuine communication therefore explains something to someone in a manner that he gets it.

Most often, agricultural extension officers are disappointed when farmers seem not to give the desired answer after communicating a message to them. It is believed that there's always something that can stand between two individuals and can prevent complete information from being passed across. The major block is insufficient information. This is a major problem of communication. It happens at times when farmers seemingly are taken for granted and we think they are already aware of some things and hence the only give them an excerpt of complete information. Knowledge is said to be light-footed and can also move round the world with ease of transforming people's life. Despite the transformation of knowledge, many people still dwell in darkness and neither efficient nor effective communication links as reported by word development report. In [5] some researchers explain this lack of communication links

amongst the rural areas in most developing countries. In [2][10] it is noted that a large part of the population in developing countries especially in the rural areas, often have inadequate access to basic needs such as food, water, health care, information networks and communication which leads to a very high rate of infant mortality and low life expectancy. In [19] Traditional methods of communication have always been viewed as monologue in nature and have not really allowed much interaction among users. One major innovative area in the application of ICT is to help combine various ICTs, so as to unleash a many-sided communication suite or package that is complete. It is noted that if New ICTs are linked to traditional communication ways, it will surely address the identified needs. It is so amazing that agricultural technologies that can boost food security and develop rural communities in developing countries have been in existence for decades. However, hunger is still the order of the day in these countries [16]. This is because the farmers involved are most times overwhelmed with so many challenges. However the workable solutions to these challenges are in existence, but there is global difficulty in setting the accurate information across to the farmers in need. In [16] in order to properly maximize agricultural communication which will in turn bring about rural development and foster food security, there is a great need for proper blending of the traditional media with the ICTs, since it is believed that the traditional media is media of the people while ICTs is for the people.

4. Intervention of ICT Mode in Agricultural Extension, Rural Development and Food Security Fostering

Since the traditional methods of providing information about agriculture via extension services has so many shortcomings, hence the need for new ways of enhancing access to agricultural information by making use of the available information systems which are now being explored. [8]

It is known that agricultural extension is so important in boosting agricultural productivity, enhancing food security and improving rural livelihoods. In [11] ICTs means Information and Communication Techniques and it is known as a different set of technological equipments and resources which are used to create, communicate, disseminate, store and manage information. The technological equipments are radio, television, telephony, computers and internet. According to [20] Some of the tools of ICTs which are useful especially in agricultural extension programs encompass: Radio, Television, Computer, Internet, Printed materials, Short Message Service(SMS) among others.

Over the years, there has been an enthusiastic interest in researching how internet and computers can be well harnessed so as to enhance the effectiveness and efficiency of agriculture. In most developing countries, the usage of internet and computer are still very low. In [18] it has been found that for effective communication to take place, different techniques can be combined together instead of using sole delivering techniques. In [7] attention has been drawn to the fact that ICTs in the service of enhancing rural livelihoods cannot be restricted to only agricultural

extension but also in achieving food security. By way of illustration, the combination of radio broadcast, internet techniques and computer are being used by the Kothmale Community Radio Internet which help to enhance information sharing and make available several opportunities in a rural community in Sri Lanka. [6] explained that electronic means have the following: television, radio, telephone, rural and community radio among other ICTs. [13] said in his speech that the most important question is knowing how to harness ICTs maximally in order to proffer solution to the issues causing obstacles to the development of rural communities.

According to [20] ICTs are grouped into three areas as:

(i). Broadcast technology (ii). Print technology (iii). Telecommunication or computer techniques

1) Broadcast Technology e.g Local Radio

An early mode of communication which is known as a local community radio and has been of help in the development of rural communities to a certain extent and can also expose people to the needed information. It is known as one of the oldest form of information technologies. Although traditionally speaking, Local community radio is known to be a one-way communication equipment which provides information to the listeners. Notwithstanding when integrated with ICTs it will provide a two- way platform for creating interactive programmes for dialoguing. Radios can help farmers to connect to other farmers, buyers and suppliers. It is also a potential tool for extension and also help to complement existing agricultural information system. Another part of it is that radio programs in a common or vernacular language provides a new channel of communication in rural areas.

2) Print Technology e.g Newspaper, Leaflets and Magazines

This kind of communication media can join pictures, words and diagrams to convey accurate and precise information. Printed media that can be used here are posters, circular letters, magazines, newspaper and leaflets. It works side by side with other channels of information.

3) Telecommunication Technology e.g Mobile phones, Internets and Computers

It is noted that lack of accurate information will surely lead to low yields and low income. The development of agricultural extension, rural areas and food security is at the mercy of accurate and timely information. Smart phones and their equivalent applications are known to bring accurate solution especially in other to help farmers to have access to important information. It help farmers get information on weather forecast, how to improve cultural practices, market prices, disease and pest management [15] The use of internet in other to access timely information regarding food production, weather forecast, crop varieties and how to increase yield has been proposed. The combination of mobile phones with radio enhances the broadcast of messages to a large number of people. The internet is good at also providing great privileges and opportunities for training and distance education, therefore this overcomes various problems regarding location.

5. Conclusion and Recommendations

Since ICTs have great impact on diverse extension delivery or programmes which includes solving problems encountered by farmers, enhancing the flow of information within rural communities and also provides the advantages of a two – way communication which helps in getting feedback via broadcast technology, print media technology and telecommunication technology. It is believed that if agricultural extension agents can properly utilize the potentials of ICTs, there will be transformation in agricultural sector which will birth rural development and thus foster food security.

The following recommendations are made:

- 1) ICT facilities should be made readily affordable and available to extension agents and farmers, by so doing farmers will have access to timely and accurate information especially on humidity, temperature, wind speed and atmospheric pressure.
- 2) Agricultural extension agents should be well trained to motivate and encourage farmers in other to access and harness ICTs via aiding them materially and financially by government.

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