

UTILIZATION OF AUDIO VISUAL RESOURCES FOR SKILLS AND KNOWLEDGE OF CLIMATE CHANGE ADAPTATION AMONG RURAL FARMERS IN NIGERIA**By****Dr. Abaobi D. Agbo,
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and
Rev. Fr. Bartholomew O. Agu****Abstract**

This paper is aimed at assessing the utilization of audio visual resources for adapting skills and knowledge of climate change and improving agricultural output among rural farmers in Nigeria. The paper adopted an exploratory design in which the author developed a conceptual overview of the terms: Audio visual resources, rural farmers and climate change. Related and relevant literature were reviewed on the role of audio visual in inculcating skills and knowledge to rural farmers for climate change adaptation and agricultural productivity. To achieve this, various databases were consulted including Google advanced search, journal databases, institutional/organizational repositories and textbooks. Finding show an availability of resources on climate change adaptation strategies; and audiovisual resources to play crucial role in imparting skills in individuals especially semi literates and non literates groups. However, utilization of audio visual resources by rural farmers for skills and knowledge of climate change adaptation should urgently be considered. Library professionals, government parastatals and other agents involved in information provision and dissemination are therefore called to reconsider this role and act fast for climate change adaptation and agricultural productivity in the rural communities.

Keywords: Audio Visual Resources; Climate Change Adaptation; Rural Farmers, Agricultural output, Nigeria

Introduction

This study seeks to provide evidence on the importance of utilizing audio visual resources for effective skills and knowledge acquisition on climate change adaptation and improved agricultural productivity among Nigerian rural farmers. The conceptual study is based on three interrelated factors: the persistence damages created by climate change, its predominant effects on agricultural productivity and the limited study of the role of utilizing audio visual resources for skills and knowledge of adapting to ever changing nature of climate and improving agriculture productivity. Presently, we live in an era of information and communication technology (ICT) and this has become the hub of our day to day activities. The power of audio visual resources in skills and knowledge of life's challenges including climate change has been greatly recognized by experts such as facilitators, instructors, authorities and in fact all professionals; and this could be seen in the

issues currently raised concerning the utilization of audio visual resources in inculcating skills and knowledge among rural farmers for improve agricultural output.

The use of audio-visual resources in impacting skills and knowledge in this dispensation cannot be overemphasized. As Shamsideen and Ogunsanya (2016) noted, while audio relates to “hearing”, visual is concerned with “seeing”. Resources are the tools that are used for the purpose of communication via “hearing and seeing”. Audio visual resources combine both textual material with visual materials as well as audio and videos to inculcate skills, ideas and knowledge on climate change adaptation; thus, is geared towards enhancing the teaching experience of instructors while facilitating the learning experience of farmers. Evidence has shown that learners tend to learn faster when they are taught with audio visual representation (Digital Class Educational Marketplace, 2021), Audiovisual resources can be effectively used in dissemination of information to rural farmers aimed at improving the agricultural output through creating disaster awareness, training and advocacy. Yha (2012) opined that effective information communication on climate change adaptation for rural farmers is a significant factor in ensuring a sustainable agricultural production.

Rural communities in Nigeria, by their nature are generally marked by a high level of illiteracy

Concept of Rural Farmers and Climate Change

Farming is the fundamental occupation of the rural people, forming the basis of rural economy. Rural farmers occupy a vital position in the survival and development of the nation’s economy through agricultural production. Rural farmers can be defined as the aggregate number of farmers residing in the rural areas. They are mainly poor peasant farmers, illiterate and politically uninformed who depend mainly on farming as the only means of livelihood. According to Climate Change, Agriculture and Food Security (CCAFS, 2014), in many rural communities, farming is not restricted to men; rather, it involves both men, women, young and old. Rural farmers account for the greater part of the population of any developing country such as Nigeria and South East in

particular. Rural farmers account for the greater part of the population of any developing country such as Nigeria. Rural farmers according to Mondal (2016), can be identified by the size of the community, density of the population, occupation, homogeneity of the community, closeness to nature, etc.

