AN APPRAISAL OF PARTICIPATORY PHOTOGRAPHY FOR ENHANCING PRODUCTIVITY IN N.A.E.R.L.S INTERVENTIONS

By

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DECLARATION

I ISMAIL, Fatai Olawale declare that the work in this Thesis entitled, "An Appraisal of Participatory Photography for Enhancing Productivity in N.A.E.R.L.S Interventions" has been carried out by me in the Department of Theatre and Performing Arts under the supervision of Dr. Emmanuel Jegede and Professor Emmy Unuja Idegu. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this Thesis was previously presented for another degree or diploma at this or any other Institution.

_____ _____

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CERTIFICATION

This thesis entitled AN APPRAISAL OF PARTICIPATORY PHOTOGRAPHY FOR ENHANCING PRODUCTIVITY IN N.A.E.R.L.S INTERVENTIONS by Fatai Olawale ISMAIL meets the regulations governing the award of the degree of Master of Arts (M.A) in Development Communication of the Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

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ABSTRACT

Doing agricultural communication from the top-down approach has been identified as one of the challenges to sustainable agricultural productivity and development in Africa and in Nigeria especially by international development agencies and national research institutes. In Nigeria, the foremost agricultural extension research institute is the National Agricultural Extension and Research Liaison Services, Ahmadu Bello University, Zaria. This institute uses numerous communication strategies and toll to carry out it extension mandates. One of the tools of communication used by NAERLS is photography. Photography is fundamental to the operation of the Institute' mandates. This thesis appraises the use of photography as a research and communication tool by the National Agricultural Extension and Research Liaison Services (NAERLS) for its research and information dissemination functions. The study did that by paying critical attention to how NAERLS currently uses photography for research and communication of innovations, best practices and approaches. The critical attention to the use of photography by NAERLS helped the researcher to identify the strengths and weaknesses of the current system. Through the use of both qualitative and quantitative research methods and tools, this study discovered that NAERLS has been using photography in a top-down manner by placing the camera with the extension specialists and researchers to capture activities in research and development programmes. The pictures so captured are used as support materials in programme reports. This system has produced results in the number of projects implemented and farmers' adoption of innovations and best practices. The current system has not afforded the farmers the opportunity to contribute to agricultural information from their own perspective through the use of photo camera to capture indigenous experiences. Thus, agricultural development programmes are not producing results in the sustainable manner they are supposed to partly because the farmers are not empowered to own part of the information that influences the design and implementation of agricultural development programmes in their communities. The Narrative Transportation Theory (NTT) and the Participatory Communication Theory (PCT) were deployed to underpin this study. Four data collection instruments, i.e. the Questionnaire, the Focus Group Discussion, the Key Informant Interview and the Documentary Observation methods were used to elicit responses from the farmers and NAERLS staff. One hundred and thirty participants (80 NAERLS staff members and 50 farmers) were engaged in this study. In this study, based on the findings, the researcher argued for the institutionalization of participatory photography (photo-voice) to empower the farmers to use the photo camera to take pictures and use them to tell their development stories in order to engender sustainable productivity and change. Participatory photography involves local people taking pictures and then critically interacting with change agents like NAERLS or the government for the enthronement of favourable development policies in agriculture. The end purpose of this is to empower the farmers and engender sustainable solutions to agricultural development challenges.

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Background to the Study

Nigeria is a country with a distorted but intriguing history of agricultural development. According to Adesina (2013a), agriculture accounts for 44% of the Gross Domestic Product (GDP) and 70% of the employment in Nigeria. This important sector has always been treated as a pure [economic] development activity; that is probably why it has not generated sustainable wealth for farmers at the potential it should. Only 40% of Nigeria's land, as at 2013 was utilized for agricultural activities. Ironically, the country is potentially blessed with large labour pool and very low wage rates [which should translate to abundant manpower] to farm more land area. This is because many Nigerian farm holdings are still small and there are hundreds of unemployed people who work as labourers on farm lands. They are usually paid daily or weekly wages; and most of the time, the negotiating power of the parties determines the amount of wages earned or paid.

The importance of agriculture to national development is why the Federal Government advocates for more farmers' involvement in the Agricultural Transformation Agenda (ATA). This is to improve productivity and ensure sustainable national development. The ATA is implemented through the Ministry of Agriculture and Rural Development (FMARD) in conjunction with the National Agricultural Extension and Research Liaison Services (NAERLS) and other research institutes and states' Agricultural Development Projects ADPs. The Agenda was inaugurated in 2012 by the Nigerian government to turn around agriculture and make it a business that creates

sustainable wealth for all stakeholders along the various business elements of the agricultural value chains.

This means that ATA is not focusing only the farmers in an attempt to achieve a lasting social change in Nigeria but also giving attention to marketers, manufacturers, corporate bodies, women and children. In this way, agricultural development becomes inclusive and attracts all stakeholders. The intention, again, is for agriculture to improve small and medium investments among majority of the rural dwellers instead of being run as an externally funded development project usually implemented with just the top-down communication strategy of the mass media. Invariably, it is hoped that ATA will move the Nigerian farmers towards focusing particular commodity along the value chains in which the country has a traditional comparative advantage; and by so doing, grow food, create jobs and ensure food security as drivers of sustainable market growth for Nigeria's investment.

Focusing a particular commodity means farmers will produce better and more of, for instance, rice, sorghum or wheat to the optimal level for exportation and at the same for domestic supply for national food security. All these are good intentions. But there are challenges of how farm inputs and fertilizers are purchased and distributed which are truncating development interventions and skewed the information available to famers. Such distorted distribution system and slanted information system have impacted negatively on farmers' productivity and how farming is done for more than four decades in Nigeria.

Subsequently, in 2012, the primary issue in ATA was to rapidly reform the fertilizer and the seed procurement and distribution sub-sectors. These sectors have been

traditionally controlled by the state. The system (i.e. government controlled fertilizer distribution) has been declared expensive, inefficient and corrupt because it has displaced the private sector investment, thereby generating more poverty among rural small farmers (Adesina, 2013a). Overall, the Nigerian government is pursuing the diversification of the economy, and agriculture is central to the transformation agenda objectives (Jonathan, 2013).

Retrospectively, in the 1960s, Nigeria was an agricultural powerhouse; its tropical climate, fertile land and ample water resources provided by the Niger and Benue rivers made it an ideal location to grow a range of crops (Agriculture in Nigeria, 2013). By 1961, Nigeria was controlling 42% percent of the global trade in groundnut; 27% percent of the world's palm oil industry and 80% percent of its cocoa trade (FAO, 2012). About 20 years later, this dominance had evaporated following domestic neglect of agricultural activities coupled with high market competition from other parts of the world such as the Southeast Asia (Agriculture in Nigeria, 2013:9). Since the 1980s, the focus of every government has been to recover the lost ground in agriculture; this has been very difficult considering the fact that most farms in Nigeria consist of small farm holdings with low yields.

Furthermore, greater proportion of agricultural information have always been based on experts views and research reports from government agents or international development organizations with little or no indigenous knowledge inputs from the farmers. Therefore, many agricultural development programmes were not and are still not consciously owned by the rural farmers who often jump on to new interventions as soon as the preceding ones become less attractive or run out of operational fund. Nevertheless,

agriculture still makes a significant contribution to the economy, accounting for 41% of the GDP in the first quarter of 2012 (CBN, 2013). Up till the liberalization of 1986, Nigeria operated dual food marketing chains, with state-owned commodity boards controlling the sale of cash crops for exports while informal networks were left to manage supply lines of food to the domestic markets.

Under this system, there were great distortions in the market system - going by the market prices from the market boards (Agricultural in Nigeria, 2013:9). Even though, then, the Federal Government, through the Central Bank had established inter-ministerial committee to support the creation of commodities exchange to fill this institutional vacuum, trading remained thin (exports of cash-crop commodities shifted towards the informal sector for domestic food as import grew geometrically). Accordingly, in 2011, wheat, rice, sugar and fish ranked as the top four imports for Nigeria. More worrisome is the statistics that put the country as the largest importer of rice in the world with 2.45 million tonnes in 2012 with the import bill standing at eleven (11billion) US Dollars (Agriculture in Nigeria, 2013:10).

This import status is even becoming scary as it grows at 11% per year! These figures are signs that the agricultural sector is still not producing the best for the country in terms of agricultural innovation adoption for sustainable local ownership cum empowerment. Extension is a major information carrier system in agriculture worldwide including Nigeria. For the extension activities in Nigeria, there are many challenges of which information generation, packaging and dissemination in a non-participatory manner is one. Thus, in 2011, the National Extension Review and Planning Meeting (NERPM) held

at NAERLS, Zaria, with the theme *Making Extension Work For Nigerian Framers* observed among other things that:

i. Nigeria has no policy on agricultural extension.

ii. Extension activities continued to be inadequate to serve farmers' demand.

iii. Funds for research were subsumed under capital vote.

iv. State Agricultural Development Projects (ADPs) were not effectively disseminating agricultural innovations.

Again in 2012, the NERPM further observed that the major problems of extension continued to be: poor funding, low rate of extension workers and inadequate establishment of demonstration plots and other outreach programmes (one of the communication strategies in extension) to accelerate adoption and sustainability of technologies by farmers. As one of the measurements to improve such disturbing situation in agricultural extension, a Federal Directorate of Extension was established in 2013, and domiciled in the Ministry of Agriculture and Rural Development, Abuja. Meanwhile, one of the recommendations from the NERPM meeting (which was that extension agents and farmers' capacity be strengthened through training and partnership with relevant government agencies and indigenous people to cope with weather problems) has only been technically considered by the government through the inauguration of an Advisory Committee on Resilience Agriculture in 2013.

There was equally the distribution of 700 motorcycles to Agricultural Development Projects (ADPs) to improve the dissemination of information to the hinterlands by extension agents in 2014 (NEARLS Quarterly, 2014:8-9). The Advisory Committee on Resilience Agriculture has since submitted its report and recommendations to the

government, despite that, farmers' capacity building to cope with emerging climate alteration through a participatory communication system is still at low ebb.

Flood, weather inconsistency and climate change are three natural variables that continue to affect agricultural activities around the world and in Nigeria. Distorted information and top-down communication without harmonization with indigenous knowledge usually confuse farmers who modestly have their traditional forms of reading the weather situation for planting, weeding and harvesting. Weather predictions from the urban centers using modern equipment may be accurate but the packaging and dissemination rarely takes into cognizance indigenous knowledge for harmonization of many contextual variables. Or else, rural farmers would have been be practically prepared for emergencies as witnessed in the uncoordinated announcements of the releasing of water from two dams which flooded Nigerian villages from Cameroon in 2013.

As a result of the huge amount of water released from these dams, Nigerian farmers lost substantial parts of their crops to acute flooding in more than 10 states, and this led to the high cost of food commodities across the country (APS, Executive Summary, 2013:4-9). Another nagging challenge is that, as at the second quarter of 2014, Nigeria is yet to have a national policy on extension in spite of all the existing reports and advocacy for such. Whereas, the existence of such strong paper would have developed a better framework for the dissemination of agricultural information via indigenous knowledge integration and people's participation; its absence has continued to partly influence how and why agricultural communication is still done haphazardly, and in a top-down approach in Nigeria.

It is a well-established knowledge that land is a consequential factor in agriculture. Without land, no agriculture, and without the utilization of indigenous knowledge and the inclusion of the farmers' knowledge in the designing, implementation and evaluation of information on land use and ownership for development programmes, development interventions will always fall into comatose. As earlier noticed, the agricultural sector in Nigeria only utilizes 40% of Nigeria's 84m hectares of cultivatable and arable land, and no more than 10% of this land is optimized [despite the huge investments of many years]. Expanding the amount of land use for agricultural activities is a key to sustainable investment for national development.

It is therefore logical that whenever the government is developing policies for land use, it should take into cognizance the knowledge and role of the indigenous communities through evidenced based research and documentation. In this way, the investment opportunities in agriculture therein will not create avenue for land grab by outsiders, but rather, encourage 'out-grower schemes' whereby the local communities own some equity in such investment. More so, climate change and other features on land management must be accurately handled through proper information gathering, packaging and dissemination in Nigeria. Thus, viable evidence based information to help farmers become resilient in a participatory way to the impacts of climate change on farm practices and productivity is imperative.

Amazingly, to this end, the Federal Government has introduced several major innovations as part of the ongoing fundamental restructuring of the agricultural landscape; these include the establishment of specialized agencies. The information dissemination capacity of these agencies i.e. the National Emergency Relief Agency

(NERA); the National Emergency Management Authority (NEMA) and the Federal Environmental Protection Agency (FEPA) cannot be said to have harnessed evidence based information gathering and dissemination strategy that will empower the rural farmers to own part of agricultural development information. The presence of such synergy will boost participatory agricultural communication in Nigeria and empower farmers to sustain adopted innovations beyond specific regime.

Without such integration, knowledge and skills will continue to be personalized by extension agents and development experts. And as such, innovations and initiatives will be stacked at the implementation level as observed by Ijewere (2013). The drive to improve activities in Nigeria's agricultural sector is predicated in large part, on a wide set of reforms that aim to tackle a variety of structural weaknesses and improve the industry's overall investment appeal. Land issues are among the major constraints to large-scale agriculture in many African countries, including Nigeria.

In most cases, the primary problem is inadequate documentation and incomplete land registries, leading to overlapping ownership claims (Agriculture in Nigeria, 2013:13). On many occasions, it is difficult, if not impossible to carry out agricultural development projects sustainably in several communities in Nigeria due to land ownership disputes. Inappropriate information and communication framework and falsified figures away from farmers' knowledge and community realities about land issues are part of these challenges. Often, ambiguity over land status pushes development programmes beyond reasonable time and budget. Communication and communicating with the right parties is one of the participatory strategies to solving these type of development problem, even

though land rights are addressed in the Land Use Act of 1978 (elements of which government intends to change as part of the agricultural transformation).

Agricultural communication must consider this area critically with the local people before designing and disseminating development information. Understanding the obligation and duties/ rights of all parties not just on land matters is important for effective and sustainable agricultural communication. This area is still far from being optimally utilized through the use of image, visual communication or photography. Field surveys, reports or documentations for agricultural development projects are done with little or without evidenced based communication strategy to place the farmers in the fore front, (i.e. participatory photography) in many agricultural development projects in Nigeria. The fact remains that agricultural communication in Nigeria has not produced the expected impacts on farmers' commitment to development projects through critically interrogated pictures from the community perspective.

Without effective monitoring and evaluation through appropriate people oriented communication strategy, there can be no systematic pathway to assessing the development and impact of behavioural change in the adoption of smart agricultural practices and methodologies (Adegoke *et al.,* 2013). Pictures are effective evidence based communication tools that can be used in a participatory manner to move Nigeria's agricultural communication away from the production and collation of the posters, adverts or radio/television announcements made in the course of development projects implementation.

It is generally accepted that Nigerian agriculture has suffered effect of inappropriate policies and institutional framework on development which have collapsed the nation's

development options majorly to the activities in the oil sector. Clearly, the persisted failure of agricultural programmes has revealed the basic weakness of agricultural policies in Nigeria, and the inability of the several administrations to solve such fundamental problems (Amalu, (1998) in Iwuchukwu and Igbokwe, 2012).This is because agricultural reforms in Nigeria have always emphasized almost same objectives:

i. To provide food for the inhabitants of the nation (food security and sufficiency).

ii. To export excess to other countries.

iii. To provide rural dwellers and farmers with extension services

iv. To provide agricultural support and rural development services without critical consideration for community knowledge input.

Despite all the policies and laudable programmes with challenging themes, the country is yet to achieve food security. One visible challenge is that agricultural communication is still mostly done in a top-down approach in Nigeria.

And again, in Nigeria, it is not unusual to have the communication components of agricultural development programmes being led by scientists e.g. agronomists, engineers, sociologists or economists (who have not even been trained in development communication or agricultural communication); while the communication experts only do the media or community relations job. The aftermath of such wrong placement of experts on communication jobs are that many rural communities have witnessed countless development programmes in the last four decades but many of these development programmes have died natural death due to compelling social contradictions including but not limited to non-inclusion of the beneficiaries knowledge, perspective and

ideologies as ‘participants’ in the baseline survey, design and implementation of the communication system of the development programmes.

For instance, the National Accelerated Food Production Programme (NAFPP); an agricultural extension programme initiated in 1972 by the Federal Department of Agriculture during General Yakubu Gowon’s regime failed for many reasons of which the use of the top-down communication approaches was one. In all the failed agricultural development programmes from 1960 till date, non-inclusion of the community people has been identified as one of the fundamental hurdles bedeviling the communication strategies used. These local intelligentsias have good advantage to identify and help tailor policies and programmes for sustainable takeover by the communities.

Freire (1970:110) recognized the value of predetermined line drawings or photographs for alternatively engaging community members and critically examining their tradition and values through means other than written or stated questions prevalent in contemporary Nigerian agricultural research and communication systems. According Freire, “the indigenous people in participatory communication research are given more consideration beyond just being spectators or researchers’ data through conscious deliberations and reflections”. Drawings or photographs are used in the ‘codification’ of challenges as cognizable objects towards which the critical reflection of the communities is considered by the development facilitator. In this way, traditional philosophies surrounding many natural environments will be understood by both the local people and government in view of envisaged development policy or intervention.

The use of images as strategic communication tools has taken on a number of titles and references in evidence-based and community development based research and

communication interventions. These titles include photo-elicitation, photo ethnography, photo interviewing and photo-feed-back and recently photo-voice (Rodriguez and Bjelland, 2008). With a basis in sociology and anthropology, photo-voice has a functional place in strands of scholarship throughout the social sciences including health behavior, education and health communication research (Dutta, 2008, 2010). Photo-voice also known as participatory photography is adaptable to any research process including agricultural communication. The above explains why Nykiforuk *et al*., (2011), concluded that photo-voice creates an opportunity to visually portray and share experiences and knowledge about issues that otherwise would be difficult to explain through even in-depth interviews.

Though the capacity of the indigenous farmers to participate and influence development programmes has been established through Nigerian farmers' acceptance of the Agricultural Transformation Agenda (ATA) platforms like the Growth Enhancement Support Scheme (GESS), the Agricultural Mechanization Transformation Policy and the Wheat Production Revival Programme in the last three years: much is still desired in the area of evidenced-based communication strategy to empower the farmers in order to sustain such programme through the documentation of their own experiences for evaluation and programme improvement or otherwise. This is reflected in the existing database of four million five hundred (4.5million) farmers in 2012 with the target to register an additional 5.8 million farmers in 2013(Agriculture in Nigeria, 2013).

One major government research institution that has a national capability to mobilize Nigerian farmers for participation in agricultural development programmes through collaboration with other agencies and partners is the National Agricultural Extension and

Research Liaison Services (NAERLS). The institute was established as a section in the Northern Region Institute for Agricultural Research (Institute of Agricultural Research (IAR) in 1963. After the defunct of regional system of governments, NAERLS (formerly known as Agricultural Extension and Research Liaison Service (AERLS) became an autonomous institution by the Ahmadu Bello University Senate Act (Statute 19 of 1975). Subsequently, NAERLS got the mandate to cover the entire country in 1986 from the Federal Ministry of Science and Technology.

The Institute is one of the few research institutions in Nigeria that are university based. The mandates of NAERLS include:

i. Advancing the frontiers of extension research and services

ii. Conducting agricultural performance assessment and provide feedbacks

iii. Building the capacity and skill of key actors for effective extension services

iv. Planning, coordinating, monitoring and evaluating Research Extension Farmer Input Linkage System (REFILS) activities

v. Packaging and disseminating improved agricultural innovations

vi. Reviewing and supporting extension activities of other agricultural research institutes.

The NAERLS relies heavily on extension model of communication for carrying out its mandates. Meanwhile, because it handles several development programmes and projects demanding different communication approaches, NAERLS operates a situation specific communication strategy. This means that the focus of a development project determines the communication strategy to be used; and in most cases this is included in the

Memorandum of Understanding or contract / working paper signed by NAERLS and the donor(s) or collaborator(s) for each development programme or project.

The thrust of the mandates is to enable NAERLS achieve its mission i.e.; to develop, collate, evaluate, disseminate agricultural technologies and conduct research in agricultural extension methodologies and policy; and provide leadership in capacity building of stakeholders to meet the present and future development challenges of Nigeria. These core components influence NAERLS communication strategy which may be pinned to advocacy, mobilization, and sensitization or instructional. In order to implement any communication strategy deployed for development intervention, NAERLS uses radio jingles, announcement, radio talk, bulletins and television programmes aside other communication approaches like Farm Visits, Farmers School System, Group Meeting/ Facilitation and Workshops etc.

The Institution equally packages and publishes agricultural information in more than ten different publications including the yearly National Agricultural Performance Survey Reports (Ahmadu Bello University Calendar, 2011to 2014:1285-1290). In all of these print media communication tools, photography plays a critical role for passing across information to the general public and the farmers. Nevertheless, it is not appealing that the only government extension research institute in Nigeria and numerous development agencies may still not be harnessing the potential of photography as a community/evidence-based participatory communication methods to reach out to farmers and as well make them producers of vital and critical agricultural information.

On one hand, the use photography handled by the extension experts or communication specialists in a top-down manner has its advantages; however, the

emergence of local people participation in development programmes for sustainability of development interventions has made it imperative that institutions like NAERLS begin to critically incorporate inclusive communication research methods in its operation in order to revolutionize the agricultural sector for sustainable social change and productivity.

1.1 Statement of the Research Problem

The print media is one of the channels for communicating with farmers in agriculture. This means newspaper, posters, banners, hand-bills and recently bill boards are used by extension agents like NAERLS to disseminate agricultural information to farmers. Printed media can combine words, pictures and diagrams to convey accurate and clear information. Pictures have great advantage in agricultural communication in the sense that they can be looked at for as long as the viewer wishes, and can be referred to again and again. This makes them ideal as permanent reminders of development messages. Conventional use of pictures in agricultural communication is by labeling or captioning for farmers' comprehension. Consequently, pictures are taken by scientists of extension specialists and labeled or captioned with certain information for farmers 'consumption' with either the aim of making them carry out certain farming practices or adopt innovations.

Pictures used in this manner are mostly to complement extension activities' reports. In many instances, pictures in this form are effective where a reasonable proportion of the farmers' population can read and comprehend in the language used for the labeling. Sometimes, the images look strange to local farmers who may only be attracted to them by color or natural curiosity. Posters and leaflets that seem clear to agricultural

communication agents may not be fully understood by farmers. Whenever possible, the agent wastes much time and energy trying to explain their meaning to anxious audience.

On many occasions too, it takes a longer time for farmers to become used to the ways (these strange pictures and words) convey information and find it increasingly easy to interpret printed media for innovation adoption purposes. This type of communication system (where pictures are taken by extension agents to convince farmers to adopt innovations) does not encourage ownership or empowerment of development by the people; ownership and empowerment are two critical pillars of sustainable change. For obvious reasons already enunciated here, agricultural extension practitioners and agents like NAERLS must think beyond discipline-specific communication strategy, and relate to subject matter problem solving communication strategy like photo-voice.

Research in agricultural communication is a problem-solving endeavor because it will not emanate from biotechnology, big-science, or economics per se, but from researchers' concern about people, and could perhaps be termed as being conducted for "social change/good." It is correct that many operational programmes in extension service delivery comprise several disciplines: agronomy, extension, engineering, communication, rural sociology etc.; but agricultural researchers and research administrators usually do not clearly understand and apply photographs effectively in agricultural communication. One methodology that could be effectively useful in this essence is the participatory photography where farmers can handle the camera, interrogate pictures together with development experts about their daily life and experiences before taking collective decisions on the programmes and plans to solve identified development challenges.

Photo-voice is one participatory methodology that can help sustain community aspiration and intention through sharing pictures, stories and conversation. The methodology operationally takes pictures for development activities away from the agents and deposits them with the local people allowing them to consciously challenge the conventional documentation of issues in their communities. However, the way and manner photography is being handled for agricultural communication by research institutes in Nigeria leaves much to be desired. The hope of getting a better result in the agricultural sector, especially in policy formulation and development of people oriented and sustainable extension practices, may be a mirage if photography in agricultural communication is not tilted and utilized as an inclusive mechanism to attract local participation and empower the people to use photographs to tell their own stories.

Hence, this study seeks to examine the present state of deployment and challenges associated with the utilization of photographs by NAERLS in its communication research and programme implementation.

1.2 Aim of the Study

The aim of this research is to establish how agricultural productivity can be enhanced through the appropriate deployment of effective people-oriented communication strategy, especially through the use of participatory photography for sustainable agricultural productivity in Nigeria.

1.3 Objectives of the Study

This research intends to achieve the following objectives:

i. To assess how photography is currently being used by NAERLS and determine its effectiveness or the otherwise for sustainable change and agricultural development.

ii. To explore the potential of NAERLS using participatory photography effectively as a people-oriented communication method for enhancing agricultural research and communication.

iii. To suggest how participatory photography can effectively aid NAERLS' agricultural research, communication and development projects for sustainable productivity in the sector.

1.4 Research Questions

i. How is photography being used by NAERLS in its agricultural research and communication activities?

ii. How is participatory photography a better alternative research and communication methodology to facilitate sustainable change and agricultural development in Nigeria?

iii. How can participatory photography be effectively used by NAERLS to facilitate sustainable agricultural development in Nigeria?

1.5 Justification for the Study

It is gratifying that under the Agricultural Transformation Agenda (ATA), the agricultural sector has witnessed tremendous progress and growth while the momentum towards the actualization of the set goals continuously increases (Scorecard, 2013). For that reason, policy makers in the sector have made it clear at many stakeholders meetings that ATA seeks to attract private sector investments and skills needed to rebuild Nigeria's position as a regional undisputed agricultural power house. The role of appropriate

communication strategy and media approaches cannot be jettisoned in the overall process of such initiative to sustainably rebuild and transform agriculture in Nigeria.

Communication research should incorporate more participatory communication tools, strategies and approaches. The photo camera is one of the communication technologies that are used for evidence based research to capture the realities of farming activities and the livelihood of the farmers. Almost like health communication, the first step in agricultural communication process is for farmers, agents or community members to pay attention to development messages in intervention information. Many times, excellent written instructions are ignored or not read by farmers who need the information on, for instance pest control.

Often, verbal instructions are not heard or understood by a farmer or the community members who are distracted or preoccupied with personal issues in group discussions. Meanwhile, photographic images attract more attention where rhetoric is failing. So, the first question here is whether photography has better influence on the attention of farmers in agricultural communications. If it does, what is the sustainability of such attention to productivity and change? The power of pictures to draw attention in agricultural communications cannot be underestimated. But the attention drawing can be really sustainable if the process of shots taking is people oriented through common understanding and sharing of agricultural development information from picture taken by the farmers.

