

Review

Utilization of climate change information sources among farmers in Nigeria

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Received 2 April 2021; Accepted 28 April 2021 Published 20 May 2021

ABSTRACT: The study examined existing literature on the sources of climate change information and their utilization among Nigerian farmers. It was also discovered that there was a high level of awareness of climate change information in the state, with major sources of climate change information including radio, television, and extension services. Farmers also use climate change information to make decisions about what and when to plant, as well as to plant improved crop varieties, among other things. There are also challenges such as decreased annual rainfall, deforestation, insect-pest attacks, and high temperatures, to name a few. A recommendation was made for a more intensive climate change awareness campaign, as well as increased budgetary allocation to the agricultural sector for more mitigation and adaptation capacity for farmers.

Keywords: Utilization, awareness, farmers, information, climate change, Nigeria

INTRODUCTION

Climate change is no longer breaking news. What will be news for a long time is the vulnerable population's level of awareness, access, and capacity building for adaptation and or mitigation of the effects of climate change around the world, particularly in developing countries like Nigeria. Over the years, world leaders have held international summits to find solutions to this global threat. According to Stevens et al. (2017), the most recent agreement reached by the UN Conference of Parties at the World Climate Change Conference (COP21) in December 2015 has been hailed as a watershed moment by many. According to them, the agreement is still fraught with issues. As a result, some world leaders are questioning their total commitment to the agreement's tenets. As our interest is in the availability, awareness, access, and, of course, utilization of information on climate change, we will avoid as many technicalities as possible in this work and stick to basic layman knowledge.

Banmeke et al. (2017) emphasized that the Intergovernmental Panel on Climate Change (IPCC, 2001) defines climate change as a statistically significant variation caused by human and nonhuman activities that lasts for decades or longer. Deforestation, oil spills, and gas flaring are examples of human causes, while volcanic eruptions and ocean currents are examples of non-human causes. This definition shows that it is caused by both man's activities and uncontrollable natural circumstances. It poses a significant threat to both the highly industrialized and less industrialized worlds. It has also been reported that the third world or developing countries are more vulnerable to the effects of climate change, despite the fact that developed countries emit the most carbon and other high-level industrial waste. The sub-region of West Africa is also said to be more vulnerable. Individually, farmers, fishermen, other rural dwellers, and urban dwellers are the most vulnerable groups. This high-risk level of Africa and particularly,

Sub-Saharan Africa, obviously is as a result of the high rate of illiteracy, poverty, ignorance, and corruption perpetrated by successive corrupt governments who lacked the necessary political will to implement to the later some notable sound educational, economic, and agricultural policies/interventions they had developed at different times in history towards their various countries' national development plans. According to Abdulhamid (2015) some of these policies in the agricultural sector aimed at achieving food security and self-reliance since 1970 included Agricultural Development Project (ADP), Farm Settlement, and National Accelerated Food Production Programme (NAFPP), Operation Feed the Nation (OFN), Agricultural Credit.

Guaranteed Scheme (ACGS), Directorate of Food and Rural Infrastructure (DFRI) others are National Special Programme for Food Security (NSPFS), National Food Reserve Agency of Nigeria (NFRA), and Agricultural Transformation Agenda (ATA). Despite all these laudable programmes, Nigeria has not been able to achieve food security and self-reliance, perhaps as a result of various forms of climate changes bedeviling it, ranging from desertification; recession of Lake Chad –Wakili, (2018) reported that Lake Chad Basin has dried up to 10 percent of its original size.; oil pollution in the Niger Delta; flooding – across the country; to gulley erosion in the southeast and excessive heat. According to an AFP news report from August 24, 2010, the Nigerian Meteorological Agency had predicted low rainfall, but it came down in torrents. It does not imply that the agency was not confident in their prediction, but that climate change had an impact on it. According to Rabi (2014), "Information is knowledge communicated or received concerning a specific fact or circumstance, knowledge gained through study, communication, and research." The adage "information is power" will be relevant in man's life for a very long time. If information is required to make an informed decision that will help us avert or at the very least mitigate disasters caused by climate change, citizens, particularly the most vulnerable, have the right to have it.

The vulnerable can build the capacity to adapt to or mitigate the effects of this threat to humanity with the right and timely information; otherwise, the risk of human extinction should not be wished away. The Nigerian government is working hard to diversify the country's economy, with agriculture as the primary focus. Some of the consequences of climate change that affect food production include sudden changes in weather, a lack of rainfall, land degradation, desertification, and flooding, as well as excess heat. The Federal Ministry of Environment established a Climate Department. Change with the mandate of driving the Federal Government's vision for mitigating and adapting to climate change impacts. Their mandate includes, among other things, providing