Rural farmers constitute the bulk of the poor people in Nigeria who face the prospects of tragic crop failures, reduced agricultural productivity, increased poverty and hunger, malnutrition and diseases. They are dominated by low economic income earners and are most vulnerable to poverty and hunger, diseases and low standard of living. As reported by the World Bank (2011) on world poverty and hunger, extreme poverty and hunger make people, mainly women and children mostly in rural communities vulnerable to diseases which lead to poor maternal health, child and infant mortality. Climate change affects rural farmers in several ways, including its direct impact on food production and security. World bank/United Nations (2006), earlier reported that the potential effects of climate change on major crop yield such as maize, rice, cassava e.t.c will lead to increase in world food crisis and further expose rural farmers who are the most vulnerable people to the risk of extreme poverty and hunger. National Climate Assessment (2014) stated that climate change is a normal part of the earth's natural variability, which is related to interactions among the atmosphere, ocean, and land, as well as changes in the amount of solar radiation reaching the earth.

Climate change is a long-term shift in the statistics of the weather for example, it could show up as a change in climatic temperature and precipitation for a given place and time of year, from one decade to the next. Since the industrial revolution, human activities have been changing the global climate by emission of high amounts of greenhouse gases into the atmosphere, resulting in higher global temperatures, affecting hydrological regimes and increasing climatic variability. Climate change is projected to have significant impacts on agricultural conditions, food supply, and food security. National Weather Service (2007) noted that climate change is an environmental

factor which has constituted a major threat to agricultural production. The patterns of the effects of climate change are dependent on some environmental factors which include the latitude, altitude and the type of crop grown in the affected area.

The current level or stock of greenhouse gases in the atmosphere as analyzed by Chukwunonye (2015) is equivalent to around 430 parts per million CO₂, compared with only 280 ppm before the industrial revolution and is linked to increasing concentration of greenhouse gases, particularly carbon dioxide, in the Earth's atmosphere. It is however estimated that a global average temperature rise exceeding 2°C will lead to a heating up which would lead to a catastrophic, irreversible change in the world's physical geography and will in turn have a serious impact on agriculture in vulnerable communities. Evidence has shown that climate change is already affecting crop yields in many countries including Nigeria (Intergovernmental Panel on Climate Change (IPCC) 2007). This is particularly true in low-income countries, where climate is the primary determinant of agricultural productivity and where adaptive capacities are low owing to lack of adequate climate skills and knowledge. Therefore, for rural farmers to enjoy improved agricultural output in the face of climate variability which has come to stay, they must accept adaptation as the only option for survival and the only way this can be realized is through the use of audio visual to impart these skills and knowledge.

Use of Audiovisual Resources for Climate Change Adaptation

Adaptation is the process of changing one's behaviour to suit new situation. Intergovernmental Panel on Climate Change (IPCC, 2001) defined adaptation as the adjustment in natural or human systems in response to actual or expected climate hazards or their effects. Adaptation is usually a long-term livelihood activity and is a continuous process where results are sustained and uses available resources efficiently and sustainably. It involves planning and combining of new and old strategies and knowledge, and is focused on finding alternatives to cope

with the immediate threat. According to Saul (2015), adaptation is a mitigation measure that has to do with limiting and controlling climate change excesses. Thus, adaptation measures to climate change have to do with living and coping with climate change.

Audio visual resources combine both textual material with visual materials, audio and videos to educate learners (Vogler, 2012) on addressing climate change and its adaptation strategies. Audio visual resources, being varieties of learning resources, assist in faster learning, enhance teaching and learning experience, while making learners take active participation in the teaching and learning process. A real object is often the most effective aid for teaching rural farmers. The reason is that it enables the audience to understand exactly is being talked about. Many types of audio visual resources often used for instruction exist. However, a facilitator decides which tool will work for learners. Audio visual resources include:

Visual Resources: These include posters, model, figure, chart, graph etc. It also includes graphics such as diagrams, cut-outs, globe, objects, cartoon, info-graphs, bulletin board, flannel board, picture, map and others.

Audio Resources: These include posters, photographs, charts, maps, flip chart, flannel graph, e.t.c;

Mechanical Resources: These encompass audio teaching machine, tape recorder, radio, motion picture, projector, epidiascope, filmstrips e.t.c.

Audio-Visual Resources: These include video, cassettes, films, television as noted by Digital Class Educational Marketplace (DCEM) 2021). These audiovisual resources can be used effectively to communicate information and knowledge of climate change threats and adaptation for increased agricultural productivity among rural farmers in Nigeria.