Furthermore, agricultural development agents' control of photographic images in development initiatives without the participation of the indigenous communities cannot be said to a participatory development system. Under some circumstances, pictures alone

cannot be very effective tools for sustainable agricultural development and change because the farmers, in this instance do not have the requisite background of how the pictures are speaking for them to enable them contribute to policy and development initiatives that bear some of their perspective.

Without such background, the pictures may not be speaking for them and therefore they are not well equipped with photographic technology to tell the world their live experiences about agricultural development challenges. Many at times, farmers are confused and clueless as per what development agencies like NAERLS do with the pictures they take in their communities. Lately, agricultural development agencies like NAERLS are being institutionally challenged to begin to increase and improve their research and communication strategies and approaches to empower community members and encourage them to be more participatory by jointly controlling the research information, communication approaches or methodology.

Photo-voice helps participants to consciously discuss issues by reflecting on pictures and connecting them with development challenges. In this way, the challenges become clear to everybody and the solutions are collectively derived. Pictures equally can affect recall. The strongest and most widely documented effect of pictures is on recall. Pictures, paired with spoken or written text will increase recall of the text and sustain the messages. The effect of pictures on recall has been extensively studied by educators and literally hundreds of studies have shown that recall is enhanced when pictures are linked to text appropriately. Education researchers even have a name for it: they call it the '*pictorial superiority effect'*.

Again, pictures can affect behavior because they are very helpful to people without education; especially in rural the rural areas where majority of farmers are illiterate. However, pictures do not always have their intended effects on people's perception. But the point remains that how people reflect on pictures affects how the pictures influence their behaviors. More researches are needed in this area, but this study is about how to appropriately use photographs to elicit positive reflection from farmers which in turn should produce positive effects on their behavior and that of policy makers in the agricultural sector in Nigeria.

The birth of participatory photography in the 1990s has brought about rapid growth in the use and application of participatory photography by a diverse range of practitioners across a number of fields and disciplines including development communication. For instance Photo-voice has been used to develop rural women entrepreneurship as a national policy in China (Huff, 1998; Kuratani and Lai, 2011). Thus, the use of 'photo-voice' as a people oriented communication research method will build the capacity of research institutes, especially NAERLS to provide the critically needed leadership, policy direction, coordination and quality assurance and control needed for virile, effective, efficient and dynamic national agricultural extension service.

The NAERLS is practically involved in virtually all agricultural development or transformation programmes in Nigeria; especially in the communication aspect. In the ongoing Agricultural Transformation Agenda (ATA), NAERLS is expected to engage all the stakeholders in the value chains through proper collation and dissemination of information to enable farmers and corporate bodies meet the current and future

agricultural challenges. This is to enable them take the advantage of the opportunities offered by local, regional and international markets to grow the sector.

Therefore, findings by this research are providing the leeway for the Federal Government of Nigeria through the activities of NAERLS to achieve sustainable agricultural development programmes that can create wealth for Nigerian farmers beyond any regime through the entrenchment of strong agricultural development and extension policies via participatory research methodology like the photo-voice.

1.6 Scope and Delimitations of the Study

The scope of this study was within the 'current' use of photography as a communication tool by NAERLS. The Institute has many communication approaches and strategies for carrying out its mandates. Extension is very prominent among these communication approaches. Just like in the other communication approaches, photography holds an important place in all NAERLS communication approaches. While the scope of the study also involved arguing for the use of participatory photography by NAERLS in its research and communication activities; in order to find out from the field the how photography is used by NAERLS, two development initiatives of NAERLS were selected.

The two agricultural development projects were the International Center for Biosaline Agriculture (ICBA) Sub-Sahara Irrigation and Water Management and the West Africa Agricultural Productivity Project (WAAPP) collaboration projects in Kaduna State. The purpose of selecting the two projects was to find out how from the farmers how NAERLS has used photography in these projects. Overall, the use of photography in the projects was interrogated from 2012 to 2014. These projects and other

ones by NAERLS are usually implemented under the Adopted Village initiative of the institute as constituted by the Agricultural Research Council of Nigeria (ARCN). The Adopted Village initiative is a platform for having closer and direct interpersonal contact with farmers for more participation in development projects.

Two Adopted Villages (Hayin Gada and Hayin Mallam) in Giwa Local Government Area of Kaduna State were selected: only the farmers participating in the Adopted Village scheme were sampled. The selected villages are one of the oldest NAERLS Adopted Villages in Kaduna State where substantial pilot schemes for testing innovations and best practices have taken place since 2009. Moreover, the end focus of photography in this study was in the purview of participatory photography, also known as photo-voice (hence, the inter-changeable use of the words in this study) as a community-based participatory research tool in agricultural communication research. This has helped this research to perfectly capture information from the sampled farmers in focus groups discussions.

The adopted villages were also selected because majority of the farmers did not have Western education and therefore it was appropriate to find out their perceptions about photography in agricultural communication via agricultural development projects in their communities. This was very important because photo-voice allows participants and facilitators to overcome linguistic barriers or abilities; it is a silent tool that helps even very young children find a voice in development issues in decision making process. Furthermore, photo-voice is culturally flexible and adaptable to indigenous environment. Succinctly, the intention of this research was an advocacy for the use of photo-voice by NAERLS in its development projects for 360 degree inclusiveness. Findings from these

selected villages have definitely solidified the research arguments and discussions under a well-established institutional framework for national relevance.

1.7 Terminologies

Agricultural Communication

Agricultural communication (or agricultural communications) is a field of study and work that focuses on communication about agriculture-related information among agricultural stakeholders and between agricultural and non-agricultural stakeholders. Agriculture is broadly defined in this discipline to include not only farming but also food, fibre (e.g., cotton), animals, rural issues, and natural resources. Agricultural communication is done formally and informally by agricultural extension and is considered to be related to science communication.

Photo-voice

This is the 2010 name for participatory photography as propounded by Caroline Wang of the University of Michigan and Mary Ann Burris, Program Officer for Women's Health at the Ford Foundation, which has its headquarters in Beijing, China in 1992. Photo-voice is a people oriented methodology that stems from feminist theory and critical pedagogy. As a means of participatory needs assessment, photo-voice provides a community based diagnostic tool to redress the inadequate theory on which development programmes may be based from the dominant paradigm perspectives.

Photo-voice is a group analysis method combining photography with grassroots social action, and is commonly used in the fields of community development, public health, and education. Participants are asked to represent their community or express their point of view by photographing scenes relevant to the examined community. These photographs are brought before the group attempting to study the community, who develop a narrative

for each photo. These narratives are used as information by the examining group to better understand the community and frequently take further action within the aforementioned community, most notably in the form of outreach programs.

Sustainable Development

There are many definitions for sustainable development; meanwhile this research is working in the view of the ones that see development as a relative thing with heavy bearing on cultural context. Examples are from the Brundtland Report which defines sustainable development as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Social Change

Social change refers to an alteration in the social order of a society. Social change may include changes in nature, social institutions, social behaviours or social relations. Social change may refer to the notion of social progress or social cultural evolution. Accordingly, it may be driven by culture, religions, economic, scientific or technological force. For the purpose of this study, the technological force (which is the advancement in the philosophy of using the photography in a more participatory form) is more relevant for a change in the institutional ways of doing research and communication in agriculture in Nigeria.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Communication and Photography

Communication (from Latin *commūnicāre*, meaning 'to share') is the activity of conveying information through the exchange of ideas, feelings, intentions, attitudes, expectations, perceptions or commands, as by speech, gestures, writings, behaviour and possibly by other means such as electromagnetic, chemical or physical phenomena (Haper,2000). It is the meaningful exchange of information between two or more participants or organizations. Communication requires a sender, a message, a medium and a recipient, although the receiver does not have to be present or aware of the sender's intent to communicate at the time of communication [characteristic of mass communication/top-down communication approach]; thus communication can occur across vast distances in time and space.

There are three models of communication; any communication process may align with any of these at any point. The models are:

(a). The linear model which views communication as a one-way or linear process in which the speaker speaks and the listener listens. The archetypal is known as Laswell's (1948) model based on five questions (who, what when, where and why) which effectively describes how communication works. The main flaw in the linear model is that it depicts communication as a one-way process where speakers only speak and never listen. It also implies that listeners listen and never speak or send messages.

(b). Schramm (1955) in Wood (2009) came out with a more interactive model that saw the receiver or listener providing feedback to the sender or speaker. The speaker or

sender of the message also listens to the feedback given by the receiver or listener. Both the speaker and the listener take turns to speak and listen to each other. Feedback is given either verbally or non-verbally, or in both ways. This model also indicates that the speaker and listener communicate better if they have common fields of experience, or fields which overlap. The main drawback in the interactive model is that it does not indicate that communicators can both send and receive messages simultaneously. This model also fails to show that communication is a dynamic process which changes over time.

(c). The transactional model as propagated by Barnlund (2008) shows that the elements in communication are interdependent. Each person in the communication act is both a speaker and a listener, and can be simultaneously sending and receiving messages. Barnlund's was proposed in 1970 (www.iacact.com). There are three implications in the transactional model that are relevant to this study:

i. "Transactional" means that communication is an ongoing and continuously changing process. You are changing, the people with whom you are communicating are changing, and your environment is also continually changing as well.

ii. In any transactional process, each element exists in relation to all the other elements.

There is this interdependence where there can be no source without a receiver and no message without a source.

iii. Each person in the communication process reacts depending on factors such as their background, prior experiences, attitudes, cultural beliefs and self-esteem.

A transactional model of communication takes into account "noise" or interference in communication as well as the time factor. The outer lines of the model indicate that communication happens within systems that both communicators share (e.g., a common campus, hometown, and culture) or personal systems (e.g., family, religion, friends, etc) (Wood,2009). It also takes into account changes that happen in the communicators' fields of personal and common experiences.

The model also labels each communicator as both sender as well as receiver simultaneously. For the purpose of this study, communication is viewed from the third model based on the following factors:

i. Communication in agriculture should be transactional in order for farmers to equally contribute and transfer their indigenous knowledge.

ii. Both the agricultural communicator and the farmers should take turn in sending and receiving messages for a sustainable understanding. This is in line with Paulo Freire's (1970) pedagogy, pivoted by praxis.

iii. The farm, agriculture activities and the market environment form the basic background/platforms for both the extension agents and the farmers to critically interact consequent on the respect for each other's culture, beliefs and experiences. All these elements are very important for a participatory communication that will engender sustainable change and productivity.

Communication necessitates that the communicating parties share communicative commonality [participatory approach]. The process is complete once the receiver understands the sender's message (Donald, 2013).

Effective communication occurs only if the receiver understands the exact information or idea that the sender intended to transmit. Language is the main driver of communication by human beings. Human spoken and pictorial languages can be described as a system of symbols (sometimes known as lexemes) and the grammars (rules) by which the symbols are manipulated. Non-verbal describes the process of conveying meaning in the form of non-word messages.

Some forms of non-verbal communication include chronemics (colour), haptics (tactile for felt sensation), gestures, body language or posture, facial expression and eye contact, object communication such as clothing, hairstyles, architectures, symbols, inforgraphics, and tone of voice, as well as through an aggregate of the above. Over time; the forms of and ideas about communication have evolved through the continuing progression of technology. Advances include written communication, communications psychology and media psychology, strategic communication, intervention communication, development communication, health communication, agricultural communication, corporate communication etc.

The progression of written communication can be divided into three information communication revolutions (Xin, 2013).Written communication first emerged through the use of pictographs. The pictograms were made on rocks, hence; written communication was not yet mobile. The next evolution occurred when writing began to appear on paper, papyrus, clay, wax, etc. with common alphabets. Communication later became mobile; and the current advancement is characterized by the transfer of information through controlled waves of electromagnetic radiation (i.e., radio, microwave, infrared) and other electronic signals and gadgets including photo cameras.

Many of the barriers to communication especially for investigation i.e. (attitudinal barriers, ambiguity of words/phrases, individual linguistic ability, physiological barriers) began to be reduced by photographs. Today, photographic images are acceptable as exhibits for adjudications for both the civil and criminal cases in the law courts all over the world. Natale (2012) contemplated that the increasing interest in media history within the academic world has not yet resulted in an intensive examination of the relationship between photography and communications media. According to him, "if the revolution of communication technologies has been so influential in the cultural and social development of the United States since the nineteenth century is it possible that photography was untouched by such a dramatic change"? The author consequently argued that the revolution in communications in the United States influenced how photography was conceived and used.

Furthermore, Natale asserted that photography participated in the annihilation of space initiated by the new media of communication and transportation. This study argues in the same direction as Natale's. In Nigeria just like in the United States, photography is related in several ways to telegraphy, railroads and postal services, some of the new technologies that revolutionized communication. For the purpose of this study, acknowledging these connections has provided a fresh perspective on the history of photographic technologies and communication media in Nigeria. Secondly, the emergence of photography was informed, as was telegraphy, by a dream of going beyond previous boundaries of space and distance. According to Oliver Wendel Holmes as cited in Natale (2012):

> Photography was conceived as a medium that put images in movement, allowing pictures taken from reality to be carried, marketed and

> transported. Its ease of circulation was one of the factors that facilitated its commercial and cultural success (Holmes, 1859).

Another author, William Uricchio also submitted that photographic technologies contributed, like communication media, to stimulating a new experience of time, space and event, based on the sharing of spatial and temporal dimensions that exceed those normally available to human subjects (Uriccho, 1997).In the history of America's industrialization and technological advancement, no other means of representation could represent the railway better than the mechanical imaging of photography.

In that context, photographic images were seen as an opportunity to attract financial support and to tempt passengers to travel to the destinations now accessible by train (Natale, 2012). Such is the magic power of photographic images to stimulate participation and adoption of innovations. Photography is also allied with the increase in postal exchange that followed the introduction of cheap postage in nineteenth-century America. This phenomena was not only restricted to the United States. In Africa, many Africans, especially towards the end of the colonial era relied heavily on photographs to tell their family members how they were fairing in the cities.

The influence of photography in the development of Africa is well pronounced in the development of African literature, for instance, as seen in Soyinka's *The Lion and The Jewel*; Efua T Sutherland's *The Marriage of Anansewa* and Athol Fugard's Sizwe *Banzi is Dead*- all tragi-comedy dramas. Athol Fugard's drama has its setting in the apartied South Africa where the main character relied on photographic images to communication his exploits in the city to his wife and children in the village.

In fact, the climax of the play was the metaphoric photographer's studio where most of the characters experience 'spiritual' education by reflecting on photographs to revive

their memories as well as document current happenings in their life in the form of edification. This story is told with interesting shifts in timeframe and point of view making it easier for readers to 'see' the context in which each character battles to create a space for his or her self in the development circle of the village and the city.

Between 1840 and 1860, the number of letters carried annually by the US post office increased from about 27 million to about 161 million, leading to the emergence of a new perception of access to postal services, which started to be described as one of the fundamental conditions of modern life (Natale,2012). But historians have equally largely ignored the connections between photography and postal services (Morrison-Low *et al*, 2001 in Natale, 2012). However, as David Henkin noted:

> …the roughly contemporaneous emergence of daguerreotype portraiture and cheap postage is striking, especially given the affinity between these two forms of representation'. After the 1845 reform of American postal services, the cost of adding a daguerreotype (photograph) to a letter was reduced to nothing, and photographic portraits could travel free throughout the United States.

The symbolic relevance of sending one's portrait to relatives and friends has probably been underestimated in the historical examination of photography's early cultural reception around the world. Photography made everyone's image easily transportable, allowing masses of Americans to enjoy an imaginary contact with distant others. The circulation of photographic portraits by post was further increased by events such as the Civil War and the California gold rush, which took hundreds of thousands of Americans away from their homes for long periods of time. Postal communication was their primary link with their disconnected families.

Photography also played a role in strengthening such contacts. In fact, as David Henkin has suggested, receiving the photography of a son could be such a powerful form

of symbolic contact that it came to be considered ‘as good as a short visit’. Another interesting example of the inclusion of photography in a commercial communication of commodity for wider circulation was provided by cigarette cards, which were used as marketing items by numerous tobacco companies in the 1950s. The Ogden tobacco company, for instance, introduced in the late nineteenth century a brand of cigarette cards featuring eight thousand picture cards that collectively offered a ‘panorama of the world at large’ (Natale, 2012). Photography’s challenge to the boundaries of space and distance in the nineteenth century is also illustrated by its immediate application to travel (Smith, 2012).

Travel and tourism were part of the arguments in favour, not only of the railway but also of photography [aiding the emergence of ‘communication in transit and documentary] (Schwartz, 2003). As early as 1839, the French magazine *L’Artiste* reasoned that numerous ‘draughts men, painters and above all travellers delayed voyagers to distant countries. They waited impatiently for the voyagers to demonstrate the *Daguerreotype* (photographs) they took on their last voyages (Schwartz, 1996). This group of people always wanted to view the pictures of distant lands as captured from voyagers’ previous expeditions. The dream of travelling to the most distant and exotic destinations in the world by means of photographs or stereoscopic cards was evoked by many commentators of the time. An article in *The Photographic Journal*, as cited by Natale (2012) for instance, explained that:

> Photography brings to us in the cheapest and most portable form, not only the picture, but the model, in a tangible shape, of all that exist in the various countries of the globe. By our fireside we have the advantage of examining them, without being exposed to the fatigue, privation, and risks of the daring and enterprising artists who, for our gratification and instruction, have traversed lands and seas.

The practical and symbolic relevance of circulation, exchange and travelling in the acceptance and practical use of photography suggests that photography contributed not only to a shift in the techniques of representations, but to a certain extent also to the development of modern communication media.

By rendering the image easily transportable; or in other words, by transforming the real into banknotes, photography demanded its room in that annihilation of previous boundaries of space that is usually connected to the development of telegraphy, railroads and modern postal services in nineteenth-century.

This study conceptualized therefore that as a communication instrument 'photography' in communication has engendered 'global communication' ever before the advent of the Internet. Such important role of photography can be better understood from the theories of 'co-regulation', a term which describes communication as a creative and dynamic continuous process, rather than a discrete exchange of information: this is because an invention like photography has greatly affected visual communication procedures even in this era of New Media technology.

'Photography' as a system is the process of making pictures by means of the action of light. Light patterns reflected or emitted from objects are recorded onto a sensitive medium or storage chip through a timed exposure. The process is done through mechanical, chemical or digital devices known as cameras (*The History of Visual Communication* at www.breaking the grid.com). This research is interested in the revolution (pictogram) of written communication that has continued to take different forms and shapes through the advancement of communication technology involving the use of photo camera. Such transformation through revolution is a retrospective analysis

of the relevance of photography to communication and development as entrenched in the participatory philosophy of photo-voice fortified for indigenous people empowerment.

2.1 Agricultural Communication

Agricultural communication is a field of study that focuses on communication about agriculture-related information among agricultural stakeholders and between agricultural and non-agricultural stakeholders. 'Agriculture' is broadly defined in 'agricultural communication' to include not only farming but also food, fiber (e.g., cotton), animals, rural issues, and natural resources (Doerfert, 2011). Agricultural communication is done formally and informally by agricultural extension agents, and is considered to be related to science communication (Treise and Weigold, 2002).

This is probably why agronomists, soil scientists, animal scientists, engineers who work with professional communicators usually hijack and want to dominate the whole communication process in agricultural extension. Furthermore, agricultural communication spans all participants, from scientists to consumers - and all stages of those enterprises, from agricultural research and production to processing, marketing, consumption, nutrition and health. However, it has evolved into its own professional field demanding full communication competence.

Nevertheless, by another definition, agricultural communicators are science communicators that deal exclusively with the diverse, applied science and business that is agriculture. An agricultural communicator is expected to bring with him or her level of expert knowledge in the agricultural field that typically is not required of the mass communicator (Boone *et al*., 2000). Rationally, a mass communicator in the agricultural sector needs to possess certain level of knowledge in applied science and agricultural

business while the agricultural specialist or scientist requires certain knowledge of communication in order to perform effectively. It is thus argued here, 'that no certain professionals dominate the field of agricultural communication, ideally, but in many cases, operational or organizational stereotyping may push communication specialists to the background in favour of pure scientists'.

And this distorted experts/communicating job fixation inhibits the up-scaling of photography for communication research and development in a participatory manner. While a need still exists for agricultural journalists, an equal, if not greater need exists for agricultural [development] communicators who can act as liaisons between an industry with deeply rooted traditions and values and a public with little to no understanding of how agriculture operates and why it is the way it is (Evans,2008).

In Nigeria, the National Agricultural Extension and Research Liaison Services, Ahmadu Bello University, Zaria is statutorily the only government extension based research institute carrying out this function for the entire nation. This institute has been engaging the government and other relevant stakeholders for the need for viable indigenous based information packaging and dissemination in the sector for more than fourty years under numerous political, economic, social, cultural and technological challenges.

Obviously, there must be a national policy on agricultural communication research which is distinct from agricultural research policy for the viable performance of such institution in this regard. This policy absent in the Nigerian case; agricultural communicators make do with the National Communication Policy which does not spell

out a distinct procedure for agriculture communication more than the use of mass media and their integration (recently) with the New Media.

Surprisingly, a major policy book (Report 17), *Agricultural Research Policy in Nigeria* (1980), written by Francis Sulemanu Idachaba that could have addressed this gap has no single chapter for agricultural communication policy. This may account for why communication aspect of research activities is still been shadily done by scientists who believe they just need to pass across their 'expert knowledge' to farmers irrespective of the existing appropriate development communication principles. Meanwhile, the job market for agricultural communicators includes:

(i) farm broadcasting

(ii) journalists and editors of agricultural/rural magazines and newspapers

(iii) communication specialist or public relations practitioner for agricultural commodity organizations, businesses, non-profits

(iv) sales representative for agricultural business and

(v) science journalism.

Internationally, the key journal in this field is the *Journal of Applied Communications* (JAC, 2014). In Nigeria, the *Nigerian Journal of Agricultural Extension* published by NAERLS and the *Journal of Agricultural Extension* published by the Agricultural Extension Society of Nigeria (AESON) are the two prominent extension journals in existence apart from many other university based journals in the departments of agricultural extension and the one by the Agricultural Research Council of Nigeria (ARCN).

These journals have focus on variety of areas, examining consumer attitudes toward agricultural products and practices including genetic engineering and genetically modified foods, natural and organic food and production, and food-related risks, farm practices, improved seeds utilization, farmers' characterization, crop /animal diseases and control etc. Another area which has been majorly occupied by NAERLS researches is the media coverage of agriculture and agricultural issues especially through radio and television programmes. Recently, the institute started publishing a weekly agricultural extension news and report in the *Leadership* newspaper. The NAERLS equally compiles research and articles related to agriculture and communications as reports.

Besides, the Institute publishes bulletins and guides in English, Igbo Yoruba and Hausa languages for farmers' use. Theoretically speaking, agricultural communication is an applied science subject. The academic curriculum and scholarly of agricultural communication typically stay within the context of agriculture, natural resources, and occasionally, the life sciences. In this way, it examines communication and human dimension issues as they relate to a variety of topics in agriculture and natural resources.

Research and information about food and agriculture remains vital for individuals and institutions in developing countries in order to sustainably promote agricultural development. Better capacity for policy information systems can improve decision making at all levels. However, identifying the appropriate quality and quantity of policy relevant for information activities is often constrained by shady institutional arrangements in several developing countries, including Nigeria. This is further due to misguided rural development policies, weak institutions, underdeveloped technologies,

and a lack of well trained personnel in the ministries at the federal, state, and local levels (Babu *et al.,* 2004).

Several methods and approaches have been used to assess the capacity needs of agricultural research institutes in Nigeria for effective agricultural policy analysis and communication research in order to better understand the intellectual and physical capacity needs, existing capacity, and capacity gaps. These methods and approaches have helped generate information for developing strategic elements for strengthening capacity for the design and implementation of evidence-based, pro-poor, gender sensitive, and environmentally sustainable agriculture and rural development policies in Nigeria (IFPRI,2010). Three Stakeholder Consultation Workshops were held in Nigeria from February 2008 to May 2009 to:

i. better understand the existing capacity in demanding and accessing information for developing agricultural and rural development policies and strategies;
ii. identify the capacity challenges in developing and implementing agriculture and rural development strategies and
iii. discuss the potential solutions for enhancing and implementing agriculture and rural development policies (IFPRI,2010).

Ironically, none of these gatherings has any moment for agricultural communication policy that could distinctively approbate the use of certain communication tools for agricultural communication research as being reasoned in this paper!

In the United State of America, within Agricultural Communications Research Priority Area 4 is the charge to determine "what are the skills, competencies, and

resources necessary to prepare professional agricultural communicators for success in various aspects of agricultural knowledge management", (Osborne, 2007). Past studies in the US have also evaluated curriculum from a variety of perspectives.

Cooper and Bowen (1989) solicited feedback from program graduates and found that the students perceived the five most important courses completed were agricultural communications, agricultural economics, food science, animal science, and natural resources. The authors found out that within the communications curriculum, the five most important courses to graduates were writing, editing, public relations, advertising, and photography. Ultimately, the success of agricultural communication for sustainable development and social change depends on how knowledge is acquired, diffused, shared and used mostly at the local levels.

This requires an all-inclusive mechanism through proper and creative data collection, processing, analysis, and interpretation for use by smallholder farmers. Professional preparation for careers in agricultural communications is commonly provided through academic programs that are housed in departments of agricultural education. Because of their relatively small size and reliance on other academic units (e.g. agricultural extension, agricultural economics, rural development, rural sociology, agricultural engineering etc.) to deliver curricula, agricultural communications programmes face special challenges to future development in the university setting.

One fundamental issue of contention is the willingness and ability of agricultural communicators to report on controversial topics and important social and economic issues that could threaten their relationship with agribusiness (DeVault, 1983; Logsdon, 1992; Pawlick, 1996). Despite these criticisms, agricultural communication continues to

be a viable career option for students combining university course work in science, agriculture and communications (Wargo, 1993). Agricultural communication is also one of the critical components of development communication (Lecture notes (Ayegba, 2013; Jegede, 2014; Okwori, 2013; Kafewo, 2013).

2.2 Photography and Photo-voice

'Photography' has been earlier linked to the introduction of telegraphy, the development of the railway and the expansion of the postal system in this study. Yet, a reading of recent scholarships confirms that photography remains a marginal subject for scholars in this field, secondary to telegraphy, wireless, sound recording, film and television and other visual media (Cramer, 2009; Gitleman, 2006). Meanwhile, 'photo-voice' is not a one directional information communication approach; it is a concept that allows the sender to equally become the receiver of the message(s) of critically interrogated photographs via the Paulo Freire's concept of 'pass the stick' in a community-based participatory research methodology- *Pedagogy of the Oppressed* (1970).

