



Access and Utilization of Climate Change Information and Support Services among Vulnerable Communities in Agatu LGA, Benue State, Nigeria

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Abstract

The study investigated access and utilization of climate change information and support services among vulnerable communities in Agatu Local Government Area of Benue State, Nigeria. The study sought to answer how farmers perceive climate change and its local impacts on their livelihood activities; what are the climate information and support services that farmers would like to access, which pathways are most useful for climate information dissemination and support services, in what ways are these information and support services utilized and what are the barriers to effective communication of climate information to rural farmers. Structured and validated interview schedule as well as Focus Group Discussion (FGD) were used to collect relevant information from 250 rural farmers randomly selected from ten villages located along the bank of river Benue. Data were analyzed using percentage, mean and Likert Rating Scale (LRS). The findings revealed that almost all the farmers (92%) in these communities were aware of climate change and perceived change in rainfall, drought, floods, crop and livestock diseases to have been “very severe” over the last five years. Early warning signals (2.78), rainfall prediction (2.86), drought forecast (2.93) and adaptation technology (2.74) were the significant climate information and support services perceived to boost adaptation practices of farmers in the study area. Responses to LRS questions on preferred channel for climate change information indicated that the farmers preferred community channel (0.91) and mass media (0.85) to print (0.63) and electronic media (0.50). Results further showed that respondents utilize climate services principally in deciding time of planting crops and fish harvesting from ponds. The study concluded that combination of extension agents, radio and local administration would be more effective for disseminating climate information and support services to vulnerable communities. Hence, capacity building for extension service and integration of local medium in communication is necessary for interpretation of weather data to enhance effective dissemination of climate information and support services to vulnerable farmers in the study area.

Keywords: Agatu; climate change; climate information; climate services; vulnerable communities.

1.0 INTRODUCTION

Rain-fed agriculture is the principal source of food production and the livelihood basis of the bulk of rural people in sub-Saharan Africa (Cooper, Dimes, Rao, Shapiro, & Shiferaw, 2008; Hope, 2009). This makes agriculture vulnerable to climate variability and change (Intergovernmental Panel on Climate Change (IPCC), 2007a). In order to reduce the risk and likely negative impacts of climate extremes on agricultural communities, anticipatory adaptation is of importance. One way of promoting anticipatory adaptation is through climate information and support services (Mudombi & Nhamo, 2014). Global Framework for Climate Services (GFCS) 2011 defined climate services as:

“Climate services encompass a range of activities that deal with generating and providing information based on past, present and future climate and on its impacts on natural and human systems. Climate services include the use of simple information like historical climate data sets as well as more complex products such as predictions of weather elements on monthly, seasonal or decadal timescales, also making use of climate projections according to different greenhouse gas emission scenarios and time frames. Included as well are information and support that help the user choose the right product for the decision they need to make and that explain the uncertainty associated with the information offered while advising on how to best use it in the decision-making process.”

Instructively, climate information and support services are critical to providing Early Warning Systems (EAS) as well as increasing awareness for building the capacity and disaster preparedness to a changing climate. Hence, choice of the dissemination channels can influence access and use of climate information and service distributed to enable the susceptible groups exposed to climatic hazards build sufficient response capacities (Cherotich, Seidu, & Bebe, 2012). As a result, information and knowledge sharing between scientists,

policymakers and community institutions at the local level should be intensified (Mishra, Upadhyay, & Mishra, 2012).

However, in Africa (Nigeria inclusive), significant gaps still exist in provision of climate services for farmers, specifically downscaled location-specific forecasts, reliable, timely, and user-friendly climate information that effectively addresses farmer’s needs. These lacunae could be attributed to barriers of poverty, inadequate infrastructure and financial constraint, illiteracy, lack of tailoring the information to meet needs of local stakeholders, non-integration of local institutions, cultural practices and experience into actionable adaptation decisions and a failure to use media that is easily accessible to rural communities (Carpenter, Visman, Tall, & Kniventon, 2012, Harvey, Diagne, Nnam, & Tadege, 2010, IPPC, 2007). Consequently, farmers often rely on indigenous knowledge (IK) for their seasonal forecasts, where locally observed variables and experiences are used to assess and predict the local weather conditions and climate e.g. onset of rains (Hampson, et al., 2014)

In Nigeria, the Nigerian Meteorological Society (NMETS) has the mandate to provide climate services for sustainable development and safety of life and property in the country. As a result, the agency produces Seasonal Rainfall Prediction (SRP) in the first quarter of every year. Moreover, the agency provides daily weather forecasts which are disseminated through the electronic media. Aside from NMETS, academic institutions such as universities, non-governmental organizations and research institutions are other principal sources of climate services in Nigeria (Onwuemele, 2013). Amidst these institutions and their services, climate related hazards that occurred in the last decade was overwhelming. Hence, there are reservations regarding the accessibility and utilization of climate services by vulnerable communities in Nigeria (Onwuemele, 2014). Effective access by these vulnerable communities to dissemination channels has however not been evaluated empirically.

