



## **Extension Workers' Use of the Internet for Sourcing Information on Climate Change: In Taraba State, Nigeria**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.*

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### **ABSTRACT**

Climatic changes have led to adverse effects on agriculture in recent years; therefore extension workers would require unimpeded access to information on climate change if they are to contribute their quota in the current global fight against the menace of climate change to humanity. Over the years the internet has remained an important source of information for agriculture and rural development hence, this study was conducted to examine the use of the internet by extension practitioners for information gathering on climate change and to draw possible implications for the Agricultural Transformation Agenda. The study was conducted among extension workers of the Taraba Agricultural Development Program (TADP). Three Agricultural zones were randomly selected from the four agricultural zones in the state from which 72 respondents were sampled at random for questionnaire administration. Data was analyzed using frequency, percentage and

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mean score in line with the specific objectives of the study. Results showed that majority of the extension workers (64 percent) do not know how to use the internet with another 64 percent not being able to operate a computer. Findings further revealed that 78 percent of the respondents do not own email accounts and only 24 percent indicated that they use the internet to source information on climate change. Perceived constraints to internet use were identified and appropriate recommendations were offered.

*Keywords: Agricultural information; extension personnel; obtaining; climate change.*

## 1. INTRODUCTION

Climate change is a serious threat to sustainable development. It is arguably the most important long-term driver of change in the food, water and energy sectors (Evans, 2011; Kisoyan, 2011) in [1]. It accounts for 90% of the world's natural disasters and causes over 95% of all deaths attributed to natural disasters occurring in developing countries and its cost in Africa could be as high as 7%-10% of GDP by 2100 (ASARECA, 2009; Kisoyan, 2011; Nordas & Gleditsch, 2007 in Gowland-Mwangi, [1]. The disasters caused by climate change could worsen if extension personnel do not source for information on climate change adaptation and mitigation strategies and make same available to the farmers with a view to expeditiously transform the Nigerian agricultural sector.

Agricultural information is no doubt central in enhancing agricultural productivity and facilitating poverty alleviation among rural farmers [2]. However, for information to be available to the users it has to be sourced from a medium or a combination of media one of which is the internet. The internet as a mass media has continued to be an important means of communication that has aided the process of agricultural production in a variety of ways. Some of the ways as mentioned by Nwachukwu, [3] include the creation of awareness and innovation diffusion. In the same vein, Anjo, Yakubu and Usman [4] posited that the mass media has been found to play a greater role in the process of positive change.

Agricultural extension workers have the primary responsibility of reaching out to farmers with timely and useful agricultural information that would help the farmers to increase their production and income earnings. However, in situations where this responsibility is not properly carried out, the farmers may stand the risk of being misinformed or even uninformed. Consequently, their farm business may suffer adverse effects including those posed by climate change.

## 2. PURPOSE OF THE STUDY

Considering the importance of the internet in agricultural extension service delivery it is imperative that its usage by extension workers be studied. Although in the recent past many studies have been carried out on ICTs utilization by extension workers [5,6,7]. There appears to be limited research on the subject with particular reference to climate change in Taraba State.

Therefore, this study attempts to understand extension workers' perceived utilization of the internet for sourcing information on climate change.

The specific objectives of the study were to:

- i. Describe the personal characteristics of the extension workers in the state
- ii. Investigate respondents' usage of the internet in relation to climate change,
- iii. Investigate respondents' perceived constraints to ICTs access and use for sourcing information on climate change.

## 3. MATERIALS AND METHODS

The study was conducted in Taraba State, Nigeria. Taraba State is located in the North-Eastern region of Nigeria between latitude 6° 30 and 10° 36 North of the Equator and Longitude 9° 10 and 11° 50 East of the Greenwich Meridian [8]. The population of the study consisted of extension personnel of the Taraba Agricultural Development Program (TADP). Questionnaire was used for data collection from 72 respondents however; only 50 questionnaires were properly filled, retrieved and analyzed. The instrument contained information on personal characteristics, access to ICTs and perceived constraints to ICTs access and utilization. Multi-stage and random sampling techniques were employed to select the respondents.

In the first stage, 3 agricultural zones were selected at random. The second stage involved

a random selection of 3 Local Government Areas (LGAs) from each zone. However, since Wukari zone is comprised of only 3 LGAs, all the 3 were selected. In the third stage, respondents were selected from the LGAs in proportion to their size based on a sampling frame of 126 extension personnel obtained from the TADP Headquarters, Jalingo. Data analysis was by simple descriptive statistics e.g. frequency, percentage and mean.

## 4. RESULTS AND DISCUSSION

### 4.1 Demographic Characteristics of the Respondents

The demographic characteristics of the respondents are presented in Table 1. The variables considered were age, sex, educational qualification and working experience. The result of the analysis on age distribution of the extension workers shows that 40 percent of them fall within the age range of 31 – 40 years. This indicates that most of the respondents were adults and fall within the economically active age group. This finding is consistent with Salau and Saingbe, [6] who found that extension workers in Nasarawa State, Nigeria are in their middle ages. Similarly, the distribution of the respondents on the basis of sex shows that majority were males (60 percent). The result implies that there were more male extension personnel than females in the employment of the ADP in Taraba state. This could be due to the belief especially, in northern Nigeria that women should be secluded at home to undertake domestic works. Furthermore, Table 2 also indicates that most (40 percent) of the respondents held ND/NCE educational qualifications with only (6 percent) having Bachelors' degrees. This finding is in close agreement with Issa, (2013) who reported that OND and HND holders abound in the ADPs across the country. In the same vein, findings on working experience shows that 34 percent of the respondents have worked for between 6-10 years with another 26 percent of them having between 11-15 years of working experience. This shows that majority (60 percent) of the respondents have worked for between 6-15 years.