The 'passing of the stick' is further underpinned by Freire's 'praxis' i.e. reflection + action = praxis (conscientization) - a requisite for sustainable social change). According to Natale (2012), the increasing interest in media history within the academic world has not yet resulted in an intensive examination of the relationship between photography and communications media. Understanding the concept of photo-voice for communication research will address this void by examining photography's insertion into agricultural communication in a participatory manner in the 21st Century Africa. A

photograph, according to Holmes, stands in relation to its referent in the same way as bank notes stand to the monetary value inscribed on them (Natale, 2012).

The primary aim of money is to circulate within the market, to become a universal form of exchange that can be readily carried and transferred (Hannah, 1995). Like bank-notes, photographs allowed viewers to make images circulate. In this sense, photography has in common what the Internet has to beat the barriers of distance in international communication. By making a sheet of paper reflect images like a mirror and hold those as pictures photography transformed reality into an easy- to-handle commodity that could be carried, marketed and sent to distant locations.

Participatory photography (photo-voice) is used by community developers and photographers as a tool for engagement, advocacy, skill building and social innovation in their work with disadvantaged and marginalized communities. It recognizes that answers often reside within communities and that photography is a way to tap such underutilized assets. Participatory photography is a collaborative participatory methodology in which participants are supported in generating their own photographic work in order to share lived experiences and present the world as they see it. In doing so, individuals and communities gain tools and opportunities to create knowledge, understanding and imagery about the issues that are affecting them.

By creating alternatives to mainstream modalities of expression, previously excluded individuals are facilitated to speak, be heard and be seen. This methodology also enables community participants to define how they want to be represented to the outside world. Facilitating individual member of a community to tell his/her stories and to have control over such process will enable firm ownership over representation in development

programmes. Moving beyond stereotypes, it helps to convey a fuller picture of the issues, challenges, opportunities, aspirations and what it means to live in their community. There are many good examples of participatory photography in action, such as photo-voice and participatory democracy for social change.

Photo-voice encourages the use of documentary photography by enabling those that have traditionally been the subject of such work to become its creator. Local people are given control over how they are perceived by the rest of the world, while simultaneously learning a new skill which can enhance their lives. Photo-voice enables people to record and reflect their community's strengths and problems. It promotes dialogue about important issues through group discussion and photographs while engaging the policymakers.

Photo-voice is a community based participatory research that ensures that community members are involved through the research process to produce data that are authentic to community experience and action (Hergenrather *et al.,* 2009). The applications of photo-voice in communication research are to:

i. enable people to record and reflect their community's strengths and concerns,

ii. promote critical dialogue and knowledge about important issues through large and small group discussion of photographs, and

iii. to reach policymakers (Wang and Burris, 1997 as cited by Catalani and Minkler, 2009).

Why photo-voice is a good research instrument for development in the Third World is because it is: user friendly, easy to master, the exercise is fun, creative, innovative; it elicits dialogue, builds trust and rapport; it is a flexible tool for different age groups,

bottom-up approach, democratic, provides narrative autonomy; it facilitates dissemination of findings; it uncovers positive and negative aspects while articulating action plans and facilitating follow up.

As a social science and humanities research methodology, photo-voice has the following ethical considerations:

i. rights for participants

ii. rights for researchers and

iii. privacy

Moreover, communicating around research is as often a problem around content as it is around the process. Engaging in photo-voice research is as much about changing minds and mental models as about supporting specific decisions. The way people understand issues from their stand point is the complex of past experience. The complexities are range of sensibility, accumulated images and imaginative patterns, interests, bodies of insights already appropriated, purposes, structured and unstructured passions, criteria of evidence and relevance, the repertoire of already affirmed concrete judgements, values, goals and decisions (Robinson, 1995).

Such a description draws attention to the complexity of the substrate on which this study might want social research like agricultural communication research to exert influence through the use of photo-voice, and not just general photography. Sustained study of how research contributes to knowledge (Nutley *et al.*, 2007), and how such knowledge influences thinking and behaviour (Ward *et al.,* 2009) provides only some pointers to how such shifts in standpoints might be encouraged with photo-voice. Thus, Freire's explanation of 'knowledge' is in consonance with what this study believes photo-

voice can do to transform Nigeria's agricultural development programmes. According to Lyons (2001), Freire was quoted to have said that:

> Knowledge is a social construct... knowing is a social process, whose individual dimension, however, cannot be forgotten or even devalued. The process of knowing, which involves the whole conscious self, feelings, emotions, memory, affects, an epistemologically curious mind, focused on the object, equally involves other thinking subjects, that is, others also capable of knowing and curious. This simply means that the relationship called "thinking" is not enclosed in a relationship "thinking subject - knowable object" because it extends to other thinking subjects.

Therefore, knowledge should not only be sought through the reading of text or the admiration of photographic images. Photographic images should be critically interrogated to solve development challenges right from the local level. This, Freire stated categorically in his work *The Politics of Education - Culture, Power, and Liberation* (1985).

> When I understand an object, rather than memorizing the profile of the concept of the object, I know that object, I produce the knowledge of that object. When the reader critically achieves an understanding of the object that the author talks about, the reader knows the meaning of the text and becomes coauthor of that meaning. The reader then will not speak of the meaning of, the text merely as someone who has heard about it. The reader has worked and reworked the meaning of the text; thus, it was not there, immobilized, waiting. Here lies the difficulty and the fascination in the act of reading. (Freire,1985:31).

Most importantly, contemporary conceptions of research 'use' see this as an intensely social process. This suggests that research findings need to be engaged with, as part of active social processes, interpreted in local contexts, and integrated with current knowledge/experience in ongoing processes of knowing (Davies and Powell, 2010). As Wang and colleagues (1997) noted, photo-voice entrusts cameras to the hands of people to enable them to act as recorders. Most photo-voice projects included training to build basic documentary photography skills and knowledge (Catalani and Minkler, 2009).

Photo-voice success depends heavily on community participation. Projects with low community participation frequently included little or no training. Among projects that scored in the middle range (e.g., Wang *et al.'s* Yunnan project), a 1- or 2-day basic training on ethics and technical approaches to photography tended to be offered. On the far end of the continuum, the most participatory projects tended to include training on ethics and safety as well as 'professional' training on photography and research, sometimes extending over several weeks (Wilson *et al.*, 2006). This aspect of training in photo-voice methodology makes it a critical process that goes beyond just taking photographs for fun or commercial purposes.

In a study by Catalani and Minkler to find out the influence of community participation on the success of photo-voice projects, although many studies (24%) were cited to be vague about training, five studies (14%) appeared not to include any formal training, a decision that was sometimes intentional and reflective of a sociological or anthropological approach to visual methods (Catalani and Minkler, 2009). For example, in explaining their purposeful decision to omit formalized training in their 'naturalistic' work, Grosselink and Myllykangas (2007) provided a disposable camera and logbook to four elderly women living with HIV/AIDS, asking each to capture 'what leisure meant to her both pre- and post-HIV/AIDS'.

As the investigators went on to comment, at no point was an operational definition of 'leisure' offered so that for each participant, the meaning of leisure was based on her perspective (Catalani and Minkler, 2009). In this case, the investigators might appear to prefer a minimum of researcher interference with the participants' naturalistic style of expression and interpretation of the key theme. On the contrary, Harrison's (2002)

literature review on the use of images in narrative inquiry further describes a rationale behind including no training. Visual methodologists, she explained:

> …assume that the way in which untrained photographers take pictures (i.e., personal or everyday photography) is in itself a rich source of data on cultural and social constructions. Given this, introducing photography training or insisting on a certain kind of photography might alter participants' practices of representation, limiting the researchers' ability to make observations about this practice and its reflection on the phenomena of inquiry.

Despite this argument, the majority of photo-voice projects (62%) included some basic training. Among these, half (12) explicitly reported including photography training plus a brief training on ethics and safety. Modeling this practice in Yunnan, Wang and colleagues (Wang and Burris, 1997) provided rural women with a brief introduction to photography techniques, ethics, power, and safety.

The authors argued that participants should be trained briefly at first and then continue to develop their skills and understanding through an iterative cycle of doing and discussing. In contrast, projects with the highest levels of participation demonstrated an intensive approach to community capacity building and training. Lykes *et al.,* (2003), for instance, involved all participants in professional photography training, with a core group trained to assume all roles within the research process, gaining computer skills, becoming data recorders and analysts, and learning how to balance the financial accounts of their projects.

Through their training, 20 women who co-developed this project are the first rural Ixil and K'iche' women to become 'professional photographers' and several have gone on to write grant proposals to support new economic development, education, and mental health initiatives (Lykes *et al.,* 2003). This study will like to argue for training of

participants in photo-voice just as Wang and Burris, (1997): Lykes *et al.*, (2003) did in order to harness the potentials of this methodology for sustainable agricultural development in Nigeria.

An example of photo-voice project in Mdantsane Township, South Africa (photo-voice worldwide.com) will shed more light on the difference between general photography and photo-voice as a participatory critical thinking research methodology. The Mdantsane township project was funded by the EQUITY Project of the Government of South Africa and the United States Agency for International Development. The duo facilitated the photo-voice project with 16 youth, brought together through a local Mdantsane Township organization called the Youth Academy. The initiative provided an opportunity for youth to have a voice in their township as they took photographs and wrote essays about local issues, and developed an exhibit to inform local policy makers, including community groups, community volunteers, social workers, teachers, and government agencies.

Their exhibit of 80 photographs and narratives covering health and welfare, security, township life, education and training, economic opportunity through agriculture, and community vision was posted at libraries in East London and Mdtansane Township, and in the regional capital. The largest category of photos was health and welfare. Photos and narratives in all categories addressed HIV/AIDS and demonstrated the devastating effects of the epidemic on South African youth. According to one of the participants, Khanyiso Sangotsha:

> These pictures are proof of our membership in our communities; by looking at them you can see clearly today that Mdantsane needs change.

The following are sample of related photos and captions for two of the six exhibit categories, which were developed together by participants and facilitators.



Figure 2. 1: A Spinach farm from a photo-voice project in Mdantsane community, South Africa. Source: photovoiceworldwide.com.

Ordinarily, the picture in Figure 1 would usually be used by extension experts to either promote the adoption of a variety of the spinach or farm management system. But according to Celine, one of the participants who took this shot, the spinach farm shot was a reminder of the fact that they have to do the farming for food which at the same time was helping them as a group of people to fill the lack of job space in their community. The implication is that government or development agency later capitalized on such insightful picture to work with the community in the area of improving what the people were already doing locally to create jobs in order to improve their living standard and sustain their health status.



Figure 2. 2: A shot of a street full of potholes and mud in a neighborhood in Mdantsane community from a photo-voice project in South Africa. Source: photovoiceworldwide.com.

In this example, the participant that took this shot was said to have actually used the picture to address not only the challenges of bad road in Mdantsane community but also some health problems while equally suggesting a collaborative ways out of such development quagmire. During the photo shot interrogation sessions, Mr. Luyazola who took this shot explained that:

> This [the shot] is a bad situation. The streets are always muddy even on sunny days. There are insects which bring illness to people. Cars cannot enter in this community. These roads need renovation. If the municipality would contribute gravel, the community would fill in the holes themselves.

The implication of this is that with a single shot, many related development challenges can be tabled for discussion and collective sustainable solution like the one suggested by this participant will be arrived at by community members who shares their personal photo shots with others for critical discussion in a photo-voice project.

On the other hand, the following pictures in Figures 3 and 4 which were taken by extension and communication specialist from NAERLS activities depict extension activities by the Institutes. Pictures of this nature are used by NAERLS to report it extension activities and subsequently to produce publications like guides, bulletins, posters, banners, pamphlets etc. The pictures in these publications are not speaking the farmers' experience nether do they speak for them. In real sense, the pictures speak 'to' them as consumers of NAERLS and other agricultural experts' ideas/information. Nevertheless, the use photo graphic images in this form has helped NAERLS produced many documents and video documentaries to earn it more research grants and collaborations from national and international governments and development agencies.





Figure 2. 3 (left): Set of photo shots (tag on paper board ready to be processed by the NAERLS to explain dairy process to farmers in one of NAERLS' Bulletins in 1984.

Figure 2. 4 (right): A photo shot of an extension specialist demonstrating to famers how to handle and plant an improved sorghum seed under the International Institute of Tropical Agriculture, Ibadan and the National Cereal Research Institute, Baddegi, Niger State in collaboration with NAERLS in 1985. Source: NAERLS Still Photograph Section Archive, 2015.

Succinctly, even though, the 'photo-voice methodology' just like the 'general use of photography' has its own limitations which include: costs, ethics boards, publications, massive production of data that cannot be processed and technical quality of material: as

a people oriented research concept photo-voice has a critical role in the modern agricultural communication in Nigeria for more participatory development.

2.3 Sustainable Development and Social Change

Since the late 1980s the idiom of 'sustainable development' increasingly has come to frame international debates about environment and development policy-making. This concept was catapulted to prominence by the report of the Brundtland Commission1 in 1987 and was formally endorsed as a policy objective by world leaders at the Rio Earth Summit five years later. A broad understanding of sustainable development was used by the United Nations Environment Programme, in particular in the report *Our Common Future,* published by the World Commission on Environment and Development (WCED 1987). This Report is also known as the Brundtland Report, after its president. The now widely quoted definition of sustainable development given in the Brundtland Report is:

> …development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED 1987).

The concept provides a framework for the integration of environmental policies and development strategies, thus breaking the perception that environmental protection will only sacrifice economic development and social change. With the popularization of the Brundtland concept of sustainable development, environmental quality and economic development have become interdependent and mutually reinforcing in development intervention.

Contemporaneously, the mainstream debate has shifted a new preoccupation with how to achieve environmentally sustainable forms of development through the participation of the local people in the entire development process. However, while the fundamental objectives of sustainable development were brief, the Commission was

much more elaborate about what Lélé has termed the 'operational objective' of sustainable development (Lélé, 1991). These operational objectives have been absorbed into the conceptual lexicon of international organizations and NGOs. Around the globe, political leaders and public administrators now routinely justify policies, projects, and initiatives in terms of the contributions they make to realizing sustainable development (William *et al*., 2002).

Yet, while the idea has come to assume a central place in contemporary discussions of communication and development issues, there has been little serious comparative research on the practical political ramifications of 'change' for sustainable development. Among academics we have seen a great deal of discursive 'smoke'—but little in the way of empirical 'fire'. But what has actually materialized with the concept in terms of policy implementation? Where and how seriously has the term been used to prioritize goal for change; and what differences can be detected in the ways the idea has been interpreted and applied in different national, regional, and cultural contexts?

These are the issues raised with this review, more particularly, for agricultural development experts to explore how the political ideas, organization orientations, and programmes designed to clarify and operationalize the concept, as well as the practical measures adopted to move the idea from goal to reality in agricultural communication and development. The implementation of sustainable development could in principle be related to a vast array of governmental activities; to policy formation and trivial implementation in distinct sectors (transport, health care, agriculture, and so on); and to initiatives undertaken by all tiers of government (national, regional, local). Such

complexity is rooted in the imitation ambitions of 'sustainable development' as a plaster concept for governance.

Several important choices should, therefore, be made necessary at the outset of integrating the concept into working instruments of government agencies. Sustainable development is both a domestic and an international policy objective, thus, the integration of national and international action is essential for its implementation for sustainable agricultural development in Nigeria. Climate change was one of the key themes which first motivated inter- national concern with sustainable development (WCED, 1987). It is an issue which indirectly raises complex problems of production-consumption and life-style change in the developed countries, at the same time has increasingly come to focus in the North/South tensions for environmental sustainability. The concept of resilience originates from the field of ecology in the 1970s. It typically relates to the ability of systems to respond and adapt effectively to changing circumstances.

Resilient community is an emerging field that has resulted in a significant increase in the literature of sustainable development in recent years. Hence, community resilience is referred to as 'the capacity or ability of a community to anticipate, prepare for and respond to, and recover quickly from impacts of disaster' (Mayunga, 2008). Information generation and dissemination in a more participatory manner should guarantee sustainability with cognizance of local participation through photographic communication otherwise photo-shots will not be relevant beyond adoration purposes.

For example, Monday Jacquelyn, in a paper entitled *Building Back Better: Creating a Sustainable Community after a Disaster,* stated that Arup International Development ArupID group has used photographic images to successfully sustain many development

projects (even in Africa) in a more participatory manner (Monday, 2002). For the meantime, it should be made clear that a socially transformed community is a theoretical concept which cannot be fully achieved in practice irrespective of the communication strategy deployed. There is no community that can be free of social risk (Twigg, 2009). Whilst development communicators may consider 'sustainable change' a moving target, realistically, it may not be possible for communities to achieve absolute social change against hazards or other risk factors. In this study, building sustainable agricultural community through photographic images is espoused a 'process' and not just an 'outcome' of one or numerous application of photo-voice methodology to development issues. Moreover, sustainable development or change is a process that is multi-sectoral, involving multiple actors; 'single sector planning cannot solve the complexity of problems posed by natural hazards, nor build resilience to them' (US-IOTWS, 2007).

With all these, notwithstanding, using photo-voice appropriately in communication research and development projects should be seen as a formidable process for a long sustainable development of Nigeria's agricultural sector. For instance, in applying the photo-voice methodology to public health promotion, Wang and Burris (1997) describe photo-voice as a methodology that is:

> …well suited to address…'theory failure.' For example, we frequently encountered the assumption that lack of knowledge was the major problem facing rural women. But by using the photo-voice method, the village women themselves documented the fact that their major problems included lack of water, lack of transportation, and lack of child care. As a means of participatory needs assessment, photo-voice provides a community-based diagnostic tool to redress the inadequate theory on which programs may be based (Wang and Burris, 1997:384).

Meanwhile, Abigail Borron, in *Picturing the Underserved Audience: Photo-voice as Method in Applied Communication Research* (2013), submitted that photo-voice provides

another dimension of understanding the audiences that agricultural communication researchers are often tasked to do. Development communicators have long recognized the value in allowing participants the opportunity to describe things in their own words. Photo-voice recognizes this goal in the research context by engaging participants in a way to identify and visually portray issues that may otherwise go unsaid.

2.4 Development Communication and Participatory Communication

Development communication is an approach perfected by the developing world. It is thus able to speak into the real life situations of millions of the world's poor and is connected with their efforts to improve their lives for the better. This approach was first used in the agricultural sector and the first development communication agents were village level agricultural extension officers. The approach flourished from the 1950s onwards and roughly paralleled the de-colonization experiences of many developing nations. This describes an approach to communication which provides communities with information they can use in bettering their lives, which aims at making public programmes and policies real, meaningful and sustainable. Such information must be applied in some way as part of community development but it must also address information needs which communities themselves identified. The outcome of this approach, in short, is to make a difference in the quality of life of communities.

According to Herbermann and Fontagalland, (1978), Nora Quebral, a leading academic in this field defines development communication as follows:

> Development communication is the art and science of human communication applied to the speedy transformation of a country and the mass of its people from poverty to a dynamic state of economic growth that makes possible greater social equality and the larger fulfillment of the human potential. (Habermann and Fontagalland, 1978).

Reviewing literature on '*Development Communication*' in this study is not to add to the numerous existing diverse definitions but to provide a logical argument on how the field of development communication and its recent trends are influencing agricultural communication via photography. This study therefore illustrates why development communication is important and how its methods and tools can be applied effectively to enhance long-term results in agricultural communication in Nigeria. Development Communication (DevCom) addresses everyone who has an interest in the success and sustainability of development initiatives, from communication practitioners to policy makers (Mefalopulos, 2008).

Two factors guided the rationale for reviewing development communication in this study. First, despite the growing recognition enjoyed by the discipline of development communication, its nature and full range of functions are still not fully known to many decision makers and development managers in Nigeria who tend to identify this field merely with the art of disseminating information effectively. Second, because of the recent shift in the development paradigm (that is, from one-way to two-way communication) and the related changes in the field of development communication, many communication practitioners are not entirely aware of the discipline's rich theoretical body of knowledge and the wealth of its practical applications—which are growing in relevance to emerging development contexts.

The initial stages of development communication practice were characterized by the use of mass media that considered people as audiences ready to be influenced by the messages they received. Such communication perspective is rooted in the basic Sender-Message-Channel-Receiver (SMCR) model which has been widely criticized

(Mefalopulos, 2008). In many scholarly attempts to bone up this model with integration philosophy in order to strengthen the active role of the 'receivers' by including their feedback; the overall effectiveness of this basic model, however, has proved to be limited. Over time, the linear flow of information for development has been replaced with a more complex perspective, aimed first of all, at building trust, then at assessing risks, exploring opportunities, and facilitating the sharing of knowledge, experiences, and perceptions among stakeholders.

The aim of this process is to probe each situation through communication in order to reduce or eliminate risks and misunderstandings that could negatively affect project design and its success. Only after this explorative and participatory research has been carried out using appropriate method and tool does communication regain its well-known role of communicating information to specific groups and of trying to influence stakeholders' voluntary change. A challenge for development communication experts is the lack of clarity, and at times the confusion and inability to differentiate among the various areas of communication, especially between this field of study and others, such as corporate communication or mass communications for exploration for development purposes. The practical differences are often rooted not only in the rationale, functions, and applications of the different fields, but also in the theories being used or understood by students, teachers and researchers.

A political communication consultant who has 20 years' work experience in England would likely not be the most appropriate person to design a health campaign to change the traditional perception of rural women about family planning and fertility health in Nigeria.

There are four basic types of communication frequently encountered in the development context i.e. Corporate Communication, Internal Communication, Advocacy Communication and Development Communication (of which photography is present in all of them as a tool of communication). Even though they are highly complementary, the types differ in scope and function. Although some functions may overlap to a degree, the different types of communication and the way they are used require different bodies of knowledge and applicative tools. According to the circumstances, each of the types can involve one communication approach or a combination of approaches (for example, marketing, capacity building, information dissemination, community mobilization, and so forth).

Each type of communication, while belonging to the same family and sharing common conceptual roots, requires its own specific set of competencies and knowledge, an idea not yet widely understood in the development community (Okwori (lecture series), 2013). Awareness of the different purposes and functions of various types of communication is the first step towards a better understanding of the field of development communication and an effective way to enhance necessary quality standards. Being familiar with the origin of this particular discipline and the major theoretical frameworks underpinning it can help achieve a much better understanding of the theory and practice of development communication beyond the choice of the best channels to disseminate information or the production of media outputs.

The field of development communication is a broad but rigorous one. While there is a vast literature about planning, production, and strategic use of media in development, there is need for more material about the ‘dialogic’ use of communication to investigate

issues at the beginning of development projects and programs. This is well established in Bella Mody's books - *Designing messages for development communication: An audience participation-based approach* (1991), and *International and development communication: A 21st century perspective* (2003).

The current conception of development communication is based on the two-way model (the participatory paradigm) which is used first of all to involve stakeholders and investigate issues, before starting to design and implement a communication strategy. The interdisciplinary nature of DevComm makes it an extremely effective cross-cutting investigative approach that can often make the difference in enhancing project results and sustainability by engaging diverse communication methodologies and tools like photo-voice. It is a well-established history that the concept 'Development Communication' was first used in the Philippines in the 1970s by Professor Nora Quebral (Srampickal,2006). The expression designates the processes of transmitting and communicating new knowledge related to rural environments.

Development communication is the art and science of human communication applied to the speedy transformation of a country and the mass of its people from poverty to a dynamic state of economic growth that makes possible greater social equality and the larger fulfillment of the human potential (Currin, 2002; Quebral, 2006). It is an attempt at informing, creating awareness, educating, and enlightening the people so that they can better their lives in every way, through participatory action for learning and sharing of powers within specific cultural contexts. In the development process of any society, at each level (social, economic, political), information flow through participation and communication play an important development role (Agunga, 1997).

Without an adequate two way flow of information and dialogue between periphery (farmers) and center (research institutes), exchange of knowledge, market information, political dialogue; development is unlikely to take place especially in the agriculture. Visual communication (i.e. photographs) can link individuals and communities, governments and citizens in participatory and shared decision-making process. Or, from an instrumental point of view, visual communication media sustains development either through informational and educational campaigns as done by NAERLS or through participatory forms of group media as in development communication principles for positively influencing attitudes and beliefs.

This study stands far away from the explanation of Srampickal (2006) which says that 'development communication' stems purely from the belief that telephones, radio, television, the Internet, or group media can support the overall betterment of less privileged people in underdeveloped countries. This study takes the position that development communication generally refers to the planned use of strategies and processes of communications aimed at achieving development in any society (whether underdeveloped or developed) through an all-inclusive context based participatory decision making system that is sustainable. Such sustainability must again be culturally and ingeniously premised so that the beneficiaries of any development initiatives can own them.

This all embracing focus of development communication defies the status quo in civil society by promoting the various kinds of participatory communication for the empowerment of local peoples. Taking a cue from the two step flow theory, several groups have realized the importance of participatory group media as the ideal tool to

create awareness and lead to change of attitudes. The participatory group media takes many forms. Non-formal education rooted in the culture of the people using various indigenous media like popular theater and other cultural programs can help to create a civil consciousness and subsequent desire for development.

Though the mass media can play a vital role in development by exposing governmental and other forms of corruption; but this two-edged 'sword' is usually almost impossible to strike by the government controlled media houses in Nigeria in order to strike a balance between reporting government perspectives and public opposing ones. Normally, as Bruck and Roach (1993) observe, the mass media's tendency to pick up on the sensational, dramatic, disastrous, dangerous, or the negative in general, leads many people to become generally skeptical of, if not hostile toward, the media. And this puts the mass media in the position of being seen as one of the main obstacles to the creation of a culture of successful development stories. Another limit arises from the nature of viewing the participatory system in development communication as the convergence of media tools or approaches.

Development communicators need to have a correct understanding of the man-made causes of underdevelopment and poverty and of strategies to reduce them (including literacy, control of population growth, protecting natural resources, and limiting degradation of the environment). And so, a complicating factor arises at this point with media ownership. The media in most developing countries are run by people with upper class interests, who may fear that remedying underdevelopment comes at their own expense (Srampickal, 2006). Such media owners may not wish to address development

issues by involving the indigenous people. This has been a major inhibiting factor to sustainable development in Africa and Nigeria in particular.

Change agents like the NAERLS have always designed and implemented development programmes and their communication strategies for the people rather than with the people.

Participation in development communication is premised on the following three factors.

i. The right to communication/expression: To enter into relationships, to establish communities, to survive, people must communicate. Genuine communication is therefore a basic human need—like food, clothing and shelter (Fisher and Harms, 1983).

ii. The right to information: And so, development communication stresses not only education itself, but the people's right to know more about the need for development, the causes of underdevelopment, and the government's plan for development (Srampickal, 2006).

iii. The democratization of communication: Given the right to communication, democratization of communication demands that every citizen has access to the media.