Objects: A real object is often the most effective aid. It enables the audience to understand exactly what the trainer is talking about (Wahlig, 2012). For instance, the author state, equipment and tools can be shown, samples of diseased plants and insect pests displayed and different seed varieties and

fertilizers handled by farmers. Where an object is too large to be shown, a model of it can sometimes be used as a teaching aid. This applies particularly to buildings and other fixed structures. The construction of pepper nursery farm, for example or the installation of a dip tank can be demonstrated by using a model, which can be taken to pieces in front of the audience.

Photographs: They offer another substitute for real objects. They can be passed around an audience or displayed by the agent. If a photograph is being used as a visual resource, just the right amount of detail should be included for the audience to recognize it. Too much detail confuses and distracts, while too little prevents recognition (Dike, 1993). Photographs of people doing things are more likely to interest the audience than photographs of objects alone and as such are very vital in inculcating skills and knowledge of climate change adaptation

Posters: Posters are useful for highlighting the main theme of a talk and wall charts can be used to show complex processes. Watson (2005) stated that although they are used mainly in classroom teaching where they can be left on the wall for future reference, they can also be carried by the information professionals to help convey ideas to farmers. They are very mobile in the sense that the information agent can paste them in strategic positions in the community. Some of the images that can be printed in the posters for awareness campaigns include, plant diseases and paste, inappropriate disposition of refuse, etc. posters contain a well drafted and concise message attached to the image. Posters save the information agent more time and energy in that it does not require the information agent to talk rather it conveys the message to the concerned audience on its own (Ezema, 2006).

Flip charts: Flip charts contain a series of pictures, with or without words, fastened along one edge between two sheets of thin wood or thick cardboard. The two covers can be opened and folded back so that the flip chart stands in front of the audience. Each picture illustrates one point in the information agent's discussion with rural farmers (Volgla, 2012), as well as helps the audience to understand and remember information passed across; while reminding the information agents of the

content without the need to refer constantly to their written notes. The importance of a chart in dissemination of information on climate change to rural farmers cannot be overemphasized. For instance, the procedure for converting fossil fuel into CO₂ for example, may sound confusing, but a simple chart or diagram can make the process clearer. Again, the life cycle of a crop pest can be explained by showing a series of slides or drawings.

Flannel graphs: A flannel graph is made from rough textured cloth, such as flannel or a blanket, which is hung or supported almost vertically. Figures, words, and symbols cut from cardboard, which are backed with similar cloth or sandpaper, are attached to it. As suggested by Moore (2011), a cheaper backing is obtained by putting glue on the back of the cut-out and then dipping it into fine sand. The backing holds the cut-outs firmly on the cloth surface while the cut-outs are prepared beforehand and can be used repeatedly. The flannel graph can be used very effectively to build up a story or an explanation. Wahlig (2012) added that unlike a wall chart which can confuse an audience by presenting a finished diagram at the start of a talk, a flannel graph can be used to present in turn each part of the diagram until it is complete. After showing the process of wind erosion, for instance, the effect of wind-breaks can be demonstrated by placing cut-outs of trees between the wind direction and a field. Arrows representing the wind can then be deflected, and the general effect shown by putting back soil symbols on the surface of the field.

Television: According to UNESCO (2009), television and radio are amongst the most accessible sources of information which can be used to reach out to rural farmers. Broadcast media have brought the reality of climate change impacts directly into our homes (Patil, 2012), helping to raise public attention to climate variability.

Radio: Radio is widely used as a mass communication medium and has great potentiality in disseminating information since its signals cover almost the entire given locations. Regular transmission of radio programmes on agriculture gives valuable information on climate change adaptation and agricultural productivity to rural farmers (Okumunu, 2018). It has advantages over

other mass media such as television and newspaper in terms of being handy, portable, easily accessible and cheap. It is the most portable of the broadcast media, being accessible at home, in the office, on the street, virtually everywhere at any time.

According to APC Women Support Programme (2016), Radio remains the most powerful, and yet the cheapest, mass medium for reaching large numbers of people in isolated areas in their native language. Combined with other media, it can be used for training and the transfer of climate information, knowledge and technologies. It can promote dialogue and debate on the major issues of rural agricultural development as well as providing a platform for the expression of rural farmers on the effect of environmental changes on their farms. Successful features include live public shows, discussions and village debates (Mika, 2012).