Communities in Agatu Local Government Area are noted for high agricultural activities but highly susceptible to flooding because they are located proximal to the flood plain of River Benue. Consequently, most communities in Agatu suffered severe impacts during the 2012 flood disaster in Nigeria. In view of the adverse effect of climate change on subsistence farming, it is then imperative to investigate access and utilization of climate change information and support services among vulnerable communities in Agatu LGA. Hence, the following research questions were raised- How do farmers in Agatu LGA perceive climate change and its local impacts on their livelihood activities? What are the climate information and support services that farmers like to access? Which pathways are most useful for climate information dissemination and support services? In what ways are these information and support services utilized by the rural farmers? And what are the barriers to effective communication of climate information. Answers to aforementioned will make farming in the study area to be effective and also sustainable in the face of the threats posed by climate change. The study therefore aims to:

1. identify respondents' awareness about climate change;
2. ascertain the perceived adverse effects of climate change on the agricultural activities of the respondents;
3. Investigate climate information and support services that farmers like to access?
4. Examine pathways most useful for climate information dissemination and support services.
5. Determine the ways climate information and support services are utilized as well as barriers to effective utilization by the rural farmers

2. HYPOTHESIS OF THE STUDY

The following hypothesis stated in the null form shall guide this study:

H₀: There is no significant relationship between the farmers' access to climate information and their socio-economic characteristics.

3. CONCEPTUAL FRAMEWORK

There is no gain saying the fact that access to climate information and support services is requisite for coping, adaptation and mitigation practices considering glaring evidence of climate change and its threat to the livelihoods of millions of people in Africa and beyond. A conceptual framework, important to our understanding of the flow of climate information and support services to the vulnerable group of people is hypothesized in figure 1. The fundamental assumption of the framework is that highly disposed people to adverse impact of climate change can successfully access climate information and support services if circulated via mediums easily reachable and operational as well as user-friendly. These attributes will facilitate climate information access and utilization in terms of timeliness, reliability, accuracy, ease of use and depth of content. Instructively, the potential users of these channels include researchers, meteorological departments, development agencies and indigenous knowledge systems.

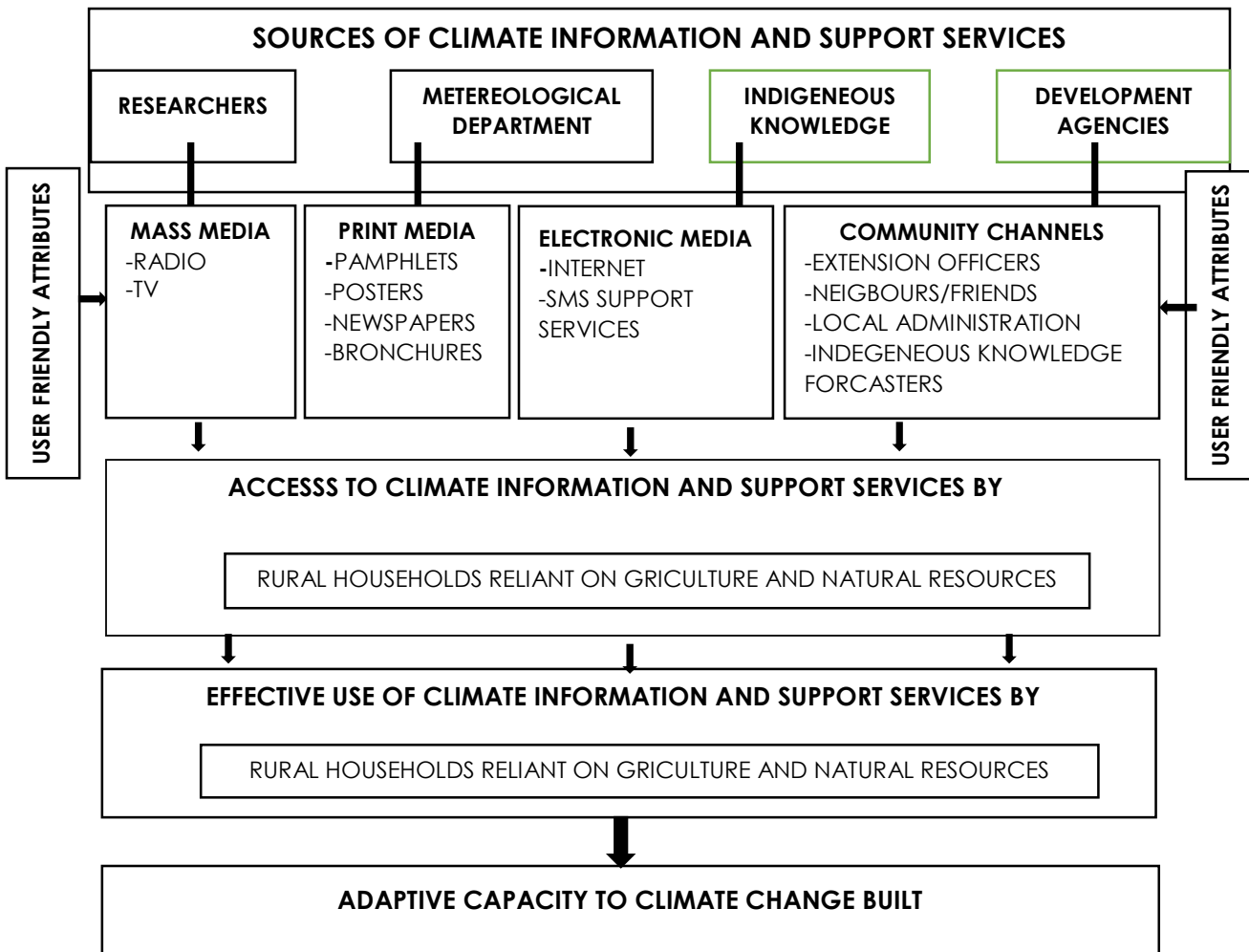


Figure 1: Conceptual framework on dissemination pathways of climate information and services to vulnerable people. **Source:** Adapted and Modified from Cherotich, Seidu, & Bebe (2012).