All these factors point to the importance of empowering all, especially the poorer sections, with as much information as possible about their own country. Because it is often the indigenous knowledge systems that can help transfer this important information to the target group. It is necessary that development communication uses indigenous channels for this purpose.

The concept of interactivity, with traditional media as its operational instrument, makes possible the endogenous acquisition of knowledge and skills within the framework of a search for solutions and the communication process in development communication (Berrigan, 1981).

2.5 Agricultural Extension Communication Practices

Ismail *et al*. (2013a:79) argued that there is no widely accepted definition of agricultural extension. This may account for why the authors gave seven different definitions spanning across the period of 1949 to 2004. The definitions were taken from a number of extension publications over a period of five decades. However, for the purpose of this study, the 2004 definition was interrogated:

> Extension [is] a series of embedded communicative interventions that are meant, among other things, to develop and /or induce innovations which supposedly help to resolve (usually multi-sector, multi-actor) problematic situations.

Therefore, it could be logically coined that:

> Agricultural extension communication involves multiple communication approaches to help or induce development initiatives and the adoption of innovations and practices for healthier agricultural practices as a means to higher productivity and resilient capacity of all stakeholders in the sub-sector.

Further on this argument, if it is generally believed in some quarters, (as claimed by Ismail *et al.*,2013a:79), that the modern field of extension now encompasses a wider range of communication and learning activities organized *"for"* rural people by professionals from different disciplines, including agriculture, agricultural marketing, health, law and business studies; then organizing development *"for"* the indigenous people by these 'experts' epitomizes a "top-down" modernization concept of

development and communication. Working with this classification is an aberration of the concept of community participation in photo-voice.

This study therefore leans towards Melkote and Leslie (2001) who offer a refreshingly different perspective from the standard Western recitation of materials on the topic of communication for development. With the influence of theorists like Melkote advocating for relative setting design and implementation of development projects in many countries, especially in the technologically disadvantaged ones, paternalistic extension [communication] is gradually being replaced by more participatory approaches in which knowledge and opinions of farmers are considered as important as that of researchers or government officials (Ismail *et al.*,2013a).

What takes place in communication as a negotiation processes (Freire, 1970) is a dialogue *'with'* actors in a collaborative manner in which information are shared, constructed and reconstructed until a common ground of understanding is reached – a characteristic for requiring and obtaining critical information through the photo-voice methodology. Though developing countries, including Nigeria are facing a lot of development problems of which how to adopt and use new media effectively to promote rural sector is one, the integration of photo-voice into development research can help solve this technophobia.

In Nigeria, the Federal Government has deployed approaches like the Economic Modernization Approach, the Political Economy Approach, the Entertainment Education Strategy (EES) and recently, the Inclusive Communication Approach (through the Freedom of Information Act), there appears to be little attention on their impact on people while participating in rural [and urban] development projects (Ismail et. al.,

2013b). The rural people usually indict communication experts of only implementing the theoretical aspect of information dissemination for local integration without carrying the people along.

After all, the National Mass Communication Policy listed popular participation, equity and access to information and communication, freedom of expression and reception, communication rights and coherence with other sectoral policies as the guiding principles for national integration (Ismail *et al.,* 2013b); the use of photo-voice in agricultural development should re-enforce this policy and make it work effectively for agricultural communication research. Recently, agricultural extension has been influenced by the advancement in Information Communication Technology (ICT). The Internet has made it possible for the deployment of series of New Media for the dissemination of agricultural information.

Agricultural reform is occurring throughout the world and one of the tenets of the reform is the introduction and integration of ICT in the sector. The successful integration of any technology, thus ICT, into agriculture warrants careful planning and depends largely on how well policy makers understand and appreciate the dynamics of such integration (Ismail et. al., 2013a). Generally, over the past decade, developing countries (including Nigeria) have seen rapid but uneven growth in ICT access and use (Ismail and Tenuche, 2012).

A board was inaugurated in July 2006 to ensure that telecommunication services are extended to rural (under-served/un-served areas) (Ismail *et al.,* 2013a). The Federal Government also set up the Rural Telephony Projects in 2006 and pursued various policies aimed at bridging the digital divide and achieving optimum penetration of the

rural areas. These include the rural telephony project, Wire Nigeria project, the Nigerian telemedicine initiative, Public Service Network initiative, Internet Exchange Point initiative, the development of a keyboard for the three main Nigerian languages, and the establishment of the Universal access fund: all geared towards ensuring ICT access to every nook and cranny of the country.

At least, roughly $5 billion has been invested in Nigeria's telecom sector in the past decade for connecting the unconnected. It has been observed that these projects have only been able to provide mobile phones to those who already had access and have failed to create incentives to invest in areas where the unconnected mostly live (www.nigeriansinamerica.com). On the contrary, the main rural telephony project has provided perverse incentives to keep interested local communities away from these investments while mobile telephony thrives in Nigeria at the expense of rural people (Ismail and Tenuche, 2012).

Thus, if Agricultural Extension Transformation Agenda (AETA) must work and work fast, Nigeria must aggressively invest in rural Internet technology in order to maximize the potentials of photo-voice in agricultural communication research and development through a revolutionalised extension system.

THEORETICAL FRAMWORKS

2.6 Introduction

This section captures the theoretical frameworks that underpin this study. The essence of deploying these theories was to help the researcher place the problem, the research methodology, the data collection and interpretation, the findings and recommendations in proper perspective. Again, the exploration of these theories has

fundamentally offered two different diagnoses and answers to the challenges of development and communication as earlier identified in the statement of the research problem of this study. To realize the aim and objectives of this study, the Narrative Transportation Theory of Communication by Melanie Green and the Paulo Freire's Participatory Communication Theory are adopted. While one of the theories positioned story telling as a Participatory Learning and Action tool that could be used by the indigenous people build their own opinion and understanding of development issues, the other one suggested that equal participation of the host communities in development research and communication is fundamental to achieving sustainable development.

It is important to note that the diagnoses of development and communication challenges of these theories as well as their procedures for analysis are different.

2.7 Narrative Transportation Theory

The Narrative Transportation Theory (NTT) of Communication as espoused by Melanie is premised on the fact that in the narrative world individual feels being involved in the world of a story, he/she is critically completely immersed in a story by leaving the 'distorted realities' of the world behind through critical 'reflection' and 'concentration'. The immersion here is not that of emotion but of the highest level of concentration through a conscious reflection devoid of distraction. Melanie Green who developed this theory is a social psychologist at the University of North Carolina in Chapel Hill. In 2000, Green published the first in a series of articles on the theory of narrative transportation. The theory, as she explains it further;

> …describes how, when people get absorbed in a story, they stop paying attention to the world around them and focus their thoughts and mental imagery on the story (Green, 2000).

The theory also offers an account of why people are absorbed in a story, they become more open to persuasion, thereby providing an opening for effective science communication.

This is particularly so on topics that people are sometimes resistant to, such as anxiety-provoking health information, or scientific data that may be inconsistent with their beliefs, like the benefits of vaccination or the threat of global warming on agricultural productivity and farmers' health. In another book authored by Green and Brock (2000), this high concentration or experience was cited a key mechanism underlying the influence of stories or narratives on individuals' attitudes and beliefs, and is also associated with media enjoyment. Story-telling, through collective interrogation of photo-shots is a veritable procedure in photo-voice which makes narration a critical component of these two ideologies.

Although 'transportation' has long been used as a metaphor for narrative experience, psychologists have conceptualized transportation into a narrative world as a distinct process, an integrative amalgamation of attention and imagery (Gerrig, 1993; Nell, 1988). Transportation is a form of experiential response to narratives. Meanwhile, influence of media content is thematically controlled in photo interrogation by development communication experts such that the process does not elicit emotional interpretations or decisions. This is done by the specialist who appropriately applying some of the facilitation approaches of the Participatory Learning and Action tools to make group discussions democratic. Some of such moderation tools are role playing and turn taking. When reflections are moderated, readers or audience in photo-voice activities experience participatory responses, that is, the desire to communicate with narrative characters [in

the shots] or help the narrator toward their goals (Polichak and Gerrig, 2002). This is one of the objectives of photo-voice through the collective interrogation of photo-shots by community members.

To understand what makes narratives so persuasive, it is worth considering how people respond to ordinary rhetorical persuasion in agricultural extension, in which a persuasive appeal is made based on facts and arguments without a narrative structure. When people are confronted with facts and arguments that they disagree with or do not want to believe, their typical responses are to counter-argue. This is particularly likely to be the case when people have been earlier notified that they are the target of an attempt to make them shift from a particular form of action or planting their crops in a special way different from what they are used to. People are generally very good at holding up reasons to dismiss or undermine arguments they would prefer not to believe. When people's beliefs come under attack they put their defenses up, which can make persuasive science communication especially agriculture communication very challenging.

The strength of narrative persuasion via photography is that it can evade many of these defenses. In her research, Melanie Green and her colleagues have found that the more transported people are by a story, the more they report having beliefs that are consistent with that story. To measure how much an individual is transported by a story, Green developed a scale which includes questions like "I was mentally involved in the narrative while reading it," and, "I could picture myself in the scene of the events described in the narrative" (Nussbaun,2013).

This power has not been greatly harnessed for the communication of research findings, innovations and best practices, yet people naturally think narratively rather than

argumentatively or paradigmatically in interpersonal communication (Woodside *et al.*, 2008). Naturally, stories serve as memory devices and facilitate understanding by providing connections to previous experiences and knowledge (Hough and White, 2001). What are some of the characteristics of narratives that make them effective at influencing? These features (taken from Schwartz 1994; Slater and Rouner 2002; Iedema *et al.*, 2009) have influenced the development of the Narrative Transportation Theory.

i. Narratives are deeply rooted in human experience and history: they are familiar and intrinsic to sense-making.

ii. They can permit the exploration of difficult issues in a non-threatening form.

iv. They help individuals and groups address the affective dimensions of being and working.

iv. They open up multiple perspectives: they invite telling and retelling perhaps invoking personal experience.

v. They are persuasive: the processing of narratives to a large extent attenuates cognitive resistance or counter-arguing (Scott,1984; Fisher,1984 and Fisher, 1985).

The use of photography in communication research in Nigeria is still much premised on the modernization theory of development and communication. The modernization theory has been criticized by many scholars including Melkote (1991) who says designs and implements development programme communication from the experts' view; in such a way, individuals and community feelings cum reflections enjoy the back seat of deliberation and decision making process.

The evolution of communication from a mainly 'transmission mode' or 'allocution' to a proper communication mode is undoubtedly the main change agricultural

communication in Nigeria needs for a real participatory communication process in the new multimedia environment. Serving the public, in Nigeria, even on issues like extension, is all too often considered simply a populism or, even worse, a consumerism that does not fit to a public mission of sustainable social change: because, the serving society means contributing to the social deliberation in a Habermasian sense, therefore, here, extension system means that agricultural communication process in research institutes becomes more democratic. In this regard, Jurgen Habermas's *The Structural Transformation of the Public Sphere* (1962) is an immensely rich and influential book that has had major impact on a variety of development disciplines including agricultural communication (Kellner, 2000).

Therein, democratization, with emphasis on political participation is the core of a democratic society and groups; as well as an essential element in individual self-development and community advancement. Social change through participation requires a major mental and cultural shift. Some international institutions are already making this shift in their communication system, whereas many others, especially in Nigeria still stick to the old-fashioned assignment or paternalism in communication research. Photographs can act as triggers for memory to make people participate democratically in development activities. This characteristic of the photograph is known as "*Mnemotechnology*" (Brunsden and Goatcher, 2007). Even though, there are 2 types of photos: those that provide information and those that provoke reactions (Brunsden and Goatcher, 2007, p. 47): photo-voice is very well concerned about the insightful impact of image in the documentation of indigenous experiences.

It provokes collective action rather than keeping the participants at a distance in communication and development research as numerical data. In this way, the community is liberating itself and the development facilitators from inappropriately constructed social, political, traditional, religious, educational and spiritual values usually through a one-way communication system. In accordance with the features of community participation in development research and implementation, Van Laer *et al.,* (2014) define narrative transportation as the extent to which an individual identify with the story characters, and the story plot activates his or her resourcefulness. According to Charon (2001), only sophisticated narrative powers will lead to the conversations that society needs to have about its medical system improvement.

This is also true for the agricultural system because simple models of 'dissemination' or 'knowledge transfer' offer poor descriptions of the processes by which research influences, and often ineffective prescription for how these linkages could be improved. Moreover, communicating around research is as often a problem around content as it is around the process (Davies *et al.,* 2008). Therefore, the power of narratives, found in photo-voice is partly from the Transportation Narrative Theory. For Transportation Theory, individuals are more likely to be persuaded when they are involved in a story 'transported' into a narrative world of pictures rather than just the absorption in rhetorical communication. The ways photo-voice operates are typical exemplifications for the relationship between the methodology and the choice of the transportation narrative in this study.

Development projects using photo-voice involve an iterative cycle of photo assignments, collecting photographs, and engaging in critical group discussion of a

selection of photographs (Catalani and Minkler, 2010). These iterations put more control of the research process in the hands of community members, who identified issues that arose in their photography and discussed them using the SHOWeD technique (Shaffer, 1983). Using the SHOWeD pneumonic, facilitators would ask:

i. What do you *See* here? [S]

ii. What is really *Happening* here? [H]

iii. How does this relate to *Our* lives? [OW]

iv. Why does this problem, concern, or strength *Exist*? [e]

v. And what can we *Do* about it? [D].

This group discussion technique is based on Paulo Freire's (1970) conception of praxis and is meant to facilitate the empowerment of community participants through critical dialogue. Next, Wang and colleagues encouraged the use of participatory visual analysis, a process that they pioneered.

As Wang and Burris described:

> …participants select a set of photographs that most accurately reflect community needs and assets; contextualize the photographs by telling stories about what the photographs mean, and then codify the issues, themes, or theories that emerge (Wang and Burris, 1997:380).

Additionally, early photo-voice projects by Wang and her colleagues emphasized action after the collective interrogation. Photos and accompanying narratives depicting community needs and assets were typically shared with influential local leaders. These exhibits tended to be well attended and provided an opportunity for participants to directly communicate with influential people, to creatively express their concerns, and to become further engaged in efforts to address these concerns (Catalani and Minkler, 2009).

Moreover, the attention given to an engaging narrative has an intensity that most creators of didactic messages could only dream of inducing with rhetoric (Slater and Rouner, 2002). Thus, narrative can marry the affective and the cognitive components of attitude formation more effectively and more routinely than rhetoric because attitudes that have both an affective and a cognitive basis tend to be more persistent (Green and Brock, 2000). Where the persistence is negative, (it may be difficult to change), it is therefore imperative to combine both the rhetoric and photographic images to effect necessary and desired sustainable change.

But where the persistence is positive, the combinations of the verbal and pictorial communication will fast-track sustainable change.

Green and Brock (2000) had suggested that once the audience is rolling along with a compelling narrative, the source has diminishing influence. In this case, the picture influences the people's determination more than the reports of the change agents because the pictures were taken by the people. Using evidence to influence agricultural communication and development programmes may, to date, have relied too heavily on one aspect of persuasion i.e. the rational and carefully argued use of logic, data and figure. This has happened often to the relative neglect of pathos, the power to stir the passions, (not sentiment) beliefs, values and imagination of the audience and [so] generate identification (Dopson *et al.,* 2005).

Narratives, photo-voice and or the hybridization of media have the potential to redress this imbalance in agricultural communication. There is, of course, much more to agricultural communication than just persuading people of figures that they may prefer not to believe.

2.8 Participatory Communication Theory

The notion of Participatory Communication which emanates from Paulo Freire's philosophy of indigenous people involvement in development issues through 'dialogue' stresses the importance of cultural identity of local communities, and of democratisation and participation at all levels - international, national, local and individual. It points to a strategy, not merely inclusive of, but largely emanating from, the traditional 'receivers'. Paulo Freire refers to this as the right of all people to individually and collectively speak their word:

> This is not the privilege of some few men (and women), but the right of every (wo)man. Consequently, no one can say a true word alone - nor can he (or she) say it for another, in a prescriptive act which robs others of their words". In order to share information, knowledge, trust, and commitment in development projects, participation is very important in any decision making process for development (Freire,1983. p. 76).

This calls for new attitude for overcoming stereotyped thinking and to promote more understanding of diversity and plurality, with full respect to the dignity and equality of peoples living in different conditions and acting in different ways (MacBride Commission, 1980). This model stresses reciprocal collaboration throughout all levels of participation.

Listening to what the others say, respecting the counterpart's attitude, and having mutual trust are needed. Participation supporters do not underestimate the ability of the masses to develop themselves and their environment. Development efforts should be anchored on faith in the people's capacity to discern what is best to be done. The all-embracing concept of development communication led researchers to examine communication in five general areas.

i. Agricultural communication which explores ways in which governments can use the diffusion of innovation theories to promote farming techniques.

ii. Health communication which includes information about health, family planning, HIV/AIDS prevention, and so on.

iii. Population, education, and environment communication which utilizes strategies of education on the aforementioned issues.

iv. Human rights communication which is usually the challenging of the status quo in civil society for justice and fair representation in decision making process.

All these thematic communication approaches promote various kinds of participatory communication for the empowerment of the local people. In using the theory of participatory communication in this study, caution was first taken to establish the necessary connection among the identified communication approaches.

Much of the discussion of these approaches usually overlaps with talk about development in general and theories of development. It is important to point out that in development or theories of development, understanding the context and content of communication is necessary: such that the elements of feedback, participation, mutual sharing and empowerment must be stressed in the application of participatory communication. In recent years, poor implementation of development initiatives has been linked to overreliance on "expert" knowledge and inadequate appreciation of local development priorities e.g. (Dichter, 2003; Smucker, Campbell, Olson, and Wangui, 2007; Tufte and Mefalopulos, 2009).

Developing a plan is one thing, Quarry and Ramírez (2009) argued; but getting people to implement the plan is something completely separate. Organizations and [governments] engaged in providing international development assistance have responded to this critique by prominently endorsing stakeholder participation and improved channels of communication in their project strategies (Boeren, 1992; Cheru 2006; OECD, 2010; UNDP, 2009). The importance of substantive participation is no longer in doubt; precisely what this entails and how to achieve it remains much more ambiguous among development experts. Increased emphasis on local participation in development initiatives has generated new interest in how development researchers and practitioners can better engage indigenous communities in which they work. For instance, an off-shoot of participatory communication is the Theatre for Development (TfD). Like TfD, participatory communication offers one approach (participation) to enhancing stakeholder engagement at all stages of the project cycle. Signaling a significant deviation from the status quo, advocates of TfD contend that sustainable development results not from hierarchical, top-down data extraction or transmission of knowledge but rather from horizontal processes of knowledge exchange (Abah, 1991; Ogunde, 1995; Ndigirigi, 1999; Ngugi, 1981).

Generally, communication is a process of creating awareness, constantly enlightening those involved in the process; various media serve or promote this process. But communication media have their limits as against participatory communication. As information sources, mass media like radio, television, print, and the Internet can provide information, creating a clear understanding of what development is, and can inform a large mass of people about developmental concepts, issues, programs, and so forth. They

can educate people on these issues, in an appealing and convincing way. They can create a desire for better lives among underdeveloped people.

In fact, a number of recent empirical studies indicate that the mass media in themselves do not help development as much as participatory media do (Hornik, 1988; Wilkins, 1999; Servaes, 1989; Jacobson and Servaes, 1999): hence, the relevance of the Participatory Communication Theory to this study. This is because one of the objectives of this study is to advocate for the institutionalization of participatory photography as research methodology that will empower the farmers to use photographs to tell their own story and influence policy makers in agriculture in Nigeria.

Many people associated with participatory and empowerment communication approaches have built on works begun in South America in the 1970s by Paulo Freire. This model, combining discussions of nationalism, development, and democracy with basic education, argues that for the adults, learning to read and write as a development is also a process of analyzing reality and of becoming critically aware of their situation (Srampickal, 2006).

To change basic attitudes, people are the makers of their own culture; change is possible if people work for it collectively (Freire, 1970). The local indigenous media of story-telling, songs and acting are major tools in this endeavor for raising culture and consciousness in a sustainable manner. However, every nation needs to define development for itself and find its own strategy [mostly through indigenous philosophies] (Servaes, 1989). This in turn, in this study means that local people can take pictures of what they feel and understand are their development challenges, interrogate them critically and take collective decisions on how to solve them. Thus, emphasis on local

empowerment of people in photo-voice brings to frontage four participatory approaches to development communication the following:

i. Development communication from a human rights perspective,

ii. Development communication based on indigenous knowledge systems,

iii. Development communication based on the participatory or liberation models discussed above, and

iv. Development communication based on empowerment and the integration of Information Communication Technology (ICT).

The United Nations has played a leading role in promoting human rights and duties in communication. These ensure a person's responsible participatory action in society by balancing empowerment through communication with social responsibilities and service to one's own society. This is necessary because the history of development theory shows that paradigms such as modernization have led to a strong state and to alliances that have favored one set of interests to the exclusion of others (Srampickal, 2006).

The UN Declaration on Human Rights of 1948 promotes a culture of dialogue and community, a culture of human rights [in advancing sustainable development] (Hamelink, 1994; Linden, 1998). The logic of a discourse of human rights affirms that no right is secure unless it is universally respected and implemented indigenously. There are three key rights that touch on communication generally and development communication specifically. These rights are summed under ethical issues in photo-voice methodology. They are:

i. The right to communication/expression as a basic human right, which points to every human being's basic need to express what he or she thinks about any matter. It is essential to the morality of inter-subjectivity whose prime characteristic is the

relationship and which sets freedom, equality, and solidarity above all else. Genuine communication (advocated by participatory communication) is therefore a basic human need—like food, clothing and shelter (Fisher and Harms, 1983).

ii. The right to information. The citizens of a country have the right to know everything that affects them in the social, political, cultural, and economic spheres, including that state's plans for development. To hide information from them is a violation of a human right. And so, among the trends in development communication is the need for more information with evidenced based mechanism of which photography readily provides.

Even though national public broadcasting systems have been established in democracies, a small professional elite or commercial advertising interests control communications in most countries (Linden, 1999). But photo-voice as a research methodology works beyond such barriers. The main analytical thrust of participatory communication and its ascendancy in development studies have been summarized elsewhere (Jacobson and Servaes, 1999; Waisbord, 2000; White, 1994 in Waisbord, 2008).

It is suffice to mention here the basic principles about the theoretical underpinnings and intellectual path of participatory communication and how they influence participatory photography. Participatory communication posits that communities should be the main central character of processes of social change rather than 'passive beneficiaries' of decisions made by outsiders. In this sense, it questions the view of development as an externally-driven process planned and implemented by Western technical experts. For participatory theorists, 'developmentalism' offers a patronizing approach that assumed that outside expertise 'know better' than communities.

Secondly, participatory communication proposes a 'communitarian' view that makes deliberation and participation in public affairs, rather than information-transmission (including message design and media technologies), the essential elements of communication. Furthermore, participatory communication conceives 'development' as a transformative process at both individual and social levels through which communities become empowered. This third projection is a feature of photo-voice, i.e. people's empowerment. Finally, participatory communication promotes local forms of knowledge and action as the springboard for social change.

This view is in sharp contrast with modernization and diffusionism that basically see local cultures as obstacles to progress and development (Waisbord,2008). The term "participatory development communication" is often used to draw attention to an emphasis on two-way communication processes, and to distance them from one-way communication approaches that involve disseminating messages, transmitting information, or persuading people to change their behavior. It wants to give preference to horizontal approaches that encourage dialogue, centered on problem analysis and a search for solutions, as well as bottom-up approaches that aim to raise the awareness of decision-makers (Otsyina and Rosenberg, 1997). In spite of a diversity of approaches and orientations, there is a consensus today on the need for grassroots participation in development and on the essential role that indigenous communication plays in promoting development.

Grass roots participation is well articulated in a popular Food and Agricultural Organization of the United Nations slogan: "There is no development without communication" (Balit, 1988). Meanwhile, White (1994) has argued for more concrete

commitment to participatory communication and, with several colleagues (White, Nair and Ascroft, 1994) outlined the methods to achieve this. They projected the methods to pressing the case for grassroots communication with an edited facilitator's guide, emphasizing that 'communication' should refer to grass-roots communication (White, 1999). Such grass-roots communication involves the empowerment of the people to control the tools or channels of development communication being conscripted by the elites.

Many development communication researchers in this tradition build on the concepts of Paulo Freire and Augusto Boal. Freire and Boal emphasize the participation of those most in need of economic, political and spiritual development; in this study, the farmers. Such approaches focus attention on group media and group discussion available in the photo-voice methodology as agents of sustainable social change. Among the key aspects of Freire and Boal's work are interactivity, the use of "small media," [like the photo camera or photograph] to create awareness raising and direct participation in decision making process (Bessette, 2004).

The participatory photography consciously seeks to correct the dependency model's national level emphasis on the relationship between communication and politicization with a political and social participation starting at the lowest levels. Dagron (2001), in a report to the Rockefeller Foundation, describes 50 participatory projects in 30 countries, using media as diverse as cell phones, multimedia, community theater, community radio, participatory photography and community video. Bessette and Rajasunderam (1996) outline an agenda for such communication in West Africa. Waisbord (2008) in his article *The institutional challenges of participatory communication in international aid*, offers

an explanation for the limited uses of participatory communication in development by taking an institutionalist perspective that examines prevalent notions about communication and organizational uses in international aid institutions. His arguments are that:

> …first, bureaucratic requirements favor the use of informational models over participatory approaches to communication by understanding and using of communication as a set of technical skills to disseminate messages; second, the weak status of communication as a field of study and practice in development organizations undermine the prospects for expanding the understanding of communication that do not fit prevalent institutional expectations because technical experts in public health or other fields expect communication to be 'the art of messaging,' thus, communication staff lacks autonomy to make decisions and incorporate participatory approaches(Waisbord, (2008) in *Social Identities, 14*, 4,pp.505).

While agreeing to the submissions of Silvio Waisbord (2008) on the short comings of participatory communication, this study upholds the fact participatory communication is relevant and just like the mass media cannot be discarded in participatory photography. Therefore, the use of participatory communication theory in this study is to establish that photo-voice is participatory and that the right to participate in development activities is fundamental human right.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Research Methodology

In order to properly situate the concept of photo-voice as a veritable methodology for sustainable agricultural communication in this study, the researcher combined the qualitative and the quantitative research tools. Qualitative research is characterized by its aims, which relate to understanding some aspect of social life, and its methods which (in general) generate words, rather than numbers. Because the aim of this study is to understand how a community or individuals within it perceive a particular issue like photo-voice, then qualitative methods was appropriate.