Findings further revealed that only 24 percent of the respondents indicated that they use the internet for sourcing information on climate change. However 64 percent of them said they do not know how to operate a computer, 78 percent said they do not own an Email account.

These findings have the potential of affecting the transformation agenda in an adverse manner in view of the importance of ICTs in agricultural information gathering and dissemination. According to FAO, [9] ICT can be of immense help by enabling extension workers to gather, store, retrieve and disseminate a broad range of information needed by farmers, thus transforming them from extension workers into knowledge workers that will result in the realization of the much advocated bottom-up (demand- driven) technology generation, assessment, refinement and transfer.

Table 1. Personal characteristics of the respondents

Personal characteristics	Frequency	Percentage
<b>Age</b>		
20 to 30	11	22
31 to 40	20	40
41 to 50	14	28
50 and above	5	10
<b>Sex</b>		
Male	30	60
Female	20	40
<b>Marital status</b>		
Married	30	60
Single	16	32
Divorced	3	6
Widowed	1	2
<b>Education</b>		
Primary	1	2
Secondary	3	6
Certificate course	5	10
ND/NCE	20	40
HND	17	34
Bachelor's degree	3	6
Master's degree	1	2
PhD	0	0
<b>Work experience</b>		
1 to 5	8	16
6 to 10	17	34
11 to 15	13	26
16 to 20	7	14
20 and above	5	10
<b>Ownership of Email</b>		
Yes	11	22
No	39	78
<b>Ability to use the internet</b>		
Yes	12	24
No	38	76
<b>Ability to operate a computer</b>		
Yes	18	36
No	32	64

Source: Field survey, 2013

#### 4.2 Respondents' Usage of the Internet for Sourcing Information on Climate Change

Findings as presented in Table 2 reveals that majority of the respondents (76 percent) do not use the internet to source information on climate change. While only 10 percent of the respondents indicated that they frequently use the internet in sourcing information on climate change, 14 percent said they moderately use the internet for the same purpose. Baba and Adamu, [10] had earlier reported a low access and utilization of emails and the internet for climate change information gathering and transmission in Taraba State, North-East, Nigeria.

**Table 2. Respondents' usage of the internet for sourcing information on climate change**

Internet usage	Frequency	Percentage
Frequently used	5	10
Moderately used	7	14
Not used at all	38	76

Source: Field survey, 2013

**Table 3. Constraints to ICTs accessibility and utilization by respondents**

Types of constraints	No.	Mean	SD
Poor electricity supply	50	1.96*	0.19
Inability to operate ICTs	50	1.62*	0.49
Lack of money to buy ICTs	50	1.84*	0.37
TADP lacks adequate ICTs	50	1.4*	0.81
Lack of interest in ICTs	50	0.7	0.82

Source: Field survey, 2013; \*Serious constraint; SD= Standard Deviation

#### 4.3 Perceived Constraints to ICTs Accessibility and Utilization by the Respondents

Table 3 indicates that of the five perceived constraints to ICTs accessibility and utilization the respondents considered the following as serious constraints: poor electricity supply (X=1.96; SD=0.19), inability to operate ICTs (X=1.62; SD=0.49), lack of money to buy ICTs (X=1.84; SD=0.37), lack of ICTs by the TADP (X=1.4: SD=0.81). Similar constraints to ICT access and utilization by extension personnel were reported in Borno State, Nigeria [7]. The implication of these findings is that the implementers of ATA should take these four constraints into cognizance with a view to

resolving them in order to transform the agricultural sector of the Nigerian economy.

#### 5. CONCLUSION AND RECOMMENDATIONS

The study examined internet usage for sourcing information on climate change among extension personnel of the TADP. From the results of the study, it was concluded that majority of the respondents do not own an email account, are unable to operate a computer and are not using the internet for sourcing information on climate change. It was also the conclusion of this study that most of the extension workers are not well educated to adequately undertake the very important task of extension services delivery that could benefit the agricultural transformation drive of the Federal Government. Similarly, the main constraints to access and utilization of ICTs for extension purposes by the extension workers include poor electricity, lack of technical know-how to operate ICTS, lack of fund on the part of extension workers to purchase ICTs and inadequate ICTs at the disposal of their organization. The obvious implication of these findings is that extension personnel in Taraba may be least likely to make meaningful contributions to the on-going Agricultural Transformation Agenda if their current conditions with respect to education and ICTs are not improved.

On the basis of these findings, it was recommended that:

- i. Rural areas should be provided with physical infrastructure such as electricity to enhance access and utilization of ICTs.
- ii. Government should provide adequate ICTs at work places to benefit extension personnel
- iii. Capacity building of extension personnel in the area of ICT usage should be prioritized by concerned stakeholders
- iv. Extension personnel should be motivated to improve their level of education and they should also be supported to attend training especially, in the area of ICTs

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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