4. MATERIALS AND METHOD

4.1 Description of the Study Area

Agatu Local Government Area of Benue State was formally carved out of Apa Local Government on the 1st of October; 1996. It consists of 10 wards, stretches from latitude of 7^o 45¹ and 8^o N and longitude of 7^o 50¹ and 8^o E at the Northwest of the State (Gbue, 1999). According to Bureau for Land and survey, Makurdi, Agatu has a total area of about 1001km², with a population of 115,597 people (2006 census). Agatu is bordered by Nassarawa state in the North, Apa Local Government Area in the South, Gwer West in the East and Omala

Local Government (Kogi State) in the West (Fig.2 and 3)

It has two distinct seasons, the rainy season (900-1200mm of rainfall) which lasts from April to October and the dry season which begins from November to March with a dry dust-laden easterly trade wind called harmattan. Temperature of the study area is between 23 to 35^oC (Adaji, 2000).

Agatu local Government is principally an agrarian community and has the largest fadama land in Benue state. Its vast fertile land is tilled by the farming population giving rise to a variety of agricultural produce. However, its location at the

bank of river Benue makes it susceptible to flooding which causes great havoc to farming activities almost annually.

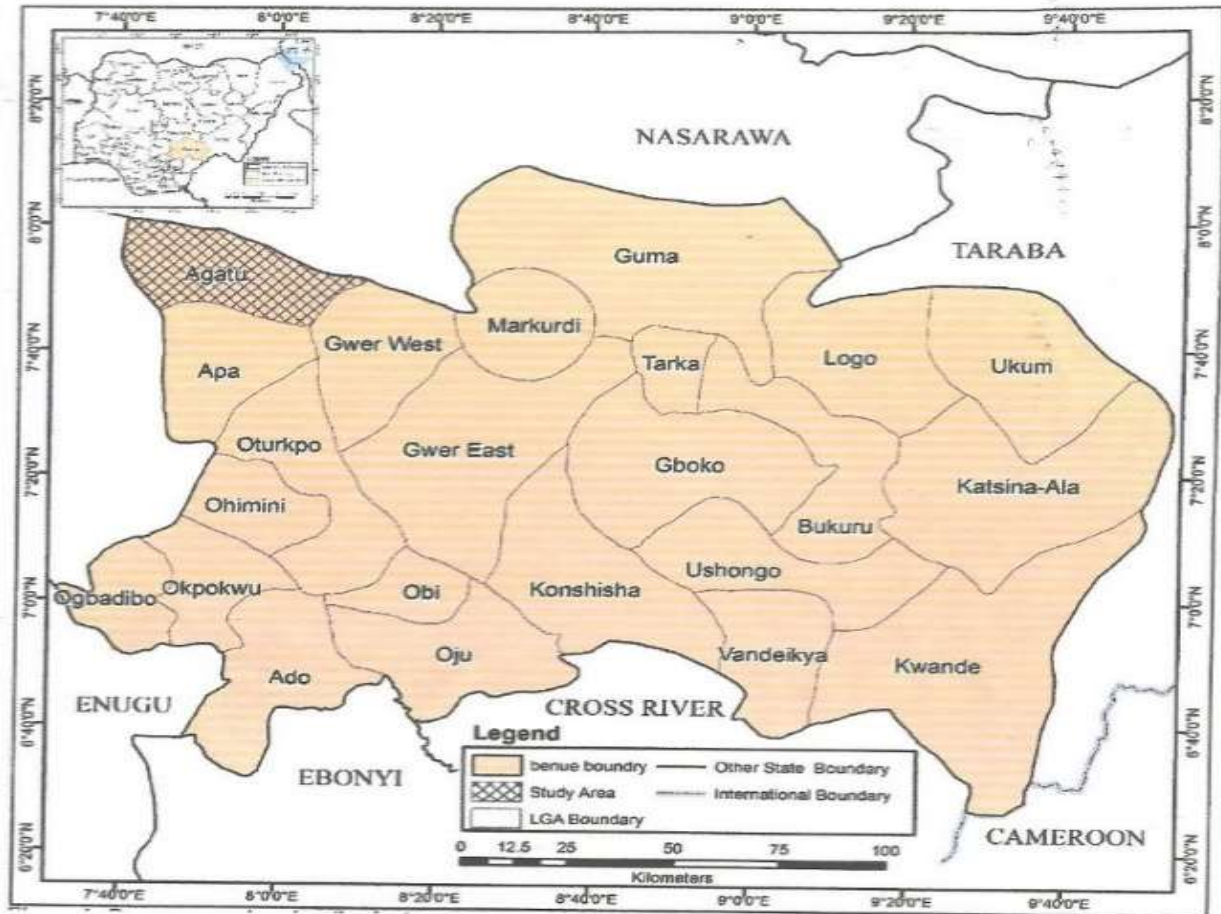


Figure 2: Study Area. Source: Adapted from administrative map of Benue State.