Qualitative methodologies helped this study understand people's experience about agricultural development via the use of photography in communication research; understand different perspectives, such as those of professionals and farmers and discover how experiences, attitudes and life circumstances affect innovation adoption and retention. Using qualitative research method has equally assisted this study, for instance, to gain in-depth knowledge about social variables most likely affecting the use of photography in communication research and development programmes in the selected communities.

Again, was a qualitative approach appropriate for this study? From the foregoing, yes. This affirmation was critical to the choice of qualitative research approach here because the study equally explored the meaning participants give to photography; and then compared such to how photographs are being used in NAERLS.

On the other hand, the quantitative method was used to quantify some problems of the research by way of generating responses and transforming them into useable simple descriptive statistics. The following definition, taken from Aliaga and Gunderson (2000), describes what the researcher here meant by quantitative research methods very well:

> Quantitative research is 'Explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics)'.

The quantitative research method was further used to quantify attitudes, opinions, behaviors, and other defined variables – and generalized the findings from the randomly selected sample population of NAERLS members of staff. Consequently, the responses of the participants in the questionnaire survey were quantified using the Likert Scaling of frequency.

The quantitative research method was used to analysed the data collected along the frequency scaling of (Very High, High, Average, Low and Not at All). The quantitative method was also used to analyse the responses from the Focus Group Discussions as well as the Key Informant Interviews. This helped the study to numerically place the responses based on the number of the respondents for each variables in percentages too. It should be stated that quantitative research method uses measurable data to formulate facts and uncover patterns in research. Quantitative data collection methods include various forms of surveys – online survey, paper surveys, mobile surveys and face-to-face interviews. In this study, the paper survey (questionnaire and the face-to-face interview) were used.

3.1 Research Instruments and Data Collection

This research on "the use of photo-voice in the development projects of NAERLS" is therefore, premised on both primary and secondary data gathering.

The study used four tools:

i. Document Study;

ii. Key Informants Interview;

iii. Questionnaire, and

iv. Focus Group Discussion approaches.

3.2 Observational Documentary Method

One of the existing qualitative research methods for data collection is 'document study' - a process in 'observational documentary research method'. Existing records often provide insights into a setting and/or group of people that cannot be observed or noted in another way especially where the events have taken place a long time ago. This information can be found in document form. Lincoln and Guba (1985) defined a document as 'any written or recorded material' not prepared for the purposes of the evaluation or at the request of the inquirer. Documents can be divided into two major categories: public records, and personal documents (Guba and Lincoln, 1981). Public records are materials created and kept for the purpose of 'attesting to an event or providing an accounting' (Lincoln and Guba, 1985). Public records can be collected from outside (*external*) or within (*internal*) the setting in which the evaluation is taking place.

Examples of *external* records are census and vital statistics reports, county office records, newspaper archives, and local business records that can assist an evaluator in gathering information about the larger community and relevant trends. Such materials can be helpful in better understanding the project participants and making comparisons between groups/communities.

Personal documents are first-person accounts of events and experiences. These 'documents of life' include diaries, portfolios, photographs, artwork, schedules, scrapbooks, poetry, letters to the paper, etc. Personal documents can help the evaluator understand how the participant sees the world and what she or he wants to communicate to an audience. And unlike other sources of qualitative data, collecting data from documents is relatively invisible to, and requires minimal cooperation from, persons within the setting being studied (Fetterman, 1989). Therefore, this study employed document study to collect information from documents, records, photograph collections on the communication and research activities of NAERLS with attention to the two selected projects in Hayin Gada and Hayin Mallam adopted villages in Kaduna State from 2012 to 2014. The implication of this was that the study had access to collection of photographs used so far in the two projects and how they were used by NAERLS.

3.3 Questionnaire

Usually, a questionnaire consists of a number of questions that the respondent has to answer in a set format. Usually in a study like this, a distinction is made between open-ended and closed-ended questions. The open-ended questions asked the respondents to formulate their own answer by writing their responses, whereas the closed-ended

questions allowed the respondents to pick answers from a given number of options. Normally, the response options for a closed-ended question should be exhaustive and mutually exclusive. Four types of response scales for closed-ended questions are distinguished for research study by scholars:

i. Dichotomous, where the respondent has two options

ii. Nominal-polytomous, where the respondent has more than two unordered options

iii. Ordinal-polytomous, where the respondent has more than two ordered options

iv. (Bounded)Continuous, where the respondent is presented with a continuous scale

Meanwhile, questionnaire technique regards questionnaires. A questionnaire is a series of questions asked to individuals to obtain statistically useful information about a given topic (*Merriam-Webster's Online Dictionary*). When properly constructed and responsibly administered, questionnaire becomes a vital instrument by which statements can be made about specific groups, or people, or entire populations. Questionnaire is frequently used in quantitative and social research; this informs its choice for this study-agricultural communication. They are valuable methods of collecting a wide range of information from a large number of individuals, often referred to as respondents. Adequacy in questionnaires construction is critical to the success of a survey. Based on the nature of this study (i.e. a pictorial and an assessment research) the questionnaire contained:

i. close ended questions with multiple choice from which the respondents had alternatives to choose and

ii. scaled questions, which allowed for responses to be graded on a continuum. For the purpose of this study, the Likert scale was employed in the questionnaire. The responses were graded on a continuum of percentage i.e.1% to 100%.

The scaling employed in this study is the most widely used approach to scaling responses in survey research. It was convenient here because it did not demand too many statistical configurations which may take the study out of humanities. When responding to a Likert questionnaire item, respondents specify their level of agreement or disagreement on a scale for a series of statements. Thus, the range in the questionnaire captures the intensity of the respondents understanding of a given item (Burns and Burns, 2008) for a non-distorted, smooth discussions and analysis in a forward-backward manner.

In this study, the 'dichotomous' questions (where the respondent has two options), the 'ordinal-polytomous' (where the respondent has more than two ordered options) and the 'bounded continuous' (where the respondent is presented with a continuous scale) were used. Copies of these questionnaires were personally administered with the assistant of two student volunteers; this helped in tracking the filled copies for quick collection within the space of three days. Copies of the questionnaire were administered during the 2014 National Extension Review and Planning Meeting in NAERLS headquarters in Zaria. This helped the study to capture respondents from the six zonal offices who were in attendance for the meeting.

3.4 Key Informant Interview (KII) Method

The Key Informant Interview was used to gather subsisted experiences from seasoned NAERLS staff members in order to establish how photography has been used in

agricultural communication research and development projects in NAERLS. This is a relevant qualitative data collection instrument for this study because it has been used by qualitative researchers to complement and authenticate responses from other data collection techniques like questionnaire: in fact, related options are 'participant observation', 'non-participant observation', 'field notes', 'reflexive journals', 'structured interview', 'semi-structured interview', and 'unstructured interview' (Cathering and Gretchen, 1998). A key informant interview is a loosely structured conversation with people who have specialized knowledge about the topic you wish to understand. The give and take of interviews can result in the discovery of information that would not have been revealed in a survey using only the questionnaires.

Key informant interviews are easier and less expensive than focus group discussions since the former involve only one respondent and one interviewer at a time. In this study, the Key Informants were purposefully selected in order to:

i. represent the ideas and attitudes of NAERLS in the use of photography for research and communication activities, and

ii. promote legitimacy for this study.

Thus, the information from the informants was compared to the data from content analysis, the questionnaires. The comparison helped the study establish the link between lived experiences and documented information about NAERLS communication and research activities and the farmers' perception and knowledge regarding the use of photography generally and by NAERLS.

3.5 The Focus Group Discussion Method

The Focus Group discussion is the third data gathering instrument used in this study. The focus groups discussions involved farmers under the Adopted Village programme of NAERLS in two selected communities in Giwa Local Government Area of Kaduna State. Generally, in focus group discussion, the ways of participating and observing can vary widely from setting to setting. The focus group method as a 'participant observation method' is a strategy of reflexive learning, and not a single method of observing (Lindlof and Taylor, 2002). The focus group technique involves a moderator facilitating a small group discussion between selected individuals on a particular topic.

Focus groups combine elements of both interviewing and participant observation. The focus group session is, indeed, an interview (Patton, 1990) but not a discussion group, problem-solving session, or decision-making group. At the same time, focus groups capitalize on group dynamics to elicit common knowledge information. The hallmark of Focus Group Discussion (FGD) is the explicit use of the group interaction to generate data and insights that would be unlikely to emerge without the interaction found in a group. The technique inherently allows observation of group dynamics, discussion, and firsthand insights into the respondents' behaviors, attitudes, language, etc. Focus Group Discussion involves a gathering of 8 to 12 people who share some characteristics relevant to the evaluation.

Originally used as a market research tool to investigate the appeal of various products, the focus group technique has been adopted by other fields, such as education, as a tool for data gathering on a given topic. Focus groups conducted by experts take place in a focus group facility that includes recording apparatus (audio and/or visual) and

an attached room with a one-way mirror for observation. Participants are paid for attendance and provided with refreshments. In this study, participants were only provided with refreshment. As the focus group technique has been adopted by fields outside of marketing, some of these features, such as payment or refreshment, have been eliminated.

Three large focus groups were constituted for this study. The first focus group contained eighteen male farmers from Hayin Gada community while the second one had seventeen male farmers from Hayin Mallam adopted village. The third focus group was made up of thirteen women farmers from the two communities – Hayin Gada and Hayin Mallam. In total, fifty farmers participated in the FGD. Specifically, the Focus Group Discussion method was used in this study to:

i. identify and define the use of photography for research and project implementation by NAERLS in their communities;

iii. identify the strengths and weaknesses by NAERLS under the two selected interventions in their communities;

iv. obtain farmers perceptions and impact of the use of photography under the selected initiatives in their communities and

v. generate ideas about how photography could be used by NAERLS to make the farmers more participatory.

During the focus group discussions farmers were typically asked to reflect on the questions by the researcher. Participants were encouraged to listen carefully to each other's responses and make critical additional comments while also allowing beyond their own original responses be critique by others. In this way, 'common' understanding or 'clear' theme are reached based on the question(s) discussed.

Each of the focus group session did not last longer than 1 and 1/2 hours. The intention was to get high-quality data in the context where farmers considered their own views in the context of the views of others, and thereby helped the researcher to introduce the new perspective of participatory photography.

The focus group discussion with the farmers was done in Hausa Language with the help of a local interpreter. Though some of the farmers who could speak English language did so intermittently, the researcher has a moderate knowledge of the Hausa Language: the implication was that it was easier for the researcher to notice and reduce some ambiguities in the interpretations done by the local intermediary.

3.6 Secondary Sources of Data

The researcher also made use of information collected from the Internet and relevant publications (e.g. books, journals, memos, reports and newspapers). The data were used to establish the background to the study, situate the statement of the research problem, find justification for the study as well as deploy the theoretical frameworks that underpin this study. Furthermore, information from the secondary sources was used in the review of related literature in the study. All authors cited in this study have been acknowledged accordingly.

3.7 Research Population

The questionnaires (semi-structured) was administered to eighty-four NAERLS staff members drawn from the one hundred and sixty eight academic and technical staff across all the specializations in the headquarters in Zaria and the six zonal offices; even though the total number of NAERLS staff as at 2014 was five hundred (NAERLS Promotion/Upgrading Exercise Report, 2014). This total figure on the record captured the

secretariat staff, cleaners, gardeners, drivers, security personnel, canteen staff and electricians who do not directly engage in research activities.

This research engaged only the academic and technical staff members whose job specifications practically involve research and development projects design, implementation and evaluation. The simple random sampling technique was used to select the staff members which cut across the available specializations e.g. agronomy, communication, engineering, economics, computer, sociology and rural development, science, food and nutrition. The semi-structured interview was equally used for the six "Key Informants"- mainly top management and old staff members who have spent nothing less than twenty years in the service of the institute. This helped this study to discover the variety of projects in which photographs have been used in NAERLS.

Meanwhile, a number of fifty farmers, thirty-seven male farmers and thirteen female farmers were sampled from seventy-five farmers from the two NAERLS Adopted Villages (Hayin Gada and Hayin Mallam). The farmers were divided into three focus groups for discussion. There were two male groups, (one each from the two communities), and the third one for the women. The fifty farmers were officially registered members of the Adopted Village farmers' cooperatives in the communities. This enabled the study capture response based on their exposure to NAERLS activities in the selected projects. In total, one hundred and fourty respondents (ninety from NAERLS and fifty50 from the Adopted villages) were engaged in this study but only one hundred and thirty of them actually participated.

3.8 Analytical Techniques

An inductive approach to data analysis was used to help the researcher identify themes emerging from each of the data source for relational analysis. The two data sets (qualitative and quantitative) were then synthesized, analyzed and brought together as a set of tangible information for the final discussions and analysis. In this way, the research was able to bring to the fore how photography has been used in NAERLS communication activities and how photo-voice could contribute better to sustainable agricultural communication, social change and productivity. Consequently, this study only used the questionnaire, the key informant interview and focus group discussion to gather primary data.

Understandably, the responses from the adopted village farmers, NAERLS staff members were triangulated with results from the document study analysis which later yielded a set of comprehensive and viable comparative findings to appropriately situate the discussions, conclusions and recommendations in this study.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter captures the presentation and analysis of data collected through four research instruments: the Questionnaire, the Key Informant Interview (KII), the Focus Group Discussions and the Documentary Observation Method (document study). This study adopted both the qualitative and the quantitative research approaches for the data collection, presentation analysis and discussion.

The researcher conducted three Focus Group Discussions with both male and female farmers from the registered farmers' cooperative in Haying Gada and Hayin Mallam adopted villages, Giwa Local Government in Kaduna State of Nigeria. A total of fifty farmers participated in the discussions. The two selected communities were parts of the forty adopted villages that exist in all the six agro-ecological zones operating under NAERLS extension services in Nigeria during this study. The adopted villages serve as laboratories for testing and disseminating agricultural innovation and best practices to farmers by NAERLS all over Nigeria. To elicit responses from randomly selected staff from all the departments of NAERLS, eighty four copies of questionnaire were distributed. Out of the eighty four copies administered, only seventy four were filled and returned.

More so, six staff members of NAERLS who have spent not less than twenty years in the service of the Institute were selected for Key Informant Interview. The Likert scaling of percentage was used to analyse the data from the Questionnaire and Focus Group

Discussions. The analysis in this chapter is divided into five sections- sections A, B, C, D and E.

The first section, i.e. Section (A) represents the demographic characteristics of the respondents while the remaining three sections (B, C and D) focus on the objectives of the study earlier stated in Chapter One (page 18-19). Section E encapsulates the discussion on data presented and analysed in the preceding sections (B,C and D).

4.1. SECTION A: Demographic Characteristics of the Respondents

Table 4. 1: Sex Distribution of respondents (farmers from Haying Gada & Hayin Mallam communities)

	Frequency	**Percentage**	**Cumulative Percentage**
Male	37	74%	74%
Female	13	26%	100%
Total	50	100%	

Source: Field Survey - NAERLS Adopted Villages, Kaduna State, 2014.

The above table represents the sex distribution of the farmers who participated in the FGDs. The essence of this table is to show that the study was cognizance of the gender characteristics of the farmers as participants in NAERLS agricultural research and interventions. From Table 1 above, 37 male farmers which represents 74% participated in the first two focus group discussions. The third focus group discussion was with the female farmers. Thirteen female farmers, which represent 26%, participated in the focus group discussion. The implication of this is that the farmers groups in the two communities under NAERLS adopted village initiative include both male and female farmers.

Again, the results indicated that men dominate agricultural activities in the communities under this study, even though; there are established divergent views about the participation of men and women in agricultural activities in Nigeria. This finding goes

further to confirm the report of the National Agricultural Performance Survey of 2014 which stated that farming in Nigeria is predominantly done by men, though women were said to have dominated the post-harvest activities for the same year (APS,2014). However, such gender disparity did not have any significant effects on NAERLS activities in the adopted villages beyond the fact that NAERLS research and communication activities in these communities have been gender inclusive. In total, 50 farmers participated in the FGD.

Table 4. 2: Distribution of respondents (NAERLS Staff)

	Number of Sampled Participants	**Number of Returned Copies**	**Percentage of Participants**	**Percentage of Returned Copies**
Male	66	62	83.7%	93.9%
Female	18	12	16.2%	66.6%
Total	84	74	88.0%	

Source: Field Survey, NAERLS Staff, Zaria. 2014.

Table 2 shows the sex distribution of members of staff of NAERLS that were sampled and made to participate in the questionnaire survey. The information herein is also to show that the study was inclusive. On Table 2; 66 male members of staff were sampled but only 62 of them which represents 93% filled the questionnaire. Eighteen female members of staff were sampled but only 12 of them which represents 66% filled and returned the questionnaire. In total, 84 staff members were sampled but only 74 staff members participated in the questionnaire survey. The implication is that both the male and the female (academic and technical) staff members carry out agricultural research and communication activities in NAERLS.

Table 4. 3: Distribution of respondents (NAERLS staff) based on area of specialization

Specialization	Number	Percentage %	Cumulative Percentage %
Agricultural Communication	18	24.3	24.3
Agricultural Extension	16	21.6	45.9
Agricultural Engineering	10	13.5	59.4
Livestock	9	12.2	71.6
Home Economics and Rural Development	6	8.2	79.8
Soil Science	4	5.4	85.2
Agricultural Economics	4	5.4	90.6
Computer Science	4	5.4	96
Agronomy	3	4.0	100
Total	**74**	**100**	

Source: Field Survey (Questionnaires) NAERLS Headquarters, Zaria. 2014.

The information on Table 3 is about the number of NAERLS staff that filled the questionnaire for the survey. The table also displays areas of specialization of the respondents. The respondents were sampled from the six departments of the Institute which are:

i. Agricultural Media Department
ii. Agricultural Extension and Economics Department
iii. Agricultural Engineering and Irrigation Department
iv. Crop and Forestry Department
v. Food Technology and Rural Home Economics Department
vi. Livestock and Fisheries Department.

From Table 3, 24.3% of the respondents are specialists in agricultural communication; this is the highest participants, this is followed by 21.6% extension specialists. Ten people who represent 13.5% are from agricultural engineering, 12.2% are livestock and fisheries specialists, 8.2% have home economics and rural development background (most of NAERLS research and communication activities that relate to women are taking care of by these specialists in collaboration with other specialists in NAERLS).

Meanwhile, 5.4% specialists from soil science, agricultural economics and computer science participated in the questionnaire survey respectively. Only three people i.e. 4.0% who are agronomists took part in this survey. The findings on this table show the crop of professionals in NAERLS, it also explains why the Institute is able to embark on series of agricultural development programmes. Furthermore, the table shows that all the categories of professionals who are directly connected with research and field works in the Institute are represented in this study.

Table 4. 4: Number of years put into the service of NAERLS by respondents (NAERLS Staff)

	1-4	**5-9**	**10-14**	**15-19**	**20-24**	**25-30**	**Total**
Years in NAERLS	16	33	NIL	9	8	8	74
Percentage%	21.6%	44.5%	NIL	12.3%	10.8%	10.8%	100%
Cumulative Percentage%	21.6	66.1	NIL	78.4	89.2	100	

Source: Field Survey, NAERLS Staff members, Zaria, 2014.

The information on the above table is on the number of years the respondents have put into the service of NAERLS. This information helped the study to know how long the respondents have worked with NAERLS. On Table 4, the highest number of respondents, that is 33 people which represents 44.59% have spent only between five to nine years in NAERLS. This figure is followed by 16 respondents representing 21.6% that have only spent between one to four years with NAERLS. The implication of this is that majority of the respondents still have many more years to put into service of the Institute all things being equal.

4.1.1 SECTION B: Knowledge of Photography and how it is used in NAERLS

Table 4. 5: Participants (farmers) knowledge and understanding of general photography

	Number of Participants	**Percentage of Knowledge about Photography**	**Percentage of Knowledge about Photo-Voice**
Male	37	100%	0%
Female	13	100%	0%
Total	50		

Source: Field Survey, NAERLS Adopted Villages, Kaduna State, 2014.

This particular table (Table 5) is to test the general knowledge of photography and how it is deployed for research and communication in NAERLS. It is important to state here that in this study, the farmers as well as NAERLS staff were about their knowledge of how photography is used by NAERLS and whether the Institute uses participatory photography. The responses from the farmers and the NAERLS staff are presented on separate tables.

From the Table 5 above, information about the knowledge of the farmers about hoe NAERLS uses photography for research and communication activities in their communities with particular references to the two interventions i.e. NAERLS-ICBA Irrigation and Water Management and the NAERLS-WAAPP projects. The NAERLS members of staff were also asked similar question. The responses are presented on Table 7. The significance of this was that the responses enabled the researcher compare the responses and arrived at a viable conclusion. Further on Table 5, all the participants have good understanding of general photography. They are aware of what photographic images are and what they can be used for socially and by research institute like NAERLS.

The participants agreed that photographs are tools of memory energizing. Photographic images can help individual and communities know about past experiences,

and therefore compare them with the present in order to project or predict the future. The farmers all admitted that photography can be used to teach the younger generation how to do traditional farming and then integrate the modern system tactically without jettisoning the indigenous knowledge in their effort to embrace new technologies. They disclosed that the photo camera as it is being used by NAERLS for agricultural research and communication in their communities has never been handled by them. They understand that the Institute uses the photo-shots taking from research activities to support its reports.

The farmers confirmed they have seen many of these pictures in the Institutes' Newsletter and other reports distributed to the adopted villages. The implication of this finding is that the farmers are aware of how photography is currently being used by NAERLS for research and communication activities especially in the two development projects going on in their communities.

Table 4. 6: Participants (farmers) knowledge of participatory photography

	Number of Participants	**Percentage of Knowledge about Photography**	**Percentage of Knowledge about Photo-Voice**
Male	37	100%	0%
Female	13	100%	0%
Total	50		

Source: Field Survey, NAERLS Adopted Villages, Kaduna State, 2014.

This particular table is different from Table 5 because it is structured to test the knowledge of participatory photography among the farmers rather than their general knowledge of general use of photography. On this table, the information on the knowledge of farmers about the existence and use of participatory photography by NAERLS is displayed. Going by the table presented above, all the farmers, that is, 100% said they do not know anything about participatory photography.

When asked what the farmers feel when researchers from NAERLS usually take their pictures, 11 male farmers said they are usually skeptical when they see camera pointed at them during any agricultural events because they are not sure how far the pictures will travel; the remaining 19 male farmers believed that the presence of photo cameras in their community excites them. But for safety reasons, they usually want to know the mission of the photographers if they are not from NAERLS: and where convincing reasons are given, they become confident to even pose for more shots. On the other hand, majority of the women i.e. 95% said they are anxious to pose for photograph shots especially during general festival and community events.

Their understanding is that the pictures tell them many things about themselves which people may not be able to explain to them in plain terms. About 5% of them have their reservation for photography especially when taken for research purposes; they did not give any comment. Meanwhile, both the male and female farmers admitted that women are usually not expected to be anxious or too comfortable taking photographs especially where the photographer is a stranger in the community. This they attributed to the tradition and culture of their community which places high premium on women privacy.

In this study, before the women group discussion, verbal consent was obtained from their husbands and the purpose of the study was explained to them two weeks away with a reminder two days to the discussion. Thereafter, the discussion with the women group took place in a compound in the presence of a male farmer from the community. This helped researcher to have a closer examination of issues of traditional and personal concern that can cause negative feelings among participants during group discussion:

thus, consideration for participants' privacy was uppermost in this study. Participation by the farmers in this study was voluntary and the respondents gave their consent for photographs to be taken as part of the data collection for the study.

Though the farmers confessed that that there were instances where they have actually pointed to things or events that could be captured by NAERLS researchers' lens, but they have not been trained to handle the photo camera for any agricultural activities. While asked if the farmers were satisfied about how the Institute has been using photography for research and communication activities in their communities, all the farmers admitted the current approach has accomplished some achievements in terms of development projects delivery but they opined that empowering them to use photography to communicate development issues personally would be a good idea.

The farmers' submission was accentuated by all the key informants from NAERLS who stated that the current use of photography for research and communication activities by NAERLS; though has brought some results in terms of farmers adoption of many innovations, but has not been participatory to empower the farmers beyond the level of research subjects. According to one of them - Tunji Arokoyo:

> In those days when we started as young extension officers we thought we were the experts, we knew all the problems of the farmers: and we told them the problems and how to solve them. But what happened? We fell flat on our faces because we were doing it wrong. We did not consider the farmer, his own situations, but today, there is a paradigm shift, we are talking of partnership. Everybody contributes to knowledge, and if we do not consider others and share knowledge, we will never make sustainable progress in agriculture (Interview with Arokoyo, NAERLS Headquarters, Zaria, 2014).

Table 4. 7: NAERLS staff members' responses to knowledge of general photography in NAERLS research activities

	Very High	High	Average	Low	Not at All
Number	17	25	28	2	2
Percentage	23%	33.8%	37.8%	2.7%	2.7%
Total%	100	100	100	100	100

Source: Field Survey, NAERLS Staff, Zaria. 2014.

The information on this table reflects the responses of NAERLS members of staff to the issue of general knowledge of photography and how it is used for their research and communication activities. On Table 7, twenty-eight people, which is a 37.8% of the respondents in this category indicated they have 'average' knowledge about photography and how it is used in NAERLS, while 33.8% said they have 'high' knowledge and 23% concluded they have a very high knowledge of general photography. All the respondents stated that photography is used by NAERLS to capture activities in research and communication. Such photographic images are used for illustrations, samples or as instructional materials.

In many instances, they are used as evidence to support reports of development programmes implementation. In order to establish the importance of photography in research and communication activities in NAERLS, the respondents were asked to indicate how often the use photography in their research and communication assignments. The results are presented below.

Table 4. 8: NAERLS staff members' responses on the frequency of use of photography in research and communication work

	Very Often	Often	Not Often	Not at All	Don't Know
Number	18	36	16	2	2
Percentage	24.3%	48.7%	21.6%	2.70%	2.70%
Total%	100	100	100	100	100

Source: Field Survey, NAERLS Staff, Zaria. 2014.

The information on this particular table (Table 8) shows how frequently NAERLS members of staff use photography for their research and communication activities. From Table 8, thirty-six (36) respondents i.e. 48.7% actually indicated they 'often' use photography in their research work while 18 people, that is, 13.3% said they use photographs 'very often'. This implies that NAERLS staff members usually use photography in their research and communication activities even though 21.6% of the respondents indicated they do not use photography 'often' in their research work. Therefore, it could be deduced that the use of photography in in NAERLS is fundamental to the discharge of the Institute's mandates. This point was also made by a key informant, Ismaila Ilu who stated that:

> Photography is one of the important tools of communication in extension, and in NAERLS; a field officer must know how to use the photo camera and how to produce the pictures to support his findings. Photography is one of the first skills an extension officer is equipped with as soon as he or she joins NAERLS (Interview with Ilu, NAERLS, Zaria, 2014).