Projected aids: Films, colour slides, filmstrips and overhead projector transparencies are useful as teaching aids, bringing colour, variety and interest to an extension communication. Information agents are, therefore, more likely to use them in training centers, village squares, town halls and school fields/halls, although some slide projectors can be adapted to work from a 12-volt car battery. Films, filmstrips and slides are best used at night or in a room with curtains drawn or shutters closed (Popoola, 2008). A film is a mass medium, in that it is shown to large audiences in many different places, but for an individual information agent who uses it to increase the impact of a talk, it is an audio-visual aid. Daylight screens can be used for small groups of rural farmers (Ezema, 2006). Overhead projectors can be used in daylight, provided the sun is not shining directly on the screen or wall on which the image is projected (Patil, 2012). Some of the climate change related images that can be projected using these tools include, farms affected by drought, irrigated farms, flames of burning fossils, emissions from farm implements, cars, erosions etc.

Colour slides: A slide set can easily be modified or updated by replacing one or more slides. If they are kept dry and free from dust and fingerprints, they will remain in good condition for many years.

An agent can either provide his own spoken comments on the slides, or a commentary can be

recorded on an audio cassette. With synchronized equipment, the tape can be modified so that slides automatically change at the appropriate point.

Filmstrips: These contain a sequence of slides in a single continuous strip of film. They are shown on a slide-projector fitted with a filmstrip carrier between the projector body and the lens. They cannot be modified easily and the sequence is fixed, but individual frames cannot fall out or be put into the projector the wrong way round (Moore, 2011). They are useful when a fixed message has to be presented many times.

Overhead projectors: These are usually only found in class-rooms. Diagrams and texts are put on to a sheet of transparent acetate with special felt pens; the acetate is then placed on a flat glass platform through which a light shines, projecting the contents on to a vertical screen. The agent can write on the acetate while facing his audience, or he can prepare it beforehand (Mika, 2012).

Video: Videos is being extensively and increasingly used to improve rural extension service and information dissemination. There are many examples of audiovisual resources that have been produced for training and dissemination of information among rural farmers (Moore, 2011). They cover topics ranging from agricultural production techniques, natural resource management, small-scale irrigation, crop production, food processing, soil erosion, and other climate change related issues. Video is an important tool for enlightening decision-makers on the concerns of rural farmers and the critical problems pose to them by climate change.

Multimedia: The combination of several media approaches and tools with interpersonal channels multiplies the impact of communication campaigns, which are being used increasingly to support clearly defined development priorities (Obi, 1992). Multichannel communication approaches can also help in identifying appropriate agricultural technologies for women as well as in disseminating the required knowledge and skills.

The Role of Audio Visual Resources for Skills and Knowledge Acquisition on Climate Change Adaptation of among Farmers

The use of audio visual resources in inculcation of climate change adaptation information to rural farmers is deemed very vital. Climate change adaptation is to both for the literate and non literate farmers. It makes sense as farmers learn very quickly by hearing and watching rather than reading. Many farmers may not have the tendency to memorize the print easily even when they are able to read. Audio visual resources assist in making learning permanent since it presents a vivid picture of the concept and context that being presented. Farmers are not inclined to reading by derive joy in watching their crops and animals grow. This entail that when they are shown audio, visual and audio visual resources of climate change content, points are driven home and strategies of coping with climate change are easily adapted. As stated by Okorie (2010), audio visual resources make subjects such as climate change adaptation interesting and encourage farmers to learn it in detail; help all farmers to understand the issue of climate change adaption easily and grasp it completely, as a result of differences in understanding; enhance the conceptual thinking of rural farmers; and helps to enliven the learning pattern, hence, learning environment and experience becomes interesting since they come in different forms and formats. Again, they assist rural farmers to learn faster and with accuracy; present learning with visual representation which stays in memory of mainly illiterate rural farmers for a longer time than other teaching aids like textual presentation. They also give learners opportunity to encounter learning directly. Efforts should therefore be made at improving skills and knowledge acquisition for environmental climate risk implications communicated in good time, unambiguous and in relevant terms through credible media. It becomes vital for efforts geared towards mobilizing rural farmers to take pragmatic steps that will enhance their knowledge capacity in mitigating and adapting to climate change.

Problems associated with Effective Utilization of Audio-visuals for Climate Change Information to Rural Farmers

Studies describe the problems facing information provision in rural areas to include: poor infrastructure, impassable roads, limited access to telecommunication networks and poor

electrification Bernard et al (2013). These constraints has made these farmers to stick to their old traditional methods of farming system and animal husbandry practice, hence resulting in poor crop and livestock productivity (Obidike, 2011).