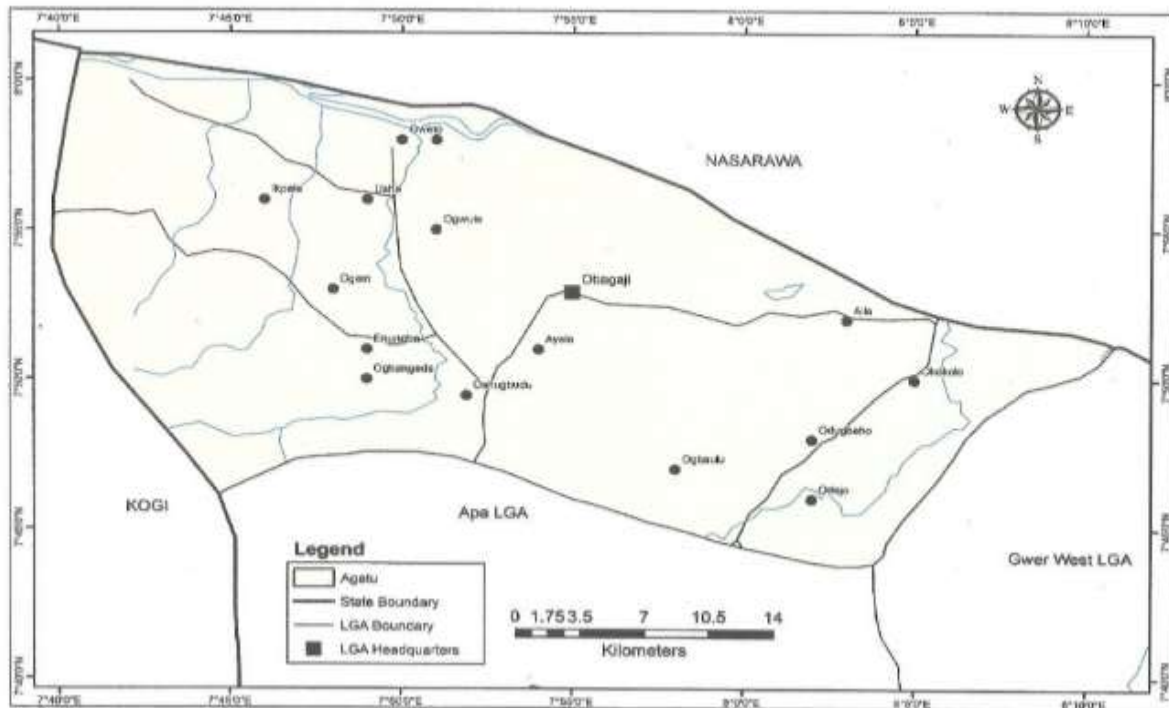


Figure 3: Agatu. Source: Adapted from administrative map of Benue State.

4.2. Study Design and Sampling

This survey methodology was used to investigate and assess agricultural and climate information as well as communication pathways which enhance the use of climate forecasts for informed farm-level decision making. In the course of surveying, different methods including personal observation, interview and focus group discussion were conducted. Individuals involved in the survey process were majorly smallholder farmers and extension workers.

A total of ten villages were covered in the study. These included Oweto, Utuglugwu, Obishu,

Olegochepo, Inoli, Ologbagishu, Adana, Abugbe, Ocholonya and Ikpele. The choice of these villages was premised on their proximal location to river Benue and prior knowledge of the prevalence of flood disaster.

Purposive sampling was used to select the villages for the study, while 250 farmers were randomly selected i.e. 25 from each village to give equal representation. However, the selection of farmers considered gender sensitivity where a balance of males and females interviewee was observed (Table 1).

Table 1: Composition of Interviewed Smallholder Farmers by Gender (N=250).

VILLAGE NAME	MALE	FEMALE	TOTAL
OWETO	18	7	25
UTUGOLUGWU	20	5	25
IKPELE	15	10	25
OBISHU	21	4	25
OLEGOCHEPO	14	11	25
INOLI	22	3	25
OLOGBAGISHU	13	12	25
ABUGBE	16	9	25
ADANA	15	10	25
OCHOLONYA	17	8	25
Total	171	79	250

Source: Field survey, 2015

4.3. Instrument for Data Collection and Measurement of Variables

FGD and Interviews using structured questionnaire were used for data collection. The questions developed for the interviews were based on the objectives of the study. The questionnaire was pretested to determine its validity and reliability.

Objective 1 sought information on the awareness of respondents about climate change. Respondents were asked to indicate if they were aware or not aware of climate change. Nominal values 1 and 2 were assigned to 'aware' and 'not aware' respectively. Those who indicated awareness were asked to choose from the list of options that provided evidences of climate change.

Objective 2 required information on the perceived adverse effects of climate change on their agricultural activities. Respondents who indicated awareness were required to select from the list of variables that provided the effects of climate change on their crop and animal production. To achieve this objective, a three-point likert rating scale was used. Each respondent was required to indicate opinion by checking any of the three options i.e. "not severe" (ns), "severe" (s), and "very severe" (vs). Values that were assigned to these options were 1, 2 and 3 respectively. The values of the three responses were added to get 6, which was divided further by 3 to get a mean of 2. Therefore,

variables with mean of 2.0 and above were regarded as significant perceived adverse effects of climate change on agricultural activities of the study area.