Thus, NAERLS use of photography for research and communication is currently not participatory. The implication is that the current use of photography in agricultural research and communication by NAERLS is very much controlled by the extension agents who may only be co-opting the farmers to partake in the pictures to support research reports.

The result also shows that pictures taken in this kind of arrangements may be telling the stories of agricultural development programmes from the experts' views. This was the view of Murtala Galadima:

> My understanding of photography as is being used in NAERLS is that we use it to document information i.e. activities we carried out with farmers for others to see. Yes. We take photographs of activities and events of

> whatever we do to support our reports (Interview with Galadima, NAERLS Headquarters, Zaria, 2014).

The above statement goes further to confirm that photography is still being used by NAERLS in the top-down approach of research and communication basically because of the operational system of the Institute. This current system lacks critical knowledge sharing in for agricultural research and communication activities to be sustainable. This point was made by Ismaila Ilu the Executive Director of the Institute in an interview. Ilu observed that:

> In NAERLS, most of our interventions are problem solving. The top-down approach where the research institute thinks this is the problems of the farmers and then design solutions and start co-opting the farmers to adopt them. But in the participatory development or research, the people will identify their problems…. (Interview with Ilu, NAERLS, Zaria, 2014).

The respondents were further asked to indicate their knowledge of participatory photography for research and communication work. This was to help the study capture the knowledge gap of the methodology among the staff members. The findings are presented on Table 9 below.

Table 4. 9: NAERLS staff members' responses to knowledge of participatory photography

	Very High	**Not at All**	**Low**	**High**	**Average**
Number	10	13	15	16	20
Percentage	13.5%	17.6%	20.3%	21.6%	27.0%
Total%	100	100	100	100	100

Source: Field Survey, NAERLS, Zaria. 2014.

As earlier noted, the NAERLS staff were also asked to indicate their knowledge of participatory photography. Their responses are displayed on Table 9. On Table 9, twenty

people that is, 27.0% of the respondents said they have ‘average’ knowledge of what participatory photography is.

This is followed by 21.6% who indicated they have ‘high’ level of understanding of the methodology. Meanwhile, 20.3% said they have ‘low’ understanding of participatory photography: even though 13.5% mentioned they have a ‘very high’ knowledge. Only 17.6% agreed they do not know anything about participatory photography and have not used it before. A first look at these findings would indicate that majority of the respondents i.e. (21.6% of ‘high’ knowledge plus 13.5% of ‘very high’ knowledge) understand what participatory photography is. Meanwhile, the respondents were equally asked to give at least two examples of NAERLS projects where participatory photography has been deployed or used by them.

Fourty-nine of the respondents which is 66.2% (approximation) could not give any example of development projects where NAERLS has used participatory photography. Furthermore, 24 people, i.e. 56.7% (approximation) gave examples of projects in which photographic images have only been used for illustrations or instructional purposes to back-up scientific findings and field reports by NAERLS. These examples include the NAERLS Annual National Agricultural Performance Survey, the NAERLS- Adeni Project, the NAERLS-ICBA Project and the NAERLS USAID III Participatory Irrigation Project. In these projects, NAERLS did not use the participatory photography.

This was confirmed by the researcher who did a content analysis of the reports of the projects especially the NAERLS-WAAPP and NAERLS- ICBA projects which are implemented in the adopted villages in this study. In these two projects, photography has majorly been used to back-up situation and programme implementation reports. Again,

most of the key informants confirmed that they participated in most of the projects cited by the staff member but there was no point in time when participatory photography was deployed. The implication of this is that the responses by the staff members on the knowledge of participatory photography were based on assumptions rather than actual knowledge and the use of it.

From the key informant interviews, it was discovered that the respondents have good knowledge of general photography as well as how it is being used by NAERLS for research and communication but they have not as a 'participatory' methodology; even though, some of them were aware of other participatory research methods and instruments. This point was further clarified by Sadiq Abubakar (a former director of the Institute) in an interview:

> Actually, I have not experienced participatory photography as a methodology. I have read about it, but honestly, not in real term of using it. Because it is an emerging technology or philosophy, what I know closets to it is audio-tele-voicing where the radio and television stations use the 'phone-in' strategy to involve the audience, especially the farmers in critical discussions. Photo-voice, I think will be a new thing in extension in Nigeria. Using participatory mechanism to improve rural farmers' participation in agricultural development activities is an obvious niche. We saw it coming a long time ago. (Interview with Abubakar, NAERLS, Zaria, 2014).

Knowledge gap is a dysfunctional development indicator for any organization. Assumptions, no matter how little they are, should never be taken seriously as bases for critical knowledge, thus, lack of knowledge about emerging strategies or methods of carry out Institutional duties as discovered in this study is regarded as deficiency of knowledge which cannot sustain any development initiative. It was discovered in this study that NAERLS was yet to maximize the potential of photography through the

participatory photography methodology partly due to the lack of knowledge of what the methodology is and how it could be used in agricultural research and communication.

This revelation is a staunch reference to the need for NAERLS to develop look into this direction. The danger of not doing this by NAERLS was pointed out by Sadiq Abubakar.

> The concept of exploring photography has been in NAERLS but it has not been targeted as a virile tool to accomplish real participation and sustainability, but I am sure with a little orientation, it will do especially in the conventional benchmarking that hardly have pictures. There are many rich baseline surveys but with lack of real image. If photography can enrich and fill that strategic gap, it will really enhance the sustainability of programmes by capturing the interest of the communities. Where these are lacking, the chances of sustainable development projects is bleak (Interview with Abubakar, NAERLS, Zaria, 2014).

Overall, as discovered in this study, the use of photography by NAERLS in a non-participatory way has not given the benefiting communities the opportunity to document agricultural development challenges from their own perspective through photographic images thereby enriching the information available to NAERLS, the Federal Ministry of Agriculture and Rural Development, policy makers, international development agencies and private stakeholders in order to improve the development of indigenously sustainable programmes.

4.1.2 SECTION C: Potentials of NAERLS Using Participatory Photography

The potentials of participatory photography to improve agricultural research and communication are enormous. However, for an Institution like NAERLS to maximize such potentials to improve its research and communication mandates it should possess some minimum capacity to so. These potentials include:

i. Human resources

ii. Technical expertise

iii. Functional Institutional arrangement

iv. Budget

v. Community Cooperation

Accordingly, the farmers were asked whether NAERLS has the potential to deploy participatory photography for development programmes in their communities based on their work experience with the Institute. The farmers opined that NAERLS can actually deploy the methodology to facilitate development activities in the communities if the government is convinced that it will improve farmers' participation and increase productivity.

They concluded that as a Federal Government agency and with the legacy of NAERLS in the areas of agricultural extension in Nigeria coupled with the caliber of professionals that have worked with the communities; the Institute is capable to deploy any new technology or methodology that will help it improve its mandates delivery. They belied NAERLS has the capacity to train them to use any new technology. Accordingly, the head of the farmers group from Hayin Gada, Nura Mohammed said:

> You see, we farmers have this believe that experts usually do not take our opinions too serious, but with NAERLS, we have always cooperate with them because, we they are government agent. We also know that if there is anything that will make us participate more in agricultural research by capturing our mind, this Institute is capable of doing it for us. They have come to us with many many technologies before (Mohammed, Focus Group Discussion, NAERLS Adopted Village, Kaduna State, 2014).

The farmers further disclosed that apart from the fact that they believed that NAERLS has the capacity to use photography better than how it is using it now; they are willing to be trained in order to improve the current situation because they understand how exciting

and powerful photography could be in terms of documenting their personal experiences on agricultural development challenges in their communities.

The farmers' position was echoed by Sadiq Abubakar in a key informant interview when he stated that:

> Farmers understand the power of imagery and photographs. They have a telegraphic mind of their community. How do NAERLS use the photo camera with the farmers should be the target. The way to do it is to begin to promote photography in a participatory manner. We start from the known to the unknown. Photo-voice is unknown to them, so they can own and develop their capacity with the photo camera or telephone camera to make stories on how water floods their farms in the absence of the extension agents. Farmers will be happy to be trained on how to use the photo camera with the philosophy of photo-voice to discuss their challenges and find common solutions (Interview with Abubakar, NAERLS, Zaria, 2014).

Even though, it could be concluded that NAERLS has the human resources to deploy a methodology like the participatory photography; it would still need a strong technical expertise to do it effectively. Furthermore, on same issue (NAERLS potentials to deploy participatory photography) results from the questionnaire administered in this study are presented below.

Table 4. 10: NAERLS staff members' responses whether NAERLS has the potentials to use participatory photography

	Very High	**High**	**Average**	**Low**	**Not at All**
Number	22	29	11	5	7
Percentage	29.7%	39.3%	14.9%	6.7%	9.4%
Total%	100	100	100	100	100

Source: Field Survey, NAERLS Staff, Zaria. 2014.

From Table 10 above, 22 respondents, which translates to 29.7% said NAERLS has 'very high' potential to use participatory photography; while 29 participants i.e. 39.3% stated that the Institute has 'high' potential to use same methodology. Eleven people i.e. 14.9%

said NAERLS has 'average' potential to utilize participatory photography and five respondent -6.7% believed the Institute has low potential to use this methodology.

Seven people did not give any response to this question. The implication of this is that there were divergent views among the respondents about the potentials of NAERLS to deploy participatory photography. Because the effective use of photo-camera is very critical in participatory photography project, the respondents were therefore asked to indicate their level of skill in the use of photo-camera for research and communication duties.

Table 4. 11: NAERLS staff responses on the level of skill in using photo camera for research work

	Very High	**High**	**Average**	**Low**	**Not at All**
Number	4	14	38	11	7
Percentage	5.4%	18.9%	51.35%	14.86%	9.45%
Total%	100	100	100	100	100

Source: Field Survey, NAERLS Staff, Zaria, 2014.

On Table 11, only 4 respondents which represent 5.45% indicated they have 'very high' skill using the photo-camera. Fourteen staff members, which is 18.9%, have 'high' skill level. Thirty-eight people (51.35%) has 'average' skill, 11 people (14.86%) has 'low' skill while only 7 participants in this category has no skill at all using the photo –camera for research and communication activities in NAERLS.

The implication is that majority of the respondents in this category have 'average' skill in the use of the photo-camera for research and communication work in NAERLS. This is a technical gap that also speaks volume of the degree of expertise in the use of photography in NAERLS. Apart from the discoveries that:

i. NAERLS has capable human resource in terms of number of specialists,

ii. Majority of the respondents do not have 'high' level of skill in the use of photo-camera; it was found out that there were no enough photo-cameras for use by specialists. The respondents were further asked to prioritize the challenges (if any) to the use of participatory photography by NAERLS. The results are tabulated below.

Table 4. 12: Respondents List of Impediments to the use of participatory photography by NAERLS

	No List	**Listed Three**	**Listed Two**
Number	34	25	15
Percentage	45.9%	33.8%	20.3%
Order of Preference	Nil	i. Lack of Skill ii. Insufficient Photo Camera iii. Low Knowledge of Participatory Photography	i. Lack of Skill ii. Insufficient Photo Camera
Total%	**100**	**100**	**100**

Source: Field Survey, NAERLS Staff, Zaria. 2014.

This table shows what the respondents indicated as impediments to the use of participatory photography by NAERLS in order of preference. On Table 12 above, 34 respondents did not list any challenges while twenty-five respondents i.e. 33.8% listed three challenges with 'lack of skill' in the use of photo-camera as number one followed by 'insufficient photo-cameras' coming second, while 'low knowledge of participatory photography' in the third position.

Fifteen people i.e. 20.3% who listed just two challenges placed 'lack of skill' to use photo- camera as number one while 'insufficient photo-camera' was placed second. Thirty-four participants did not list any challenges. The lack of skill to use photo camera among NAERLS staff was further confirmed by one of the key informant Murtala

Galadima who said, “For now in NAERLS, the skill to use photo-camera professionally is not wide. Only few have the skill,” (Galadima, Interview, NAERLS, Zaria, 2014).

The implication is that 40 respondents (25 plus15) placed ‘lack of skill’ as number one challenge to the use of participatory photography by NAERLS. Meanwhile, the six key informants believed that lack of the knowledge of participatory photography is the foremost challenge to the use by NAERLS. They remarked that the Institute has high potential to utilize participatory photography by up-scaling its operational system. Accordingly, Zubair Omenesa said:

> You see, things keep on changing. As at the time we started, many years back, when photography was used to support extension, it moved to slide format. Now that you are talking about participatory photography, we have a gap there in NAERLS, it is an emerging methodology which I assume is key in the facilitation of extension delivery for uptake of research technology by farmers. It is a graphic oriented approach to development issues. I have not used it before and do not know much about it, but I think from the name, it could be advocating for farmers to be active in development programmes. In this way, we will be empowering them to discuss development matters from their own experience. NAERLS has not been up to that level but we can upscale our operation to accommodate it (Interview with Omenesa-NAERLS, Zaria, 2014).

Community cooperation is very critical to the success of participatory photography project. In this study, the farmers were asked if they would be willing to take part in participatory photography project by NAERLS. All the farmers said they were willing to be part of participatory photography project by NAERLS. According to the farmers group from Hayin Mallam, Issa Mohammed:

> …photography is so powerful that you can use it to tell generations unborn about how things were done, how they changed and what the effects were, and then teach them what to do in case of future occurrence for instance farm infection or farm land disputes. We are always available to work with NAERLS and for this new thing, we are willing to be part of

it (Focus Group Discussion, NAERLS Adopted Village, Giwa LGA, Kaduna State, 2014).

Overall, from the findings in this study so far, NAERLS does not have the full potentials to maximize participatory photography. There are gaps in the capacity of the Institute to effectively and appropriately utilize the methodology for its research and communication activities.

4.1.3 SECTION D: How NAERLS Can Possibly Use participatory Photography to Enhance Sustainable Agricultural Research, Communication and Productivity

Even though the respondents agreed that the participatory photography has great potentials to improve NAERLS research and communication work, it could not be instantly concluded that the Institute must adopt it. The study, however, discovered that there is high tendency that NAERLS would institutionalize participatory photography for its research and communication especially in the adopted villages in this study.

Table 4. 13: NAERLS staff members' responses on whether NAERLS should institutionalize participatory photography

	Yes	**Don't Know**	**No**
Number	68	5	1
Percentage	91.9%	6.8%	1.3%
Total%	100	100	100

Source: Field Survey, NAERLS staff, Zaria. 2014.

Virtually all the respondents agreed that NAERLS should institutionalize the use of participatory photography. Sixty-eight people which is 91.9% of the respondents said they would support the institutionalization of the methodology by NAERLS. Five respondent- 6.8% did not give any answer, and one person did not support the institutionalization.

On the other hand, the farmers unanimously wanted NAERLS to institutionalize participatory photography. They believed it would give them more sense of belonging

and improve their participation in the research and communication process while serving as joint owners of the information generated for development purpose.

Meanwhile, one of the key informants, Murtala Galadima who is also the Head of the Adopted Unit said:

> Naturally, I will support the use of participatory photography in NAERLS. Let me give you an example, in my unit, almost every facilitator has a camera and are trained rudimentarily to use it to capture activities for documentation (Interview with Galadima, NAERLS, Zaria, 2014).

However, it was observed during the group discussions with the farmers and at the key informant interviews that the institutionalization of participatory photography by NAERLS may lead to the following situations:

i. Farmers would become more empowered to collect development information using the photography. This means they can influence either positively or negatively the agricultural development and research reports/information by NAERLS i.e. they can empirically challenge the status-quo of NAERLS documentation where necessary with photographic images.

ii. NAERLS would no longer enjoy fully the autonomous status (top down research and communication approach) of researching and developing interventions to agricultural development challenges in most cases.

iii. NAERLS would need more funds to train and procure equipment to deploy this methodology effectively and efficiently.

In their views, the farmers argued that those indicators would not create any operational problem because they believed that their relationship with the Institute is not for competition.

Further, there would also be the need for them to harmonize their information priority with that of the Institute as a way of balancing development issues in their communities. In their own submission, all the key informants opined that the identified adjustments are necessary for NAERLS to be able optimize participatory photography as a change agent. In the view of Zubair Omenesa: "Photography is key to NAERLS operations. And once it has developed to this level of participatory philosophy, the institute should key into it in order to effectively perform its mandates beyond what it is now," (Interview with Omenesa, NAERLS, Zaria, 2014). Consequently, Tunji Arokoyo added that:

> When the farmers can take pictures and use them to tell their stories, it will challenge NAERLS to go a step ahead. The Institute should go ahead and train the farmers in participatory photography. All the adopted villages must have knowledge of this. We cannot shy away from it. Capacity building is an immense investment in extension. If we are going to be putting the Naira and Kobo on table all the time for farmers to develop, we will not make progress. The training should empower the farmers and help them contribute to our library of knowledge (Interview with Arokoyo, NAERLS Headquarters, Zaria, 2014).

While stating that the farmers counter views or perceptions about development issues has never been a challenge to NAERLS, Ismaila Ilu - another key informant cited instances where in the past NAERLS has been challenged by the public on the use of photography to support survey reports. He said:

> In fact in some of our reports the public have come up to tell us that some of our pictures were not in tandem with the prose. And we took those observations as critical corrections. It depends on how we were approach, if somebody corrects you, definitely the person wants you to be better of what you do. NAERLS' door is open to such corrections because our work is a learning process. We as an agent correct other institutions, why won't we accept similar corrections as long as they are constructive? (Ilu, Interview, NAERLS, Zaria, 2014).

Though it has been established in this study that NAERLS has some potentials to utilize participatory photography, it is pertinent to also finding out how the methodology could be used if institutionalized. While all the farmers wanted NAERLS to deploy participatory photography always, the staff members have divergent view as to how the Institute should use participatory photography.

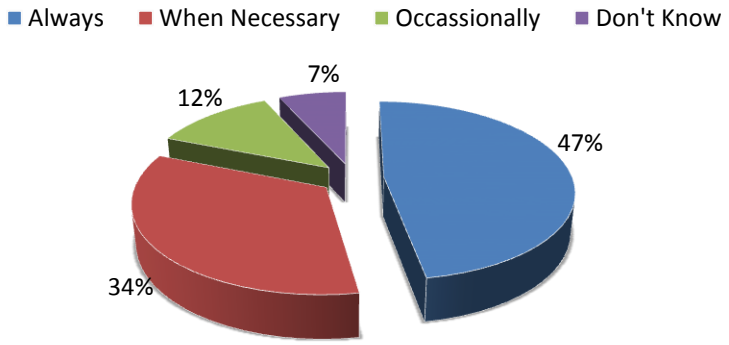


Figure 4. 1: Pie Chart of NAERLS staff members' responses on when/how NAERLS should use participatory photography. Source: Field Survey, NAERLS staff, Zaria, 2014).

From Figure 1 above, 47.4% of the respondents suggested that NAERLS should use participatory photography 'always' while 34% indicated that participatory photography should be used 'when necessary'. Meanwhile, 12% said NAERLS should use it 'occasionally' and 7% did not indicate when the institute should use the methodology. The implication of these findings is that if participatory photography is institutionalized, NAERLS may use it 'always' which is the highest percentage as indicated by the respondents in this category. During the key informant interviews, some of the respondents believed that NAERLS can use participatory photography in all the stages of its research and communication activities.

Thus, Sadiq Abubakar stated that:

> The power of photography to sustainability can be demonstrated from the perspective of ability of any organization or project to establish a very visible and rich benchmark verifiable evidence based documentation. And as the project continues, you can track, monitor and evaluate using heavy photograph support. This is to allow for the establishment of a trend in order to entrench ownership by the beneficiaries or communities (Interview with Abubakar, NAERLS, Zaria, 2014).

His view was also shared by Tunji Aroko who said:

> Yes. Photographs should be one of the operational instruments of NAERLS in a participatory manner, but I am not sure it is. We must embrace this new research methodology in all aspect so that we can actively be relevant in agricultural research and development in Nigeria (Interview with Arokoyo, NAERLS, Zaria, 2014).

4.2 SECTION E: Discussion and Critique of Findings

Based on the general findings of this study, NAERLS has not been using participatory photography. This is reflected in the high number of participants (the farmers, selected NAERLS staff members and the key informant). The farmers indicated that the Institute has never allowed them to handle the camera or use photography to tell agricultural development stories from their own perspectives. This means photography has been used by NAERLS to capture development challenges and development programmes progress in those communities surveyed for the purpose of advancing the Institute's mandates.

There is no doubt that the use of photography in the top-down manner by NAERLS has its relative strengths especially where it has produced rich records of project implementation and the adoption level data on the innovations and technologies being disseminated in the adopted villages of Hayin Gada and Hayin Mallam under the NAERLS-WAAPP Programme and the NAERLS-ICBA Irrigation Project since 2012.

According to the reports from these two development projects (which were critically analyzed by the researcher) more than four thousand pictures have been taken while

carrying out survey and implementing the two development projects in these communities by NAERLS field officers and scientists in the last four years. These pictures captured scientific findings, survey procedures, meetings with farmers, farm preparation, planting, weeding, spraying and harvesting, plus the evaluation visits of the donor partners to the pilot farms in the villages.

These findings were confirmed by Murtala Galadima, Head, Adopted Village Unit, NAERLS. In an interview, Galadima said:

> Yes. I am aware of the ICBA and WAAP programmes in our adopted villages. In fact these two programmes use photographs heavily to document their activities though not in the participatory way. We take the shots and tag them in our reports to our partners to show the progression of the development projects. We have not actually trained the farmers to use photographs to tell their development stories. But our facilitators are always at hand to capture some moments on the farms in the presence of the farmers (Interview with Galadima, NAERLS, Zaria, 2014).

This shows that photography has been used for report support, illustration and instructional materials by NAERLS. The fact that the current use of photography by NAERLS has produced some strength does not mean its potentials have been fully maximized. This study discovered that the Institute management is aware of such gap. In an interview with the Executive Director, Ismaila Ilu it was revealed that:

> More than 50 years, NAERLS has been using photography. Before, it was very difficult because you may go round the country for a whole year looking for important scenes to capture for a particular training. An extension person in NAERLS goes out with at least one camera and must come back with something new. The level of development projects has been high using photography but we must engage the new paradigm in order to meet up the up-coming challenges in agricultural extension (Interview with Ilu, NAERLS Headquarters, Zaria, 2014).

Therefore, it is pertinent for NAERLS to look further into how it could use photography in a more participatory way to capture farmers' perspectives for consequent agricultural

development programmes with greater indigenous influence. Thus, it could be stated that this discovery is a development problem- specifically an organizational development issue. The potentials of photography to increase indigenous knowledge and sustainable agricultural development were captured by the key informants in this study. They opined that if NAERLS could shift away from the present non-participatory use of photography it would improve its agricultural research and communication activities. Once again, on this issue, Ismaila Ilu said:

> Yes. Development programmes will be improved and sustained by making the research process more enjoyable and attractive to organizations to pay for some of these reports generated just to recover the cost of production. This will attract development agents to communities where the reports are derived for better collaboration and partnership. Thus, the farmers will also own part of such arrangement. We must teach the farmers how to use the photograph to tell their stories deliberately and intelligently. Yes. It will give them the power to talk better than the specialist would have done basically because the farmers are talking from lived experience. The farmers know what they want (Interview with Ilu, NAERLS Headquarters, Zaria, 2014).

During the Focus Group Discussions, the farmers pointed out that involving the farmers in the use of photography to capture agricultural development challenges from farmers' perspectives would improve agricultural information available to them as well as develop a sense of ownership of many of the findings. Therefore, it could be concluded that the farmers believed that participatory photography can bring about sustainable development and change through the documentation of indigenous knowledge by the local people. If this is done it could provide the leeway for NAERLS to use participatory photography to bridge the gap between the farmers and the NAERLS in the search for sustainable agricultural development initiatives.

The finding is in conformity with the three main objectives of Photo-voice which according to Wang and Burris (1997) enable community members to:

i. Identify and record their community strengths and struggles,

ii. Explain their experiences through critical reflection and group dialogue and

iii. Inform decision-makers and influence development policy entrenchment.

Again, it was discovered that majority of the NAERLS staff who were sampled in this study do not have substantial knowledge of the participatory photography; though they have substantial knowledge of general photography. However, significant number of the key informants (4 out of 6) said they have heard about participatory photography but have not practically used it in any of their research activities in NAERLS. The significance of this is that there is knowledge gap about participatory photography among NAERLS staff members. This may constitute why the Institute has not used participatory photography before. Thus, it is pertinent to build the workers capacity in that direction. This was observed by Sadiq Abubakar in an interview when he said:

> NAERLS should improve its capacity to go to the level of using photo-voice in its operations. Photography has a critical place in the operation of the institute. One of the most powerful tools would be photo-voice if people's attitude must change in a sustainable manner. We have been using photographs for the last 40 years in extension, we have shown the capacity to migrate to about five stages through the old gadgets, and now we have the Internet and modern tools like the GPS to maintain interface with the farmers (Interview with Abubakar, NAERLS, Zaria, 2014).

Apart from the fact NAERLS' staff would need training on participatory photography; they would also need to upscale their present skill on the use of photo camera because

51.35% of the respondents have 'average' skill using the photo camera for research and communication work.

The need to upscale NAERLS' staff in this area was pointed out by Tunji Arokoyo in an interview. He opined that:

> For us in NAERLS, Photo-voice is a development issue. There must be some meaning in the pictures we take. NAERLS has not done well in this aspect of Participatory photography because we have not made it part of our requisites for training for our extension specialists. Many of them know how to take pictures especially when on the field but do these pictures tell development stories? And what is the involvement of the people they met on the field; they are supposed to be the central piece of our activities (Interview with Arokoyo, NAERLS, Zaria, 2014).

This study also found out that NAERLS does not have an institutional arrangement to use photography in a participatory manner. The implication of this is the absence of such fundamental platform may not sustain the use of the methodology. In an interview with a former director of the Institute, Professor Sadiq Abubakar, it was revealed lack of institutionalization of a communication strategy by NAERLS in the past was a big mistake that should happen in in the use of participatory photography. According to him:

> But it (NAERLS) needs to re-align its policies and some of its operations to accommodate photo-voice. Twenty years ago, we have a form of advisory visit where we visit large farms when it was obvious to intervene. Then we do have a very rich photograph support for our visit. That system has helped NAERLS to show its relevance by way of not only addressing the problem of ordinary farmers but also the large scale and private farms. Photography then played a very critical and vital role. But unfortunately, along the line, may be because of lack of institutionalization of the farm advisory visit, it fizzled out (Interview with Abubakar, NAERLS, Zaria, 2014).