Inconsistent power is a disturbing problem in the use of audiovisual resources in the Utilization of audio visual resources for inculcation of skills and knowledge of climate change adaptation to rural farmers for improve agricultural output. Oragui (2012) also stated that inconsistent electric power supply has reduced the use of available audio visual resources in dissemination and the Utilization of audio visual resources for inculcation of skills and knowledge of climate change adaptation to rural farmers. There is insufficient power supply to operate the audio visual resources that is available. Most of these materials like projectors, Radio, films and television e.t.c cannot work without the electric current which is not available in a large number of schools.

Again, poor maintenance culture and lack of storage facility hinders effective utilization of audio visual resources for inculcation of skills and knowledge of climate change adaptation to rural farmers for improve agricultural output. In line with this, Patil (2012) stressed that lack of proper maintenance of audiovisual resources and facilities to preserve audio visual resources constitute a problem to their effective utilization. Some audio visual resources require frequent maintenance to enhance their effectiveness. Most of the audio visuals are used without proper maintenance thereby exposing them risk of damage. Again, some of the materials are carelessly kept dusty and dirty environment in which they are exposed to rain and sun as a result of poor storage facility Madu (2000).

Other challenges facing the utilization of audio visual resources for inculcation of skills and knowledge of climate change adaptation to rural farmers for improve agricultural output is lack of trained extension personnel. Utilization of Audiovisual service have specific staffing

requirements and particular skills are needed to develop and manage these resources, know how to set them up, maintain the equipments to be in good running condition and dismantle them where necessary (Michael, 2005). Gross lack of trained personnel to handle the available Audio Visual resources disrupts the proper usage of these resources in rural communities in dissemination. In a situation where librarians are not computer literate, it becomes difficult to operate the system.

Annuel (2014) noted lack of proper linkage between public libraries and extension workers, lack of motivation to extension workers, high cost of information materials, lack of rural libraries/information centres, language barriers e.t.c. The scholars however stated that in order to achieve the goal of disseminating information to rural farmers, there should be linkage between public libraries and extension workers.

Lack of fund for the acquisition of relevant audio visual resources is also a factor (Agbo, 2019). The difficulty of getting fund for climate change adaptation information inhibits the ability of extension workers to organize trainings, workshops, seminars etc. even to recruit interpreters and local extension agents becomes challenging because it requires huge sum of money to engage these resources.

More so, adoption of Information Communication Technology (ICT) for utilization as an information communication tool for rural farmers to enable them cope with climate change threats has posed enormous challenge to extension agents. This includes relatively high costs of services and lack of supporting infrastructure is the prominent challenges facing the use of ICTs.

Recommendations and Conclusion

In order to overcome these numerous challenges facing the utilization of audio-visual resources for inculcation of climate change adaptation information to rural farmers for improve Agricultural output, there becomes an urgent need for adequate funding of the extension services, ensuring proper and adequate maintenance culture, providing user education in order to train the

farmers and extension agents on the use of audio visual resources, regular training and re-training through workshops, seminars, conferences, in-house-training e.t.c Chukwueke (2020). Other recommendations are provision of constant power supply, provision of internet connectivity in rural communities, establishment of rural libraries, acquisition of relevant audio-visuals resources etc. Other recommendations for improving the utilization of audio-visual resources for inculcation of climate change adaptation information and improved agricultural out of rural farmers include:

1. Recruitment of more librarians/ extension workers to disseminate information to rural farmers.
2. Establishment of rapport between public libraries and extension workers for effective service delivery of information to rural farmers.
3. Identifying the most effective Information sources for use
4. Packaging and repackaging climate change information to rural farmers.
5. Establishment of rural libraries in rural communities.
6. Encouraging the use of audiovisual materials by public librarians/extension workers etc

For any farmers to be acquainted with the skills and knowledge of climate change adaptation, there is need for the different agents involved to work towards using audio visual resources for effective adaptation measures. This may not be realized if audio visual resources are not provided, managed by all the individuals and groups involved, including the local government, public libraries and other agents involved in information provision to the rural farmers. Only when all these groups work together that rural farmers will garner skill and knowledge for climate change adaptation through audio visual resources.

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