Objective 3 sought data on climate information and support services that farmers like to access. A list of a number of climate services was provided for the respondents to indicate their views by ticking the appropriate option. A 3-point Likert Rating Scale of Agree (A), Disagree (D) and Neutral (N) was employed. The mean score of respondents was computed as follows: $1+2+3=6 \div 3 = 2.0$. Hence, the point of decision was fixed at 2.0. Any item that attracts a mean of 2.0 and above was regarded as agreed while any item that attracted a mean of less than 2.0 was regarded as disagree.

Objective 4 required information on pathways most useful for climate information dissemination and support services. A list of various sources of climate information and support services was provided for respondents to indicate their preferred sources. A 3- point Likert rating scale of most preferred, more preferred and preferred was used to gauge the opinions of respondents. Nominal values attached were 1, 2 and 3 respectively. Relative Importance Index (RII) was used to rank the respondents' responses. The formula for RII is depicted as follows: $\frac{\sum fx}{\sum f} \times \frac{1}{k}$ Where, $\sum fx$ = is the total weight given to each attributes by the respondents

$\sum f$ = is the total number of respondents in the sample.

K = is the highest weight on the likert scale.

Ranking of the items under consideration was based on their RII values. The item with the

highest RII value is ranked first (1) the next second (2) and so on. The rating of all the factors for degree of significance was based on the value of their respective relative importance index (RII). The guide for the rating is given in Table 2 below:

Table 2: Guide to degree of significance.

Degree of significance	Rating
Very significant	0.76 above
Significant	0.67-0.75
Fairly significant	0.45-0.66
Not significant	0.44 below

Source: Vanduhe (2012).

- Objective 5 sought data on utilization of climate information and support services plus limitations encountered by the rural farmers. A list of the various ways of utilizing climate information and support services as well as major challenges facing climate information communication by farmers was provided for the respondents to indicate their views and rank them in order of importance. The item ranked first (1) is considered very important, second (2) is important, third (3) is moderately important, fourth (4) is of little importance and fifth (5) is unimportant.

4.4 Data Analysis

Objectives 1 and 5 were analyzed with percentage, objectives 2 and 3 were analyzed

using mean score whereas objective 4 was analyzed with Relative Importance Index (RII). Data were presented using tables and charts.

5. RESULTS AND DISCUSSION

5.1 Socio-Economic and Demographic Characteristics of the Respondents

Table 4 illustrates percentage distribution of respondents based on socio-economic characteristics. Table 4 reveals that a major proportion (38%) of the respondents fall within the age range of 36-45 years and the mean age was 43.8 years. These findings imply that, in Agatu Local Government young adults were actively involved in farming activities. At this age, Dauda, Chado, & Igbashal (2009) reported that farmers could be

Table 3: Social-Economic and Demographic Characteristics of Respondents (n=250).

Characteristics	Number	Percentage	Mean	Male		Female	
				N0.	%	N0.	%
Age							
Less than 20	20	8		15	6	5	2
21-25	28	11.2		25	10	20	8
26-30	25	10		19	7.6	6	2.4
31-35	35	14	43.8	27	10.8	8	3.2

36-40	50	20	38	15.2	12	4.8
41-45	45	18	12	4.8	16	6.4
46-50	24	9.6	15	6	9	3.6
Above 50	23	9.2	20	8	3	1.2
Total	250	100				
Sex						
Male	171	68.4				
Female	79	31.6				
Total	250	100				
Marital Status						
Single	65	26	37	14.8	28	11.2
Married	88	35.2	59	23.6	29	11.6
Divorced	58	23.2	24	9.6	34	13.6
Widowed	39	15.6	14	5.6	25	10
Total	250	100				
Household size						
1-5	69	27.6	44	17.6	25	10
6-10	97	38.8	66	26.4	31	12.4
11-15	54	21.6	38	15.2	16	6.4
Above 16	30	12	12	4.8	18	7.2
Total	250	100				
Education						
No formal education	54	21.6	30	12	24	9.6
Primary	72	28.8	57	22.8	15	6
Secondary	69	27.6	47	18.8	22	8.8
Tertiary	55	22	38	15.2	17	6.8
Total	250	100				
Income(₦)						
10,000-50,000	87	34.8	54	21.6	33	13.2
51,000-100,000	71	28.4	41	16.4	30	12
101,000-150,000	55	22	32	12.8	23	9.2
Above 150,000	37	14.8	30	12	7	2.8
Total	250	100				
Farm size (acres)						
Less than 2	37	14.8	20	8	17	6.8
2-4	77	30.8	48	19.2	29	11.6
5-7	65	26	55	22	10	4
7-9	43	17.2	31	12.4	12	4.8
Above 10	28	11.2	18	7.2	10	4
Total	250	100				
Occupation						

Farming	100	40	73	29.2	27	10.8
Trading	50	20	15	6	35	14
Fishing	70	28	51	20.4	19	7.6
Artisan	12	4.8	9	3.6	3	1.2
Civil servant	18	7.2	10	4	8	3.2
Total	250	100				
Farming experience						
1-10	25	10	15	6	10	4
11-20	33	13.2	26	10.4	7	2.8
21-30	29	11.6	18	7.2	11	4.4
31-40	40	16	32	12.8	8	3.2
41-50	123	49.2	97	38.8	26	10.4
Total	250	100				

SOURCE: Field Survey, 2015.

Active, adventurous and would probably patronize a wide variety of climate information sources. Majority (68.4%) of respondents were male with over 40 years of farming experience. This indicates that farming activities in Agatu Local Government is dominated by men who have good knowledge of climate variability. Intuitively, men have upper hand in farm management decisions, hence this dominance would facilitate active climate information sourcing (Dauda, Chado, & Igbashal, 2009).