leadership in promoting the appropriate adaptation culture, as well as supporting research, education, and awareness. Our governments are excellent at making laws, but they do not have a culture of willingly putting those policies into action. It is impossible to overstate the importance of being aware of available knowledge. Adapting to the threats of climate change by transitioning to modern climate-smart farming practices is becoming more difficult due to a lack of knowledge (Ibrahim, 2017). Beyioku (2016) reported that one of the solutions proffered by a 2 Day South-South Regional Workshop on Climate Change Capacity Building was raising awareness on issues of climate change that is presently at low ebb especially amongst vulnerable groups like women, children, even at the grassroots, especially rural dwellers, as well as reviving the tree planting program by raising awareness for individuals to plant trees. This indicates that awareness of climate change problems in Nigeria is low, implying that our government has not done enough to address the problem. Climate change issues should be common knowledge by now, forcing people to use the details. It is only when the right climate change information is available and people are aware of them, and also access them, (for one thing is to know about information and yet another thing to access it) that it can be utilized, which of course results to taking right decisions regarding what to plant at what time as well as other things to do per time can be achieved and effect of climate change on our agriculture and animal production endeavors would have been reduced or averted.

Awareness of the term climate change

According to Akpan et al.(2012) a report in The Guardian, Monday March 9, 2009, p. 31 established that Nigerians' understanding of climate change-related issues including the negative effect of the fast changing climate on lives is low. However, in their study Abdulkareem et al. (2012) observed that awareness of teachers on climate change was high with a high rate of 84% but on the contrary, the awareness rate of the students was very low with only 31% indicating their awareness of the phenomenon. It is worrisome that the teachers have such a high rate of awareness while their students recorded a very low awareness level. This is an indication that it is not yet included in our schools curriculum. These children if they are aware of this phenomenon can help in spreading the information. Idoma and Mamman (2016) in their study discovered that 92% of their respondents were aware of the term climate change and variability. According to them, the high rate of their awareness is an indication that climate variability is very evident coupled with the fact that 49.2% of the farmers had over forty years of farming experience. Moreover, Adeleke and Omoboyeye

(2016) reported a 100% awareness of climate change by their fish farmers' respondents. This high percentage could be as a result of high literacy rate in their study area or among his respondents.

Climate change information

The saying that Information is power is incontrovertible. It takes information to make a right or an informed decision. In the face of the threats posed by climate change to the world especially Nigeria, there is need for adequate and timely information to be given out to the public. This information will help the people especially the vulnerable to build capacity for adaptation and or mitigation of the effects of climate change. Idoma and Mamman (2016) in their study revealed that early warning signals, Rainfall Prediction, Drought Prediction, Adaptation Technology, Food aid, Temperature change, Human Health Services and Veterinary services had mean scores above two, placing them on top as needed climate change information. Similarly, Idoma and Mamman (2016) reported the need for climate information and knowledge sharing between scientists, policy makers and community institutions in order to enhance practical adaptation at the grassroots level.

Causes of climate change

Climate change or global warming has been said to be caused by both human and natural factors. According to Intergovernmental Panel on Climate Change (IPCC) in Onu and Ikehi (2017), the causes of climate change can be linked basically to factors such as: Industrial revolution, for instance the activities of automobiles and other industries have led to emission of several gases like carbon dioxide into the atmosphere which over time affects the composition of greenhouse gases leading to altered climate; Burning of fossil fuels by oil producing companies and refineries which emit greenhouse gases into the atmosphere; Land use change such as deforestation and desertification which leads to climate change, and Agricultural activities such as bush burning, fertilizer application, fermentation among others, all of which are anthropological influencers of climate change. At present the world is passing through global warming situation caused by anthropogenic factor (human activities) and if it continue unabated for decades or centuries with significant ecological impacts then, the earth will attain a changed climate (warm or hot climate) (Odjugo, 2011).

Effects of climate change

Ibrahim (2017) reported that Godai village in Nigeria's North western State of Kaduna is already witnessing

reduced rains, with the farmers lamenting poorer rice, maize, and vegetable harvests. According to him, the long-term forecast is for still dryer conditions across the north, with the potential decline in yields for rain-fed agriculture as high as 50 percent. Low yield is one of the effects of climate change on farmers. This is as a result of irregular/unpredictable rainfalls, severe heat, desert encroachment, flooding, shrinking of rivers and lakes, soil degradation, landslides, erosions amongst others. Dadzie et al. (2012) in their findings agreed with this when they reported that the production experience of the food crop farmers interviewed revealed that flooding, pests and diseases outbreaks, drought and erratic rainfall are the common incidence of events they have been encountering with seasonal shifts due to climate variability and change. Sagoe (2006) also agreed with this in her report on study of climate change and root crop production in Ghana, Factors such as unreliable, irregular and unpredictable rainfall are some of the effects of climate change. Idoma and Mamman (2016) reported major adverse effects of climate change in the area they studied as flooding of farm land, crop failure and poor harvest, poor performance and high mortality rate of livestock, wilting and decaying of farm produce, poor fish harvest and unusual pests/diseases of crop and animal. They reported that all the above variables had mean score of above two. Thus, they are serious effects of climate change on the socio-economic activities of Agatu Local Government Area of Benue State.