In order to maximize the potentials of the participatory photography, NAERLS would need to institutionalize it. From the survey findings, the possibility of the institute adopting participatory photography was high considering the level of responses by all the

sampled staff members. Almost all the participants sampled, 99.5% indicated their support for the institutionalization of the methodology.

Even with the potentials of participatory photography to improve NAERLS research and communication work including empowering the farmers; there are possibilities its use may open the Institute to public criticisms especially when farmers have photographic evidence based report to counter development information by NAERLS. This is because the farmers will now have the knowledge and skill to use photography to document agricultural development issues from their own perspective which may be different from that of NAELS'. The implication of this is that NAERLS may likely not incorporate participatory photography into its operation. Such fear was dispelled by Ismaila Ilu in an interview. He said:

> In fact in many of our reports the public have come up to tell us that some of our pictures were not in tandem with the prose. And we took those observations as critical corrections. It depends on how we were approach, if somebody corrects you, definitely the person wants you to be better of what you do. NAERLS' door is open to such corrections because our work is a learning process. We as an agent correct other institutions why won't we accept similar corrections as long as they are constructive? (Interview with Ilu, NAERLS, Zaria, 2014).

No matter how technically robust an organization or system is, it requires the voluntary cooperation and participation of the communities in order to use community based communication system like participatory photography successfully: this basically because of the ethical issues surrounding participatory photography. In this study, the farmers were willing to participate in participatory photography project if deployed by NAERLS because of the longtime relationship they have with the Institute.

More so, the researcher actually obtained the participants consent (verbal) to use their photographs and names for the purpose of this research. This is an ethical principle

in participatory photography which protects the participants and other individuals or groups from the unethical use of their photographs (Palibroda, 2009). Ethical issues as observed in this study are common not only to participatory photography; every research has its own. The implication here is that NAERLS would need to keep ethical issue at fore while embarking on the use of this methodology. One of the reasons for this is that critical understanding of the intricacies between 'community participation' and 'community consent' is crucial to the effective deployment of development intervention.

Consent may be obtained and even obtained through appropriate institutional arrangement, but in the course of project implementation, because of many social variables related with photography; participants may reduce or withdraw participation especially during the group interrogation of photo-shots. Community participation is key to the success of participatory photography in all the stages of development programmes. The NAERLS may not be able to deploy the methodology where the communities are hostile or are not willing to work with it. It was discovered in this study that the farmers in the two communities surveyed were willing to work with NAERLS if it decides to adopt participatory photography for development work in their villages.

This was reflected in the level of participation of the farmers in the focus group discussions in this study. The quality of participation was high partly due to the curiosity of the farmers about the potentials of the methodology to help their voice across to policy makers. The farmers were eager to learn and use participatory photography (to handle the photo camera) for agricultural development programmes in their communities. Such level of curiosity and participation of the farmers was mentioned by Sadiq Abubakar as the

propelling innate forces for the farmers to key into participatory photography project if adopted by NAERLS.

Abubakar said:

> Farmers understand the power of photographs; it is just how to have a joint ownership of the use that NAERLS must be ready for…. Farmers understand the power of imagery and photographs…. They have a telegraphic mind of their community. How do NAERLS use the photo camera with the farmers should be the target. Photo-voice is unknown to them, so they can own and develop their capacity with the photo camera or telephone camera to make stories on how water floods their farms in the absence of the extension agents. Farmers will be happy to be trained on how to use the photo camera with the philosophy of photo-voice to discuss their challenges and find common solutions (Interview with Abubakar, NAERLS, Zaria, 2014).

In this study, it was equally discovered from the group discussions that women farmers' participation in participatory photography project may not be seriously inhibited by cultural or traditional obligations in the communities where appropriate consent is obtained and genuine reasons are given by NAERLS. This is a critical point in participatory photography; it rests on the respect for individual and community privacy, tradition, customs and religion. Meanwhile, it is important to train the farmers in the skill of participatory photography.

This finding is in line with the submission of Catalani and Minkler (2010) who noted in a study that the success of some development programmes using participatory photography were almost marred because indigenous women were not notably and appropriately engaged in the initial conceptualization, development, and administration of the project. Even though participatory photography is most often used to examine serious development issues, the method incorporates fun, creativity and collaboration, in a way that encourages participation from community members [men, women and children] (Blackman and Fairey, 2007).

Participatory photography emphasizes the importance for community members to have a say and to take action to inform decision-makers about the reality of their lives as depicted in the pictures below.



Women group discussion in Hayin Gada in a compound with a male farmer (community member) as a facilitator. **(A.)**



This female participant was very curious about the use of the photo camera. After a five minutes rudimentary lecture; she was excited about using the it to take shots. **(B.)**

Figure 4. 2 (A and B): Women Focus Group Discussion in Hayin Gada. Source: Field Survey, Focus Group Discussion, Hayin Mallam, Giwa LGA, Kaduna State, 2014.

Furthermore, and likely reflecting the broader Nigerian socio-political context in which this study took place, there is yet to be a special document on statutory obligation in the agricultural sector empowering the farmers to critically move their demand for the institutionalization of participatory photography (except in the 1999 Federal Republic of Nigeria's Constitution as a fundamental human rights under Section IV) which has also influenced the inauguration of the Freedom of Information Act in 2011. Meanwhile, because of the long bureaucratic arrangements for the invocation of these documents to influence policy decision in Nigeria the power of the farmers may be tapped from their participation in development research and communication using participatory photography.

Thus, their participation and responses in a survey like this is a powerful contribution that can influence how NAERLS goes about deploying participatory photography for its

development work. The farmers' responses in this survey would be accepted as their contribution to the possibility of NAERLS institutionalizing participatory photography. Successful and effective participatory photography projects that engaged local participants tended to be born from ongoing partnerships with communities with emphasis on training and community capacity building. For example, Lykes et. al., (2003) had been working with rural Guatemalan women for many years before they partnered to initiate a participatory photography project focusing on truth and reconciliation.

The familiarity of the farmers with NAERLS activities could have accounted for the high level of knowledge sharing by the farmers during the group discussions. This knowledge sharing attribute is called 'sharing of power' with rural people. It influences the success or failure of participatory photography project. According to Viswanathan et. al., (2004), "'sharing power' in participatory photography project is not just sharing the tasks of implementation and ownership but also developing a shared basis of knowledge and expertise by the facilitators and the communities". To this end, community participants (farmers) are appropriating the skills and techniques of social scientific research in participatory photography to speak out about past disappointments or achievements in order to construct new, or better options toward a better future.

The participatory photography process is often valued for its ability to uncover rich descriptive information. As a methodology, it is almost exclusively used to answer descriptive research questions. In this study, the farmers and key informants were able to describe their experiences and expectation in a more relaxed atmosphere.

Researchers, community groups and participatory photography facilitators have used the method in many different settings and with diverse populations. Some of the participatory photography projects that have been carried out include research on the following topics:

i. Rural Chinese women

ii. Social and health issues of women

iii. Poverty and

iv. Indigenous research and knowledge. (Castleden *et al.,* 2008).

The stories and experiences of local farmers are often silenced and ignored by researchers. As a result, the social, political and economic systems set up to serve the population as a whole do not usually represent, nor serve, the farmers very well. The above-noted list of issues explored through participatory photography showed both the flexibility in the approach and the usefulness of it when working in rural agricultural setting with small farmers and indigenous groups.

Such flexibility helped the researcher in this study to learn more about the power of image and how the farmers' daily lives looked like when photo-camera is seen in their communities. According to the head of the farmers group in Hayin Mallam, Issa Mohammed, "photography is so powerful that you can use it to tell generations unborn about how things were done, how they changed and what were the effects, and then teach them what to do in case of future occurrence on farm infection or farm land disputes", (Group discussion, Hayin Mallam, Giwa LGA, Kaduna State, 2014).

The power of such descriptive information has also been appraised by Booth and Booth (2003) who documented the collective and individual experience of mothers with

learning disabilities in Sheffield, England. Participatory photography has been widely adapted to fit the particular needs of research and documentation projects. During the survey, the farmers were highly elated about the potentials of participatory photography, including the empowerment of the people and its adaptability to researching and communicating agricultural developments which they said would improve the documentation of indigenous agricultural development practices.

This is because most typically in participatory photography, the main source of data used to answer research questions for development are not just the photographs themselves but rather transcripts from the interrogation of photographic images in group discussions. On the other hand, in this study, the farmers in Hayin Gada and Haying Mallam were allowed twenty minutes to critically dialogue about some of the shots of themselves on the farm. Their reactions and comments showed they were excited in front of the photo camera and anxious to be trained to use the photo camera with the hope that the recommendations from this study will be implemented by NAERLS.

For Wang and Burris (1994), this choice of allowing the participants to interrogate the pictures is rooted in feminist theory, critical pedagogy, and action research. The critical pedagogy is firmly upheld in this study as the basis for the advocacy for shift from the top-down use of photography by NAERLS to a participatory one. As explained further by Wang and Pies (2004:100-101) in their study of family, maternal, and child health in California:

> Photo-voice (PV) is not intended to be a methodology in which an entire body of visual data is exhaustively analyzed in the social scientific sense. . . . As a participatory methodology, photo-voice requires a new framework and paradigm in which participants drive the analysis—from the selection of their own photographs that they feel are most important, or simply like best, to the "decoding" or descriptive interpretation of the images.

However, participatory photography's discussions varied in frequency and in style. In more successful development projects where participatory photography is deployed the community members are usually engaged as 'community photographers' (i.e. community participants that have been trained to use the photo camera) in a cycle of photography or documentation and discussions.

Thus, in as much as it has been discovered by this study of the use of photography by NAERLS that the staff members lacked modern skills to effectively use the methodology; the training of the staff members as well as the farmers is important, especially in the techniques of photography interrogation which is fundamental to the documentation of development challenges in a round of discussions. Hence, if participatory photography is institutionalized by NAERLS, the methodology could be used monitored in all the stages of research and communication – survey, design, planning, implementation, monitoring and evaluation.

The combination of all these approaches (photo-shot taking, interrogation of photographs, documentation of findings from the community perspectives, engaging community members consent and the right to privacy and the engagement of policy makers with results from participatory photography research give credence to it as a formidable development communication methodology adaptable to all areas of development- including agriculture. The practice of participatory photography is growing rapidly among development experts and the photo-voice literature is proliferating around the world.

Although newer participatory photography projects are clearly rooted in the seminal works of Wang and colleagues and most all subsequent articles reference them, the

majority of photo-voice efforts alter Wang's methodology to suit the needs and constraints of researchers' unique projects. As a result of this tailoring, the manifestations of partnership and of photo-voice methodology varies broadly across the participatory spectrum in development programmes in countries like Cameroon, Uganda, South Africa and China where it has been successfully used to improve policy on health and political matters as reviewed by Catalani and Minkrel, (2010).

Gervais and Rivard (2013), through two case studies, evaluated the value of participatory photography as an interactive consultation tool with rural Rwandan women working in agriculture. The exploratory study suggested it is possible, through an adapted participatory photography process to engage and empower women in the production of information about what is most relevant to them, and reach and engage practitioners and officials through an exhibition of participants' photographs and captions. This confirmation of participatory photography's applicability with rural women in the generation of information that captures the attention of stakeholders demonstrates its potential for reproducibility in other development contexts like Nigeria.

Participatory photography is a strong methodology to facilitate research for action and advocacy. The majority (60%) of projects reviewed by Catalani and Minkler (2009) culminated in action to address issues identified through community documentation and discussion. These projects organized public photo exhibitions to share their photographs and findings with the broader community, often including policy makers and other influential leaders.

Wang and her colleagues (2000) for example, worked with homeless photo-voice participants in Ann Arbor, Michigan, to hold several forums and showings of participants' words and pictures. As they noted:

> First, participants snapped photographs and wrote descriptive text for newspaper articles. Second, participants' photographs and captions were exhibited locally at a downtown gallery. . . . Finally, several hundred people, including policy makers, journalists, researchers, public health graduate students, and the public, came to the city's largest theater where photographers showed their slides with accompanying narrations and spoke to an audience of present and future community leaders. (Wang *et al.*, 2000,p. 85).

This emphasis on involving policy makers and other community leaders in photo-voice projects has been a part of Wang and colleagues' ongoing work and recommendations for best practices (Wang, Morrel-Samuels, and Hutchison, 2004; Wang and Pies, 2004). Several authors have argued that photo-voice can have an impact on policy because of its tendency to mobilize communities to action. This study equally shares the same view but with the addition that photo-voice impacts projects be adequately discussed or evaluated more for development policy sustainability.

Participatory photography also enhances understanding of community needs and assets. There are several reports on the outcome of photo-voice as it has improved the understanding of community needs and assets among photo-voice partners, service providers, local policy makers and other influential community members, and the broader community. Practitioners, especially in health sector have claimed that this is made possible, first and foremost, by the methodology's unique capacity to engage hard-to-reach groups and to elicit open and honest conversation.

The literature provides several example of how this happens. In their highly participatory project with Latino adults with intellectual disabilities, Jurkowski and

PaulWard (2007) noted that research and health promotion interventions tend to overlook people with such mental challenges because they are "often regarded as incapable of expressing their own health needs & incapable of learning health-promoting skills" (Jurkwoski and PaulWard, 2007. p. 359).

Such stereotyping also exists in the agricultural sector where development experts or extension specialists usually believed that the farmers do not possess knowledge to handle agricultural challenges as good as they should. This similarity of issues in the health sector - where the participatory photography has been most used was why one of the Key Informant in this study believed that photo-voice can work successfully in the agricultural sector. According to Sadiq Abubakar:

> From my experience, agriculture and health are twin sisters. You cannot separate agriculture, health and water, they are overlapping. Without these three, you may not see the real challenges of development in a community if you treat them sectionally. You may miss the point for intervention. Anything that works in the health sector, particularly in the preventive will work in the agriculture and water sectors. And this is from empirical experience, if you remove the word AGRICULTURE from the acronym NAERLS, you should have (NERLS) an extension institute with departments for health, water and education. For instance, the community health programme is an extension, and that is what we do in agriculture. Rural water supply and sanitation e.t.c., care issues in agricultural extension. So photo-voice should work in agricultural research (Interview with Abubakar, NAERLS, Zaria, 2014).

Photo-voice entrenches individual empowerment. Among photo-voice articles, reports of individual empowerment outcomes increased with participation scores. In a study that received a high overall participation score, Foster-Fishman *et al.,* (2005) interviewed the participants of a Michigan photo-voice project and found that two iterative processes in particular facilitated empowerment: documenting community strengths and concerns using photography and engaging in critical dialogue with other community members.

In their breakdown of the concept of empowerment, the investigators explained that "impacts ranged from an increased sense of control over their own lives to the emergence of the kinds of awareness, relationships, and efficacy supportive of participants becoming community change agents" (Foster-Fishman *et al.,* 2005. p. 275). As earlier noted that the body of photo-voice literature has grown, some convergence on reported processes and outcomes has also occurred, but, as suggested in this study, the quality of use of participatory photography has varied considerably. Consequently, the application of participatory photography in agricultural research and communication by NAERLS and other research institutes may vary in manifestation going by the operational structure and political environment in which research and development activities are carried out in Nigeria.

But the overall understanding of this study is that participatory photography can help sustain agricultural productivity and change in Nigeria.

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.0 Summary

This thesis appraises the use of photography as tool of communication. The study pays critical attention to how the NAERLS has been using photograph in a non-participatory way by only using the pictures taken by extension experts, scientists or communication specialists during research activities and development programmes to support it reports to government or collaborating partners. In this way the pictures majorly speak the voice and intention of the institute - thereby relegating farmers view to the background.

The Narrative Transportation Theory and the Participatory Development Theory were deployed to situate the study in the humanities while arguing for a synergy of the participatory photography and conventional communication strategies through the institutionalization of photo-voice in order to empower farmers with the knowledge and skills to use the photo camera to take pictures and use them to tell their own development stories for sustainable change. In this study, 84 copies of questionnaire were administered among NAERLS Staff members comprising only the Academic and Technical Cadre from the 6 Departments and the 6 zonal offices but 74 copies were returned. Furthermore, in order to elicit responses from farmers, three focus groups were formed. The focus groups were divided into two men groups and one women group. There were at least ten participants in each group. A total of fifty farmers from two selected communities (Hayin Gada and Hayin Mallam) under the Adopted Village initiative of NAERLS in Giwa Local Government Area of Kaduna State participated in the Focus Group Discussion.

More so, six seasoned employees of the institute who have spent not less than twenty years in service were selected for Key Informant Interview. In total, one hundred and thirty respondents participated in this study. Finally, documents and reports from two agricultural development projects (NAERLS-ICBA and NAERLS- WAAPP) operating in the selected communities were analyzed from 2012 to 2014 as a way of establishing how photo-shots have been used in these programmes.

5.1. Key Findings

Based on the responses collected from the field on participatory photography for enhancing productivity in NAERLS' interventions, the following key findings emerged.

i. Majority of the respondents (staff) stated that NAERLS uses photography in its research and communication activities in a top-down approach by placing the photo camera in the hands of the researchers who take photo-shots and use them mostly to support intervention reports, illustration and instructional materials for advancing the Institute's mandates.

ii. The study discovered that there was no knowledge and skills for using participatory photography among the staff of NAERLS.

iii. It was equally found out that NAERLS has never used participatory photography methodology before in any of its research and communication projects including the two selected projects that were studied in Haying Gada and Hayin Mallam adopted villages.

iv. In this study, majority of the respondents that is, both the farmers and NAERLS staff were positive that the participatory photography methodology would be used

by NAERLS to improve farmers productivity and engender sustainable development.

v. It was also discovered by this study that majority of the NAERLS staff lacked appropriate skills to use the photographic equipment for research and communication effectively.

vi. The study further discovered that NAERLS does not have enough photographic equipment for use by the staff for research and communication activities.

vii. The Institute does not have an existing institutional arrangement to deploy the participatory photography methodology.

viii. Majority of the NAERLS staff in this study have just spent between 2 to 6 years in its service.

5.2 Recommendations

From the foregoing, the researcher hereby recommends the following:

i. The use of photography by NAERLS should be tilted more towards the participatory photography. In this way, the Institute's research and communication will become participatory and farmers will have the opportunity to establish their feelings, perceptions and aspirations through the use photographic images for critical deliberation with policy makers for sustainable solutions to agricultural development challenges.

ii. The Institute should train and build the capacity of its staff on how to deploy the participatory photography effectively its research and communication activities.

iii. The Institute should constitute a pilot scheme to test run the methodology on one or two of its adopted villages probably in the selected villages surveyed in this study.

iv. The Institute should also train the farmers on the skills to use photographic images to tell agricultural development issues. In this way, the farmers will be technical empowered to participate in any NAERLS' participatory photography projects.

v. The Institute should increase the number of photographic equipment in its operation to enable the staff have enough equipment to carry out their research and communication activities sustainably.

vi. The Institute should institutionalize the use of participatory photography for its effective and efficient use and draw up plans in collaboration with the Federal Ministry of Agriculture and Rural Development (FMARD) or the Agricultural Research Council of Nigeria (ARCN) to carry out this type of study in other research institute in order to draw a policy proposal for the national adoption of the participatory photography methodology for research and development interventions.

vii. The Institute should engage majority of its academic and technical staff who have just spent between 2 to 6 years in its service in more research and communication activities in order to increase and improve their knowledge on the use of photography cum the participatory photography methodology.

Succinctly, it should be stated here that the photo-voice methodology is not a utopian methodology that comes without limitations, NAERLS should therefore pay more attention to the constraints or failures of photo-voice while studying where it has been deployed for development purposes. Subsequently, the adoption and utilization by different stakeholders will be flexible but standard; allowing for necessary amendment, adjustment or modification as an agricultural research and communication methodology for people oriented and sustainable development interventions in Nigeria.

5.3 Conclusion

From the findings of this study on the use of photography by NAERLS, it has been established that the Institute has not been using photography in a participatory manner even though photography is one of its major communication and research instruments. Though the present use of photography was said to have yielded some results in terms of farmers' adoption of technologies and innovation but the farmers do not have a platform like the participatory photography where they can tell their own development stories by capturing seasoned experience with the still photo camera.

Meanwhile, it was discovered that the institute can do better by institutionalizing participatory photography which will allow the farmers to handle the photo camera, take pictures and interrogate same in collaboration with the Institute. In this way, information generated through this system is owned by both parties in order to engender sustainable relationship which will invariably increase productivity.

To this end, this study has explored the strengths and weaknesses of the current use of photography by NAERLS. It has equally explored potentials of the Institute using participatory photography. It is therefore concluded that the way NAERLS is currently

using photography has not been participatory and cannot produce sustainable productivity and change. Accordingly, this study is advocating for the institutionalization and use of a participatory research methodology, that is, the participatory photography (also known as photo-voice) by NAERLS. Meanwhile, the farmers should be prepared to integrate their time, presence and other related resources into the deployment of the participatory photography by NAERLS in their communities.

If institutionalsed and put into use, the participatory photography methodology will facilitate the gradual movement of the use of photography wholly in a top-down manner by NAERLS to a more participatory and community based system: this should in turn create a sustainable development and communication strategy for Nigeria's agricultural research and development initiatives to empower the farmers for critical participation agricultural development in Nigeria.

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LECTURE NOTES

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INTERVIEWS

Interview with Professor Sadiq .Z. Abubakar; NAERLS, Ahmadu Bello University, Zaria. 17th November, 2014.

Interview with Professor Tunji Arokoyo, NAERLS, Ahmadu Bello University, Zaria.

12th December, 2014.

Appendix I: Photo-shots from Focus Group Discussions



An Extension Specialist taken picture on the farm



The researcher (middle) answering questions from the farmers from Hayin Mallam



The village facilitator (male) addressing the women group in Hayin Gada



A woman farmer from Hayin Gada responding to some issues during the group discussion

Note: Consent to use these photographs for this research ONLY was obtained from the farmers groups. Accordingly, names of the participants are not included in the picture tags.

Appendix II: KEY INFORMANT INTERVIEWS

Responses from Professor Sadiq Zubair Abubakar

My name is S. Z. Abubakar. I joined NAERLS in 1988, precisely 27 years ago. I started as an Assistant Extension Specialist and rose to the position of a professor. I became the Director of the Institute in 2009 and ended my two term tenure in 2012. I am an Agricultural Engineer with concentration in agricultural mechanization, soil and water conservation, processing and conservation of agricultural produce and land management.

As an Academic Staff in NAERLS, I perform 3 basic functions.

(i) Extension service: Packaging agricultural development resources and materials and promoting them to the end users using the mass media, training, campaigns and appeal demonstration for adoption of technologies.

(ii) Adapted research activities: Participation in either basic or applied research activities usually in collaboration with other research centers i.e. the National Animal Production Research Institute (NAPRI), Shika, the Institute for Agricultural Research, Samaru, Zaria or the academic departments like the Veterinary Medicine, the Mass Communication, the Theatre and Performing Arts and the Department of Sociology etc. These are NAERLS linkages departments in terms of research activities.

(iii) Training: Every Academic Staff must be involved in training either as a conventional training, lecturing or supervision of students.

In my own case, I have been teaching and supervising in agricultural engineering and water resources management for the past 20 years. As an extension specialist, I am involved in adult training, workshops, seminars, conferences, farm visit, exhibition etc as communication strategies to get to farmers. As an NAERLS staff, I can initiate a research in collaboration with other fellows outside the institute. Such research may occur from the findings of the institute's Annual Agricultural Performance Survey or as a result of other institutes wanting to collaborate with NAERLS. Research activities may also come on board every two or three years from Ahmadu Bello University Board of Research. NAERLS equally respond to applied problems in many locations in Nigeria. When this happens, the institute can approach the Agricultural Research Council of Nigeria (ARCN) or some international donors like FARA, IFAD, WEKAD, FAO USAID, DFID etc.

In the course of these researches, NAERLS staff is field oriented, thus, the use of photographs in virtually every field visit. The facility to use photographs is now enriched that every trip I go, I take shots of scenarios which I feel are important to convey agricultural messages to my audience or students. In some cases, issues are difficult to convey in words, the pictures are handy to speak million times than the voice to present actual situation.

The perception of photographs in NAERLS is very unique and different from any other places. NAERLS is a center of excellence for extension in Nigeria. Today, extension is the art of how you identify a problem and how you solve that problem in a participatory way with the client through packaging and following of the adoption stages which are sensitization, mobilization, development of confidence, testing and adoption or rejection. You will agree with me that following this process, photograph is a must because 'seeing is believing'. The photograph is one of the most powerful tools not only in research but in the entire extension service delivery. Research is just an aspect of what you can use photographs for in development activities. If you do not use them heavily in all the components of the value chain of development, you are not likely to succeed. The use of photograph transcends agricultural communication research.

Actually, I have not experienced participatory photography as a methodology. I have read about it, but honestly, not in real term of using it. Because it is an emerging technology or philosophy, what I know closets to it is audio-televoicing where the radio and television stations use the 'phone-in' strategy to involve the audience, especially the farmers in critical discussions. Photo-voice, I think will be a new thing in extension in Nigeria.

Using participatory mechanism to improve rural farmers' participation in agricultural development activities is an obvious niche. We saw it coming a long time ago. Five years ago, we tried to introduce community resource centers and we realized that one of the things to encourage the farmers to be active and forth-coming and become participative was the 'display board' where a typical farmer's imagination is displayed on the board and a story is made from such descriptions or clips. The description may be of a predicament, a tragedy or an opportunity or a threat. The picture is clipped to the board and you start a discussion by targeting a particular group e.g. children or women. You will be amazed at the readiness of the farmers who want to attend the meetings where these issues will be discussed. Enthusiasm and agitation follows; and that was an effective community mobilization strategy; rather than pasting posters or using town criers. It was apparent to us to use photographs to do all these, it has not been promoted decisively, even though we have seen its value; it is still in limbo.

Yes. NAERLS can effectively use photographs to promote indigenous sustainable projects through its Library, Information and Documentation Programme. There is a unit in this programme called indigenous knowledge to capture indigenous knowledge already put to test either by orthodox research or by the farmers' practices to contain challenge they have. This is usually unfortunate because many of this documentation are heavy in prose but scanty of supportive photographs. So most people are left wondering how were interventions done, yet the good stories are written down. NAERLS can use photo-voice to aggressively pursue documentation of indigenous knowledge system with the renewal of these using photographs to tell their stories.

I believe NAERLS has the capacity in terms of personnel, skills and statutory obligation to do that. But it needs to re-align its policies and some of its operations to accommodate photo-voice. Twenty years ago, we have a form of advisory visit where we visit large farms when it was obvious to intervene. Then we do have a very rich photograph support for our visit. That system has helped NAERLS to show its relevance by way of not only addressing the problem of ordinary farmers but also the large scale and private farms.