Based on marital status, table 3 illustrates that 88% were married. Marital status has implication for utilization of agricultural and climate information and technologies (Idrisa, 2009). Besides, married people have more responsibilities and hence will be willing to seek information about climate and improved technology to enhance the welfare of their families (Bawa, Ani, & Bzugu, 2014). In terms of household size, the study revealed that 60.4% had household size of 6 and 15 members. This shows that the farmers had reasonable family labour to offer help in farm work. Additionally, large household size facilitates net working for information and enhances easy access to information by farmers. Arene, (1999) reported a positive and significant relationship between family size and information utilization.

The result of the educational attainment revealed that most of the farmers (56.4%) completed primary and secondary education (Table 3). This suggests that farming is dominated by enlightened people in the area of study. Basically, education influences farmer's information utilization. Educated people are likely to do certain jobs and functions with competence and are equally more probable to utilize information and new technologies in shorter period of time than illiterate people (Agbamu, 2006).

The annual income category of the farmers was considered. Result showed that majority (63.2%) earned between ₦10, 000 – ₦100, 000. This is an indication that the farmers are low income earners, hence, may be constrained regarding purchase and utilisation of climate information facilities. This is in consonance with (Arokoyo, 2005) who listed poverty as a major constraint to ICT utilization. The farm size of most (56.8%) of the farmers ranged between 2 – 7 acres. The mean farm size of the farmers was 2.6 acres, implying that farming activities were dominated by small – scale farmers. This implies further that in Agatu area, there is high level of land fragmentation, which is an obstacle to farm mechanization (a means of boosting agricultural productivity) (Muas, Baba, & Beli, 2013)

5.2 Awareness about Climate Change and Evidences

Figure 4 has indicated that nearly all (92%) of the respondents were aware of climate change and variability. The high awareness about climate change shown by the respondents is indicative of the fact that climate variability is very evident and more so that larger proportion (49.2%) of farmers had over forty years of farming experience. This implies that most of the farmers are adults who have had a long time experience of farming and are aware of the continued trend of the changing climate at least for more than a decade and have been able adapt in one way or the other to the changes. This investigation is reinforced by Nkwusi, Adeaga, Ayejuyo and Annuk, (2015) who found out that majority (74.28%) of the

farmers in Lagos had over ten years of farming experience which has aided their level of climate change awareness. Regarding evidences of climate change in Agatu Local Government Area (Fig. 5), 100% cited irregular rainfall pattern, 98% reported heavy flood, 65% confirmed heavy storm, 84% reported severe sunshine, 90% noted high temperature and 75% cited changes in the timing and duration of seasons. The evidences of climate change reported by the respondents are consistent with a research undertaken by Olajide, (2014) who reported changing conditions in the weather as evidences of climate change in Oyo State, western Nigeria. This is also validated by what is obtainable in the global world (IPCC, 2007b).

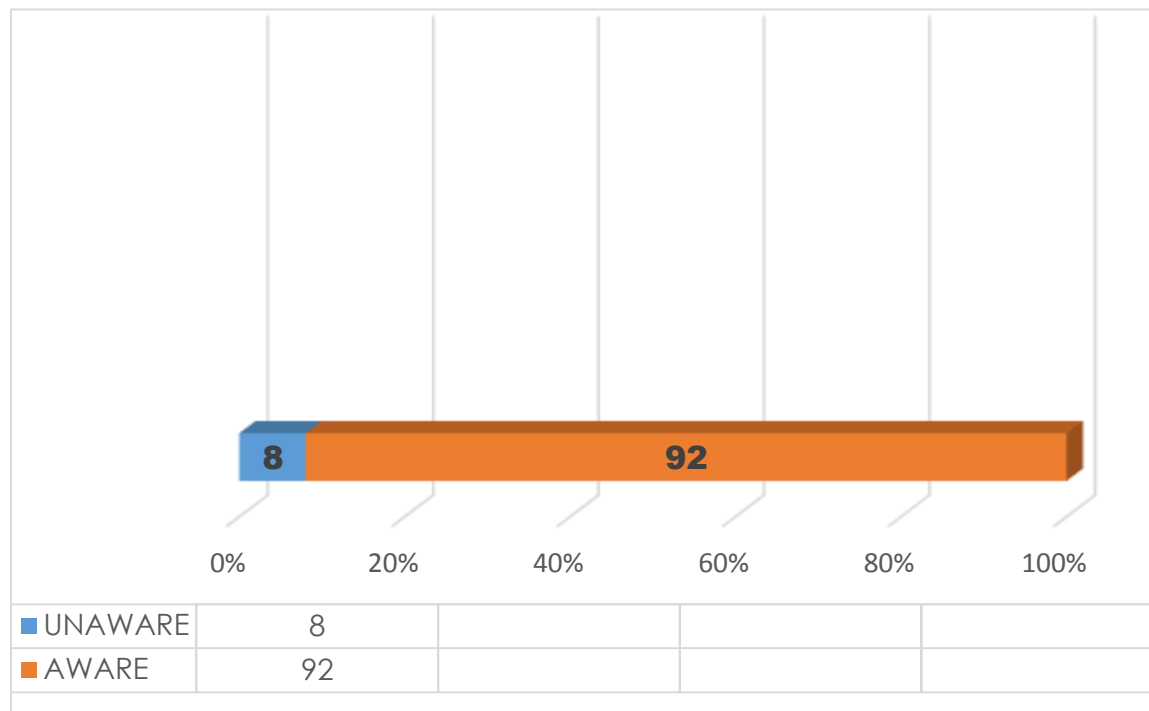


Figure 4: Climate Change Awareness. Source: Field Survey, 2015.