Sources of climate change information

Owusu-Ansah, in (Anunobi, and Udem, (2014) defined information as factual data, ideas, and other knowledge emanating from any society that are identified as being of value, sometimes gathered on a regular basis, organized in some fashion, transmitted to others, and used in some meaningful way. From the above definition it can be deduced that information is meaningless if it is not collected, processed, disseminated and used. As dissemination of information on climate change is very essential so, also is the source of the information. There is a target audience for any information and there is a right source to get that information to that very audience. It is only then that the information can be said to have been rightly and properly disseminated. Various sources of information dissemination abound, viz; the Mass Media – Print and Non- print media. Newspapers, Magazines and Radio, Television. This days the advent of Information and Communication Technology (ICT) (internet and the World Wide Web) has provided another powerful means of information dissemination. It uses various platforms such as blogs, social media network – facebook, WhatsApp, imo, Linkden etc. as well as the

Libraries, extension workers (for some technical areas), posters and handbills, community channels (town criers), and so on. Annor-Frempong and Nana Acquah (2012) in their study reported that a majority (85.3%) of their respondents used the media (Television and Radio) for information on climate change, and it is regarded as the most effective sources. Akpan et al.(2012) conducted a study on the Influence of the Nigerian Mass Media on Public Understanding of Climate Change and discovered that Interpersonal communication, internet and television still had an edge over newspapers as sources of climate change information for the respondents. That Interpersonal communication ranked the highest among the sources of information on climate change for the respondents. It was only 19 (4.75%) respondents out of 400 who indicated having ever read a story in a newspaper on climate change. The respondents who had read newspapers did not remember reading up climate change stories. Idoma and Mamman (2016) in their study revealed four major channels of climate information communication in their order of acceptance to the respondents. Community channels (extension workers, neighbours/friends) very high significant rate, Mass Media (Radio & Television) came second while Print Media (Newspapers, Pamphlets) ranked third and Electronic Media (internet, SMS) ranked fourth.

Utilization of information on climate change

When information is received, it becomes relevant only when it is utilized. Climate information is meant to avert (adapt or mitigate) the effects of climate change. In their study, Idoma and Mamman (2016) revealed that taken decision on when to plant crop came first as being very important, taken decision on when to harvests fish from ponds ranked second (important), planning mitigation for flooding was ranked third (moderately important) while general daily activities came fourth (of little importance).

Challenges in accessing and utilizing information on climate change

Idoma and Mamman (2016) reported limited access to radio, TV and internet as well as poor translation of climate change technologies with a very high percentage of (94%) as barriers to climate information communication in Agatu . Other barriers are technicality of the message (85%), lack of trust in source of information (82%) and cultural barriers (80%). Their findings was corroborated by Schubert, (2014) and Speranza, Kiteme, Ambenje, Wiesman & Makali (2010) who reported that communication of climate information to support adaptation action in Africa is hindered by

several contextual factors, viz Socio-cultural, content-related and technological barriers. Meanwhile, most of the challenges faced by farmers as gathered from discussions and interview include, reduction of annual rainfall, excessive heat (high temperature), depression of underground water, discrepancies between predicted and actual rainfall, soil erosion, afforestation activities, land tenure system and incidence of pests which attack our agricultural produce are some of the pressing issues requiring climate change information in the state. Furthermore, other agricultural challenges beside climate change is lack of budgetary allocation to cater for the teaming farmers' population, lack of credit facilities and poor market are the major challenges. Also at times, food production is expected to be less than normal due to shorter growing season. Daily Sun Newspaper of Tuesday 7th August 2020 quoted some farmers as lamenting that they "started rice farming early last year but couldn't make any harvest because of flood and that they don't have money, hence they could not insure their farms".

Conclusion

The world leaders have for some years now been brainstorming on what or how to contend with the biggest threat of the moment, irregular change of climate otherwise known as climate change. This changes is negatively affecting the overall survival of human race and other living organisms on the surface of the earth, because lives of all living organisms depends on water, humidity, air, soil to survive. The air pollution occasioned by emission of gases from factories, vehicles, domestic use of fire woods etc greatly affects the Ozone Layer and the earth crust thereby causing reduction in rainfall, humidity, and increases carbon dioxide concentration on earth which in turn lead to poor agricultural produce. However, the machinery put in motion by the government at all levels, international organizations and NGOs in the state to create awareness and encourage farmers to utilize given information yielded good results as the farmers awareness, access and utilization levels of information on climate change are high, therefore the State has no reason not to be at the fore front of this government's economic diversification with agriculture as the focus, thereby improving the socio-economic activities of its populace who are literally farmers.

Recommendations

Based on this study, the following recommendations were given:

1. As a result of threat posed by climate change to

humanity in the area of food scarcity, there is urgent need for adequate and timely provision of information on climate change to the public, as this will allow people to build capacity for adaptation or mitigation of the effects of the phenomenon

2. Governments at all levels should increase their budgetary allocation to agriculture and provide accessible credit facilities to farmers to enable them insure their farms so as to minimize the burden of loss as a result of effects of climate change.

3. Government and Non-Governmental Organizations should do more on training of more personnel and sending them to all nooks and crannies of the State to create more awareness on current happenings concerning climate change; this will help the people to be more proactive in handling outcomes of this phenomenon.

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