Photography then played a very critical and vital role. But unfortunately, along the line, may be because of lack of institutionalization of the farm advisory visit, it fizzled out.

The power of photography to sustainability can be demonstrated from the perspective of ability of any organization or project to establish a very visible and rich benchmark verifiable evidence based documentation. And as the project continues, you can track, monitor and evaluate using heavy photograph support. This is to allow for the establishment of a trend in order to entrench ownership by the beneficiaries or communities. The concept of exploring photography has been in NAERLS but it has not been targeted as a virile tool to accomplish real participation and sustainability, but I am sure with a little orientation, it will do especially in the conventional benchmarking that hardly have pictures. There are many rich baseline surveys but with lack of real image. If photography can enrich and fill that strategic gap, it will really enhance the sustainability of programmes by capturing the interest of the communities. Where these are lacking, the chances of sustainable development projects is bleak.

Farmers understand the power of photographs; it is just how to have a joint ownership of the use that NAERLS must be ready for. I participated in a project 15 years ago; the project was sponsored by FAO. The project brought me closer to this point I just made. We were doing resource mapping of many communities, we were surprised by the talent and capacity of the farmers' drawing their community and positioning all the resources on a map. They were so precise with these drawings than some conventional mappings will do. They could tell the distance of the community stream, market, clinic e.t.c., to the point of meeting. Farmers understand the power of imagery and photography. They have a telegraphic mind of their community. How do NAERLS use the photo camera with the farmers should be the target. The way to do it is to begin to promote photograph in a participatory manner. We start from the known to the unknown. Photo-voice is unknown to them, so they can own and develop their capacity with the photo camera or telephone camera to make stories on how water floods their farms in the absence of the extension agents. Farmers will be happy to be trained especially by NAERLS on how to use the photo camera with the philosophy of photo-voice to discuss their challenges and find common solutions.

From my experience, agriculture and health are twin sisters. You cannot separate agriculture, health and water, they are overlapping. Without these three, you may not see the real challenges of development in a community if you treat them sectionally. You may miss the point for intervention. Anything that works in the health sector, particularly in the preventive will work in the agriculture and water sectors. And this is from empirical experience, if you remove the word AGRICULTURE from the acronym NAERLS, you should have (NERLS) an extension institute with departments for health, water and education. For instance, the community health programme is an extension, and that is what we do in agriculture. Rural water supply and sanitation etc are issues in agricultural extension. So photo-voice should work in agricultural research.

The photo-voice is a veritable tool that will permeate into these very natural interesting sectors. I look at the extension field from all the sectors not from the agriculture. Sometimes, the entry point to an intervention is not agriculture. When you go to a community that refuses to go to farm because the youths are down with guinea worms

through contaminated water source you can disseminate agricultural development information straight off. You must first go through the water, then health and then education before the agricultural issues. Extension tools are interchangeable in all these sectors.

NAERLS should improve its capacity to go to the level of using photo-voice in its operations. Photography has a critical place in the operation of the institute. One of the most powerful tools would be photo-voice if people's attitude must change in a sustainable manner. We have been using photographs for the last 40 years in extension, we have shown the capacity to migrate to about five stages through the old gadgets, and now we have the Internet and modern tools like the GPS to maintain interface with the farmers. Thus, 'seeing is believing' is our cardinal point in NAERLS.



Interview with Professor S.Z. Abubakar (right)

Date: 17th November, 2014.
Facilitator: Ismail Olawale.
Duration: 42:58".

Responses from Mallam Ismaila Yunusa Ilu

My name is Ismaila Ilu, I started working with NAERLS in 1984, that is about 30 years ago. I am a socio-economist i.e. an agricultural economist by training. Every year, one has to participate in at least two or three research activities. The extension work is considered a socio-economic work, therefore, apart from department research; other departments invite the socio-economist to participate in their research. In fact we lost many of them to some other institutions from such research activities. I was the only one that remained in 1987. An agric-economist has to make choice which research he feels will be profitable in terms of the number of papers to come from it. Some researchers are not worth doing because their focus is too shallow. In NAERLS, photographs we say are more than one hundred words. So, we are taught how to take good photographs and how to develop them into slides for training purposes. In NAERLS, photograph is an important tool because you can take a whole day describing something to somebody with

words but it will take few minutes where pictures are used. They are very important to our work. Photograph serves as evidence to support an action or activity done elsewhere. It is like a balance sheet in accounting. The photograph is an overall evidence of work done especially for variety of activities throughout a particular research.

Yes. Photograph can be manipulated with the modern technology, but it is has become easier to detect the date and time a shot was taken with the inbuilt camera mechanism. So, detecting image manipulation in a research should not be a serious problem. Honestly, I have not heard of participatory photography or photo-voice but I have known participatory development, participatory research, participatory extension etc. Getting the consent of the other parties in any research has been the core of participatory activities. This is because the research results will more useful where other parties contributed to it. In NAERLS, most of our interventions are problem solving. The top-down approach where the research institute thinks this is the problems of the farmers and then design solutions and start co-opting the farmers to adopt them. But in the participatory development or research, the people will identify their problems and after the agreement among themselves, they can approach the development agency or donor/government and tell them their challenges. What the farmers know is different from what somebody has gone to school to read. Therefore, both parties will seat down and deliberate on feasible solutions. But the extension agent or change agent must not re-define the farmers' problems for them.

Human beings are restricted to a particular space. Now photography can bring something to this space (the future or the present) for critical analysis. Despite the time zone different, photographs make life more interesting throughout the world. Basically, NAERLS has been using photographs as evidence based to monitor and evaluate research and project works. To prove that somebody has done his duties, sometimes, series of photographs are used in form an album to tell stories. In fact in many of our reports the public have come up to tell us that some of our pictures were not in tandem with the prose. And we took those observations as critical corrections. It depends on how we were approach, if somebody corrects you, definitely the person wants you to be better of what you do.

NAERLS' door is open to such corrections because our work is a learning process. We as an agent correct other institutions why won't we accept similar corrections as long as they are constructive? With this new development i.e. the photo-voice, we can improve indigenous sustainable development programmes. We have been doing that in the form of documentary, films. The only thing is that it has been done in one way. We have not been allowing the farmers to tell their own stories to tell us about what we have been doing or can do. We only tell our own stories. More than 50 years, NAERLS has been using photography. Before, it was very difficult because you may go round the country for a whole year looking for important scenes to capture for a particular training. An extension person in NAERLS goes out with at least one camera and must come back with something new. The level of development projects has been high using photographs but we must engage the new paradigm in order to meet up the up-coming challenges in agricultural extension.

Yes. Development programmes will be improved and sustained by making the research process more enjoyable and attractive to organizations to pay for some of these reports generated just to recover the cost of production. This will attract development agents to communities where the reports are derived for better collaboration and partnership. Thus, the farmers will also own part of such arrangement. We must teach the farmers how to use the photograph to tell their stories deliberately and intelligently. Yes. It will give them the power to talk better than the specialist would have done basically because the farmers are talking from lived experience. The farmers know what they want. NAERLS is a change agent, and as a change agent, it must be ready to change. In fact, this will streamline some of NAERLS involvement in many communities research and allow it to do other development work. Research is based on problem identification, to be defined on solution proffered. If right from the beginning you are identifying wrong problems, then the solutions will be useless. Allowing the community to participate will help identify their own problems and they will do it better if they know how to use the camera to take pictures and tell their development stories with them. Yes, NAERLS will institutionalize the use of photo-voice starting from you by teaching our people what it means and then experiment it in one or two of our adopted villages for a take-off.



Interview with Ismaila Ilu (right) NAERLS, Zaria.

Date: 19th November, 2014.
Facilitator: Ismail Olawale.
Duration: 22:16".

Responses from Mallam Murtala Galadima

I am Murtala Galadima, a Chief Technical Officer in Irrigation Agronomy and currently the Head of the Adopted Village Unit, NAERLS. I have spent 22 years with the institute and I have been involved in research, extension and dissemination of information to farmers since I joined NAERLS. Field work is one of our major activities; we are involved in irrigation field laboratory. Research work is a daily activity for me and I participate daily. It is important to say that research, training and extension are major focus of NAERLS. Photography is an integral part of our research work. Yes. We take

photographs of activities and events of whatever we do to support our reports. My understanding of photography as is being used in NAERLS is that we use it to document information i.e. activities we carried out with farmers for others to see. No. I am not familiar with the participatory photography in the theoretical aspect but may be in the practical. What I know is that you take photographs in order to communicate something to people. Yes. A photograph is a tool for communication, some farmers may not be literate to read and write but you can interact with them using photographs and they will grab the information better. Major areas where we have been using photographs in NAERLS are our publications e.g. bulletins, posters and guides to communicate to farmers over the years. It has proved to be a good tool for communication in extension.

NAERLS can use photography to encourage indigenous based agricultural development by capturing the traditional ways of doing farming and analyzing them with the modern ones in order to integrate them where possible. For now in NAERLS, the skill to use photo-camera professionally is not wide. Only few have the skill. Thus, the sustainability of development programmes is not very high, this is because documentation of development issues, using photographs is limited and where there are no pictorial evidence of things that have been done somewhere, and people tend not to comprehend what a new thing is going to be like quickly. Thus, more people, including the farmers should be trained because if the farmers can own the technology, it will be better and development programmes will be more sustained. Photographs have been used to document extension process from experts' perspectives, but now the best thing is to involve everybody in a participatory manner.

The major reason why photograph is used in agricultural extension is to increase the adoption level and sustain development projects, thus farmers participation will bring about high sustainability. Naturally I will support the use of participatory photography in NAERLS. Let me give you an example, in my unit, almost every facilitator has a camera and are trained rudimentarily to use it to capture activities for documentation. We even have plans to involve the farmers so that they can be part of the documentation process. Yes. I am aware of the ICBA and WAAP programmes in our adopted villages. In fact these two programmes use photographs heavily to document their activities though not in the participatory way. We take the shots and tag them in our reports to our partners to show the progression of the development projects. We have not actually trained the farmers to use photographs to tell their development stories. But our facilitators are always at hand to capture some moments on the farms in the presence of the farmers. But the farmers have not handled the camera to document their own angle of understanding or feelings to what we are doing, and this is a gap that we must begin to fill in NAERLS.



Interview with Mallam Murtala Galadima (right)

Date: 17th November, 2014.
Facilitator: Ismail Olawale.
Duration: 15:41"

I am Zubair Omenesa. I have been with NAERLS for more than 25 years. Participation in agricultural research is often as the institute requires in the work plan and as a project targets information delivery. I work on a research team to determine the effectiveness of the communication in order to get a better feedback. It is mandatory to participate in research works. Right from the creation of the institute, photography came up as part and parcel of the key tools for supporting extension services. When I came into NAERLS, the agricultural audio-visual section was tasked to support issues of discussion in extension. Key to extension service is the agricultural media department where the section is domicile. Up till now, photographs are used to clarify issues of farming between farmers and the extension agents. You see, things keep on changing. As at the time we started, many years back, when photography was used to support extension, it moved to slide format. Now that you are talking about participatory photography, we have a gap there in NAERLS, it is an emerging methodology which I assume is key in the facilitation of extension delivery for uptake of research technology by farmers. It is a graphic oriented approach to development issues. I have not used it before and do not know much about it, but I think from the name, it could be advocating for farmers to be active in development programmes. In this way, we will be empowering them to discuss development matters from their own experience. NAERLS has not been up to that level but we can upscale our operation to accommodate it.

I think from my experience, photographs can be used to encourage community agricultural development by taking the shots into sequence in slides to tell a story, for example, land preparation, planting, weeding etc. But photographs have been mostly used in NAERLS as instructional and support materials. The development of photography through time has come and now resting on participatory photography. It has called for a different approach in extension using photographs before the farmer, but now, probably let the farmers be behind the camera, let them participate and organize their mental actions and even the budget for execution. In such way, NAERLS will do much of supervision rather than telling the farmers their problems. As it is now, the farmers are involved not as partners but as beneficiaries. The farmers want to hear their voices, they want to feel the global recognition of their efforts and intelligence, and they want to experience what the extension agents are going through behind the camera. And where they are doing fine, they will know and help to spread the advantages, and where they have problems, they will still come around for guidance and discussion.

NAERLS has never played down the importance of photographs for illustration raging from posters, leaflets, hand-bills etc., which are directed at different audience. Things went down in terms of funding of many of the development programmes thereby there were limitation to available supporting materials in terms of pictures. The idea of participatory photography must be coordinated among the farmers because there are many procedures to taking relevant pictures. It is not just about taking pictures, it is about the ability to use them to bring out development issues and deliberate upon them for collective solutions. Photography in itself is a discipline. There are standard procedures in it. When you produce to meet the standard, you must also test them. There was an instance when we took some shots of half human figures and wanted to use them for development training. Meanwhile, while test running them, some farmers asked us curiously about the legs of the human figures because all human beings have legs, unless something has happened to them! We quickly realized that their understanding of half shot could spell disaster to the information we want to pass across. So, we first of all discussed the issue of half body shot with them and after great clarification, we started the dissemination and the campaign was successful. Thus, farmers must be taught how to use photographs conceptually. This will help them criticize what they have done and then bring about sustainable solutions that they can easily be administered. The extension agent's agenda is different from that of the farmers, thus, NAERLS has the capacity to training its work force and the farmers to use the pictures to tell stories in a meaningful way rather than just shots, shots and shots. The challenges that will come from the empowerment of the farmers with photo-voice will be contained by NAERLS because they will help the institute to learn how to do its job better.

Photography is key to NAERLS operations. And once it has developed to this level of participatory philosophy, the institute should key into it in order to effectively perform its mandates beyond what it is now.



The interview with Mallam Zubair Omenesa (right)

Date: 12th December, 2014.
Facilitator: Ismail Olawale.
Duration: 24:15".

Responses from Professor Tunji Arokoyo

I am Professor Tunji Arokoyo. I started my career and retired in 2009 in NAERLS as a professor of extension. I remained in the institute on part time with full time lecturing in the Department of Mass Communication, Ahmadu Bello University. One of the channels of communication is extension in agriculture. But there is no single perfect channel of communication in development communication. I have researched my entire career in NAERLS, you cannot have a field trip without photograph. For instance you are trying to teach a farmer how to use a technology, unfortunately many of our researches before were supply driven, but now there is paradigm shift where research must be farmer centered and people driven.

In those days, we do baseline survey; we never included the farmers in our research activities. We come up with technology and we feel we are super because we have diagnosed the farmers' problems for them without their inputs: which was not the best thing of course. And so now, our technology development starts from the field and at every point in terms of issues and problems identification and the analysis we want to know who the farmers are what their situations are and so on before we now prioritize the problems for discussion. I have been involved in agricultural research all along in NAERLS, using photography. There is this adage that says pictures speak more than words. Obviously, it is very true. You talk, talk and talk; many people cannot have the idea of what you are saying. And if you are not good with communication skills which are super requisites for any extension specialist or agent, communicating effectively with the farmers is cumbersome. These are some of the skills you must have: communication skills and knowledge of the subject matter. The photography is part of your communication skills. You must know how to use it, you must know what picture to take. You are not interested in whether the person face is beautiful or not. What he is trying to say and the activities around him are what should interest you. How do you capture them? This is where the participation in photography comes in.

My understanding of the use of photographs in research work is in two ways. You are not going produce all your data in figures to covey meaning to people. Let us see what you are talking about in image. For instance the effects of pest attack on crop. And the farmer on the field, let us see the destruction to his crop, his reaction, the expression on his face. This will help decision makers to do some critical identification and come up with real time solutions. There is no way text description of pest damage without some pictures as back-up will show how the affected farmers expressed his loss! Picture has the power to convey all these and more. I think Photo-voice is a sort of programming of still photography into moving slides and you can have a voice on it. Your reaction and the farmers' reactions are captured to send a message. And then of course there will be a time sequence to follow a series of actions on a farm. That is just what I think Photo-voice will be. Let us take the Agric Performance Survey for example. You get figures from all the 36 states including the FCT without substantial pictures to back your data, you have not done much. And that is a critical activity that not only the National Bureau of Statistics and Central Bank of Nigeria subscribe to.

Every year, in fact, the speech of the Honorable Minister of Agriculture and Rural Development on World Food Day celebration is based on the report of this survey in the form of Executive Summary. It is not only figures that we want, we want recorded stories

in the form pictures that is why we bought camera for each team going out so that we can see exactly what happened on the field. During any agric show, NAERLS displays these documentaries at its stand for stakeholders to access. The sustainability of development programmes in this form is not much because pictures are not speaking farmers' intention. But this is an avenue for NAERLS to raise its operation to the highest level.

If photographs are taken in a more participatory manner, in a forum like the agric show where all the representatives of the 36 states are present, people can access the reports or agricultural situation of their states from NAERLS stand with local community inputs in pictorial form. Oh yes! Farmers should be trained to operate the camera and tell their own stories. There is no autonomous power for NAERLS in this regard. This is what I told you about the paradigm shift. Initially when we started as young specialist, we were taught how to use the camera more professionally. Today, you go to a ceremony and you see everybody using iPad to take shots. They cannot explain the reasons behind these pictures! For us in NAERLS, Photo-voice is a development issue. There must be some meaning in the pictures we take. NAERLS has not done well in this aspect of Participatory photography because we have not made it part of our requisites for training for our extension specialists. Many of them know how to take pictures especially when on the field but do these pictures tell development stories? And what is the involvement of the people they met on the field; they are supposed to be the central piece of our activities.

When the farmers can take pictures and use them to tell their stories, it will challenge NAERLS to go a step ahead. The institute should go ahead and train the farmers in participatory photography. All the adopted villages must have knowledge of this. We cannot shy away from it. Capacity building is an immense investment in extension. If we are going to be putting the Naira and Kobo on table all the time for farmers to develop, we will not make progress. The training should empower the farmers and help them contribute to our library of knowledge. I am not sure many are aware of this Photo-voice in NAERLS because we bring different people from diverse background without extension background. It is only when they come in that they start picking interest which requires the development of the practices and principles of extension and most importantly the development of communication skills. You may be good in your area of knowledge but you need communication skills to perform credibly on this job.

Yes. Photographs should be one of the operational instruments of NAERLS in a participatory manner, but I am not sure it is. We must embrace this new research methodology in all aspect so that we can actively be relevant in agricultural research and development in Nigeria.



Interview with Prof Tunji Arokoyo (right)

Date: 12th December, 2014.
Facilitator: Ismail Olawale.
Duration: 38:16".

Responses from Mr. James Ego

I am James Ego.

I have been with NAERLS since 1981. So I am above 30 years here. Photography as I found myself, to me, my responsibility in NAERLS is not photography. But, I started having interest in photography before I came here in 1974. I am employed as a graphic artist, but I discovered that NAERLS has a lot to do with pictures in extension work. As at the time I came, we were involved in research all round. I discovered in some of our illustrations, we used photographs at times to do some of our designs. When I came to NAERLS, there were a lot of cameras for training because we normally conduct

R-L: Professor Tunji Arokoyo and the researcher during the

with photography, so we were trained by those who have experiences and many people also came to develop their talent in NAERLS. Photographs help us to do many difficult illustrations when the extension specialists want you to design an illustration to back up their training materials or publications, they will describe exactly what they wants but we may not get it. Therefore, we go out to take the picture of what they intend to do and then design the illustration easily. Sometimes, we use the photographs directly but in this case, we trace out only the part we want to use. NAERLS is a place with great potential to develop individual skill in photography.

Photo Voice? Well, I don't know anything about it. I have not used it before. But, as I have said earlier, we use pictures for illustrations and instructions in publications. Meanwhile, the quicker way of getting ideas across to people in extension is through image or pictures. I discover that many people are attracted to posters with pictures than texts because pictures give closer messages to even an illiterate. If we have more pictures in research, people will understand better because many people do not have time to read texts. For instance, the picture on my door has attracted a lot of attention after I cut away the text message, people are always fascinated about the picture but they never asked about the text. Yes. Pictures can be used to encourage community participation in agric

development programmes because when you capture development issues using photographs and people are trained to use the camera, it becomes something everybody can do. Therefore, just one person will not be controlling the shots.

I believe farmers should be trained to use the photo camera in a participatory manner because people are still afraid of camera especially when it is handled by a stranger. If farmers know how to use photographs in a participatory manner when NAERLS receives information about agricultural challenges in a village, before the specialist get there, the farmers can take several pictures and present them to NAERLS for discussion on how to find sustainable solutions to the identified problems. Well, people have different perceptions of issues, but in this case, the farmers will help NAERLS more than being a challenge. Yes. I would recommend that NAERLS use photo voice because photographs in any form bring out real stories. You can interrogate a picture and know whether what the image is saying.

Somehow, I cannot say NAERLS has used photographs or have used participatory photography, but I will say that the institute should use photography more participatorily and plan how to integrate it into its budget and general work plan.



Interview with Mr. James Ego (left)

Date: 28th November, 2014.
Facilitator: Ismail Olawale.
Duration: 15:15".

Appendix III: Questionnaire for NAERLS Staff

This set of questions are intended to help this researcher Ismail Olawale collect relevant information for a Master Thesis (work) in Development Communication, Department of Theatre and Performing Arts, Ahmadu Bello University, Zaria. The study is on the use of Participatory Photography/Photo-voice in the operation of NAERLS projects. Photo-voice is a creative approach to participatory action research. Using community-based research activities, it empowers members of groups to work together to identify, represent and enhance their community through a specific photographic technique to tell their stories and have their voices heard. Photo-voice equips individuals with cameras so they can create photographic evidence and symbolic representations to help others see the world through their eyes, especially policy makers.

SECTION A: Fill space (----------) legibly where necessary.

Let's Know You

a) What is your area of specialization? ----------

b) What are your years of experience in NAERLS? ----------

c) Sex:----------

SECTION B: Please tick the box (✓) on the right side appropriately.

Indicators (Likert Scaling):
(i) Very High

(ii) High
(iii) Average
(iv) Low
(v) Not at All
(vi) Yes
(vii) No
(viii) Don't Know
(ix) Always
(x) Occasionally
(xi) Never
(xii) Don't Know

S/N		Very High	High	Average	Low	Not at All
1	What is the level of your understanding of using photographs generally in research activities?					
2	What is the level of your understanding of 'Participatory Photography' as a development research tool?					
3	How often do you use photographs in your department for research activities?					
4	How will you rate the potential of Photographs to encourage community based agricultural development agenda?					
5	From your experience what is the level of community involvement in research using Photography?					
6	What is the level of use of participatory photography for agricultural communication research in NAERLS?					
		Very High	**High**	**Average**	**Low**	**Not at All**

7	What is your level of skill in using the still (photo) camera for taking to photographs in your research/extension activities?					
8	How will you rate the challenges/constraints are associated with the use of participatory photography in agricultural communication by NAERLS?					

9. Please list 3 of them in order of preference.

(i) ----------

(ii) ----------

(iii) ----------

10. Give examples (at least two) of research projects (with names and date) in which NAERLS has deployed 'Participatory photography' (not general photography).

(i) ----------

(ii) ----------

(iii) Don't know( ).

S/N		**Very High**	**High**	**Average**	**Low**	**Not at All**
11	What is the potential of NAERLS maximizing the power of Photo-voice in agricultural communication research?					
		Yes	**No**	**Don't Know**		
12	Will you recommend and support the institutionalization of participatory photography for research and project implementation in NAERLS?					

		Always	Occasionally	When Necessary	Never	Don't Know
13	How often should NAERLS use participatory photography in its research activities?					

Appendix IV: Check List for Key Informant Interview

Introduction

I am Ismail Fatai Olawale a Master Student in Development Communication with the Department of Theater and Performing Arts, Faculty of Arts, Ahmadu Bello University, Zaria. I am researching on Agricultural Communication and Sustainable Change: An Assessment of The Use of participatory Photography (Photo-Voice) in the Development Projects of NAERLS, ABU, Zaria. This interview will be recorded (voice), and photographs will be taken during the session as part of the research data collection process.

1. Could you tell us about yourself and how many years you have spent with NAERLS?

2. How often do you participate in research activities since you joined NAERLS, and how often do you use photographs?

3. What is your understanding of using photographs in agricultural research?

4. How do you think farmers can understand and participate in agricultural research using photo-voice?

5. Have you heard of photo-voice before, and what is your understanding of it as a research methodology?

6. How has NAERLS been using photographs in its research?

7. How do you think NAERLS can use photography to generate indigenous and sustainable agricultural projects?

8. What is the level of sustainability of development projects using photographs as illustration or instructional materials in NAERLS projects?

9. How do you think this level can be sustained or improved upon?

10. How do you think photography can be used as a research tool to encourage community participation in agricultural research?

11. Why do you think photo-voice can be used for agricultural research?

12. Will you recommend the formal, institutionally approved the use of photo-voice for NAERLS agricultural development projects?

Interview Record

Key Informant: Prof., Dr., Mr., Mrs ----------

Area of Specialization:----------

Years of Experience in NAERLS:----------

Sex:----------

Date of Interview: ----------

Duration:----------

Venue:----------

Interviewer:----------

Appendix V: Questions for Focus Group Discussion

This set of questions are intended to help this researcher **Ismail Olawale** collect relevant information as part of a Master thesis work in Development Communication, Department of Theater and Performing Arts, Ahmadu Bello University, Zaria. The discussion will be recorded and photographs will be taken. Meanwhile participation is voluntary. The study is on the use of **Participatory Photography/Photo-voice** in the operation of NAERLS projects in two adopted villages.

(1) What is your general understanding of photographs?

(2) How long have you been participating in NAERLS agricultural projects?

(3) Has NAERLS been using photographs while operating in this community (Haying Gada/ Hayin Mallam)?

(4) How exactly has the NAERLS been using photographs in agricultural development projects in your community?

(5) Have you been involved in camera handling while participating in NAERLS projects?

(6) If No. Why do you think NAERLS has not allowed you to handle camera?

(7) Do you think you should be allowed uncensored handling of camera to take pictures of agricultural issues in your community?

(8) Can you explain why and how this should be done?

(9) How do you think farmers in your community could participate better in NAERLS agricultural development projects?

(10) How do you think photographs can be used to tell your community stories?

(11) What is or are your feelings when photographs are taken in your community for research purposes?

(12) Are other institutes or organizations operating in your community on agricultural development using photographs?

(13) Do you have anything to add?

Discussion Record

Adopted Village: Hayin Gada and Hayin Mallam Adopted Villages, Giwa Local Government Area, Kaduna State, Nigeria.

Researcher: Ismail Olawale.

Research Assistant: Ekundayo Afolabi.

Number of Participants: 50 (37 Men + 13 Women).

Date: 4th December, 2014.

Location: ICBA-NAERLS and NAERLS-WAAPP pilot farms in Hayin Mallam for the men groups; and the women farmers' group leader's compound in Hayin Gada.

Duration: 4 Hours.