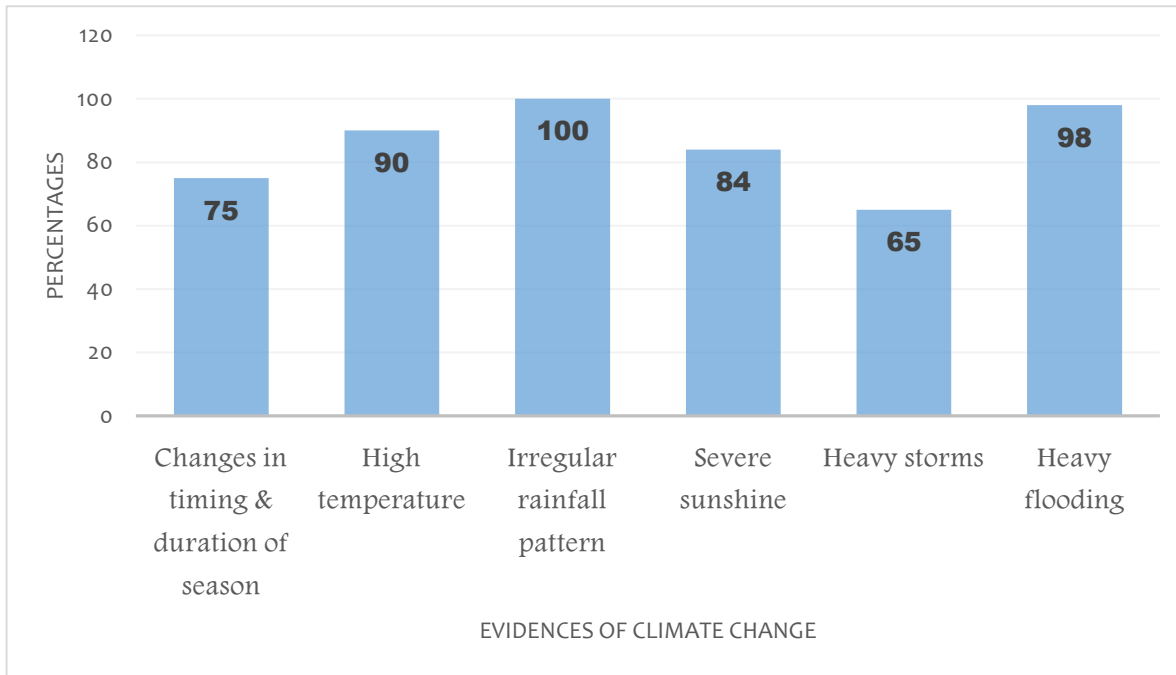


Figure 5: Evidences of Climate Change. Source: Field Survey, 2015.

5.3 Perceived Adverse Impacts Of Climate Change On The Farming Activities.

The analysis of perceived impact of climate change on agricultural activities in Agatu community in Benue state indicates that there are six major adverse effects perceived by the rural farmers (Table 4). These are flooding of farm land (2.74), crop failure and poor harvest (2.20), Poor performance and high mortality rate of livestock (2.42), Wilting and decaying of farm produce (2.71), Poor fish harvest (2.63) and

unusual pests/diseases of crop and animal (2.20). All the listed variables had mean scores above two. This suggests that all the variables listed were the significant impacts of climate change on socio-economic activities of the inhabitants of Agatu Local Government. This investigation is in consonance with Ayanda, Oyeyinka, Salau, & Ojo, (2013) and Obiora, (2013) who affirmed that the impacts of climate change were increase in animal mortality rate, too much rainfall, heavy flooding, crop failure etc

Table 4: Mean distribution of respondents based on perceived adverse impacts of climate change (n=250).

S/N	Perceived impacts	Frequencies of response			Σf	Σfx	Mean	Decision
		1	2	3				
1	Flooding of farm land	15	35	200	250	685	2.74	Significant
2	Crop failure & poor harvest	60	78	112	250	552	2.20	significant
3	Poor performance % high mortality rate of livestock	45	55	150	250	605	2.42	Significant
4	Wilting & decaying of farm produce	10	52	188	250	678	2.71	Significant
5	Poor fish harvest	23	47	180	250	657	2.63	Significant
6	Unusual Pests/diseases of crop and animals	51	89	110	250	559	2.2	Significant

Legend: 1=Not severe, 2=severe, 3= Very severe. Source: Field Survey, 2015.

5.4. Climate Information and Support Services Required by Farmers

Table 5 presents information on climate data and support services required by the vulnerable communities in Agatu to enhance adaptation practices. Table 5 has shown that early warning signals (2.78), Rainfall Prediction (2.86), Drought prediction (2.93), Adaptation technology (2.74), Food aid (2.26), Temperature change (2.24), Human Health services (2.19) and Veterinary services (2.21) had mean scores above two. However, maps/graphics (1.56) had a mean score below two. The forgoing suggests that all

the variables that scored above two were the kind of climate information and support services that farmers require to boost their adaptive capacity to climate change impacts in the study area. This is in harmony with Mishra, Upadhyay, and Mishra, (2012) who emphasized the need for climate information and knowledge sharing between scientists, policy makers and community institutions in order to enhance practical adaptation at the grassroot level. On the other hand, maps/graphics (1.56) were not significant data required probably due to a significant proportion (21.6% i.e. female=9.6%, male=12%) that had no formal education (Table 3).

Table 5: Mean distribution of respondents based on climate information and support services needed by farmers (n=250).

S/N	climate information and support services	Frequencies of response			Σf	Σfx	Mean	Decision
		1	2	3				
1	Early Warning signals	15	25	210	250	695	2.78	Agreed
2	Maps/Graphics	155	50	45	250	390	1.56	Disagreed
3	Rainfall prediction	7	20	223	250	716	2.86	Agreed
4	Drought prediction	3	12	235	250	732	2.93	Agreed
5	Adaptation technology	15	35	200	250	685	2.74	Agreed
6	Food aid	60	65	125	250	565	2.26	Agreed
7	Temperature change	79	33	138	250	559	2.24	Agreed
8	Human Health Services	98	12	142	250	548	2.19	Agreed
9	Veterinary services	60	78	112	250	552	2.21	Agreed

Legend: 1=Neutral, 2=Disagreed, 3= Agreed. Source: Field Survey, 2015.

5.5 Pathways for Climate Information Dissemination and Support Services

The investigation of pathways most useful for climate information dissemination and support services to the vulnerable communities in Agatu has revealed four major channels of climate information communication (Table 6). Table 6 further displayed the ranking of the channels based on their level of efficiency in communicating climate information in the study area. Community channels (extension workers, neighbors/friends) ranked first among the channels with a RII of 0.91. It is a very significant factor because it ranked 0.76 and above on the relative importance index (RII). Mass media (radio and television) ranked second with a RII of 0.85 and is a very significant factor. Print media (newspapers, pamphlets) ranked third with a RII of 0.63. It is a fairly significant factor because it ranked 0.45-0.66 on the relative importance index (RII). Electronic media (internet, SMS) ranked

fourth with a RII of 0.50 and it is considered a fairly significant factor. This investigations presuppose that rural farmers in the study area have greater preference for community channel and mass media than print and electronic media. This result is in agreement with the findings of Csoto, (2010) and Lwoga & Stilwell, (2010) that radio, extension services and television were majorly used in rural areas to access climate forecasts because of their affordability. Conversely, the less preference for print and electronic media in the study area could be ascribed to low education and low income prevalent among the rural farmers(table 3).This submission is validated by Harvey, Diagne, Nnam, & Tadege, (2010) that information sharing among climate change actors in Africa is limited by poverty,inadequate infrastructure,illitracy and socio-economic factors.

Table 6: Ranking of pathways most useful for climate information dissemination and support services (n=250).

S/N	Pathways	Frequencies of response					Mean	RII	Position
		1	2	3	$\sum f$	$\sum fx$			
1	Mass media(Radio & Television)	35	40	175	250	640	2.56	0.85	2nd
2	Print Media (Newspapers, Pamphlets)	78	125	47	250	469	1.88	0.63	3rd
3	Electronic media(Internet, SMS)	130	115	5	250	375	1.5	0.50	4th
4	Community Channels(Extension workers neighbors/friends)	30	9	211	250	681	2.72	0.91	1st

Legend: 1= preferred 2= more preferred 3= most preferred. Source: Field survey, 2015

5.6. Utilization OF Climate Information and Support Services

Table 7 represents the distribution of respondents based on the utilization of climate information and support services. It has shown that taking decision on when to plant crops was ranked first(very important), taking decision on when to harvest fish from ponds was ranked second(important), planning mitigation for

flooding was ranked third(moderately important), whereas general daily activities was ranked fourth(of little importance). The forgoing finding has indicated that climate information were mostly utilized in taking decision on when to plant crops and harvest fish from ponds in Agatu. This investigation is validated by the fact that the major occupations of the inhabitants of Agatu are fishing and farming (Table 3).

Table: 7 Percentage distribution of respondents on climate information and support services utilization (n=250).

S/N	CLIMATE INFORMATION UTILIZATION	NUMBER	PERCENTAGE	RANK
1	Taking decision on when to plant crops	78	31.20	1
2	Planning mitigation for flooding	57	22.80	3
3	Taking decision on when to harvest fish from ponds	65	26.00	2
4	General daily activities	50	20.00	4
	Total	250	100.00	

Legend: R1=Very important, R2=Important, R3=moderately important, R4=Unimportant

Source: Field survey, 2015.

5.7. Barriers to Climate Information Dissemination and Support Services

There are certain conditions that reduce the effectiveness of climate information communication. Hence, respondents were asked to express their opinion on barriers to climate information communication in the study area. Figure 6 shows the distribution of respondents in terms of barriers to climate information dissemination to rural farmers in the area of study. It has revealed that 94% asserted that limited access to radio, TV and internet as well as poor translation of climate change terminologies

were the major constraints to climate information communication in Agatu. Others include technicality of the message (85%), lack of trust in source of information (82%) and cultural barriers (80%). The preceding assertion is corroborated by Kristjanson, Jost, Vervoort, Ferdous, & Schubert,(2014) and Speranza, Kiteme, Ambenje, Wiesman, & Makali,(2010) that communication of climate information to support adaptation actions in Africa is hindered by several contextual factors: social-cultural, content-related and technological barriers.

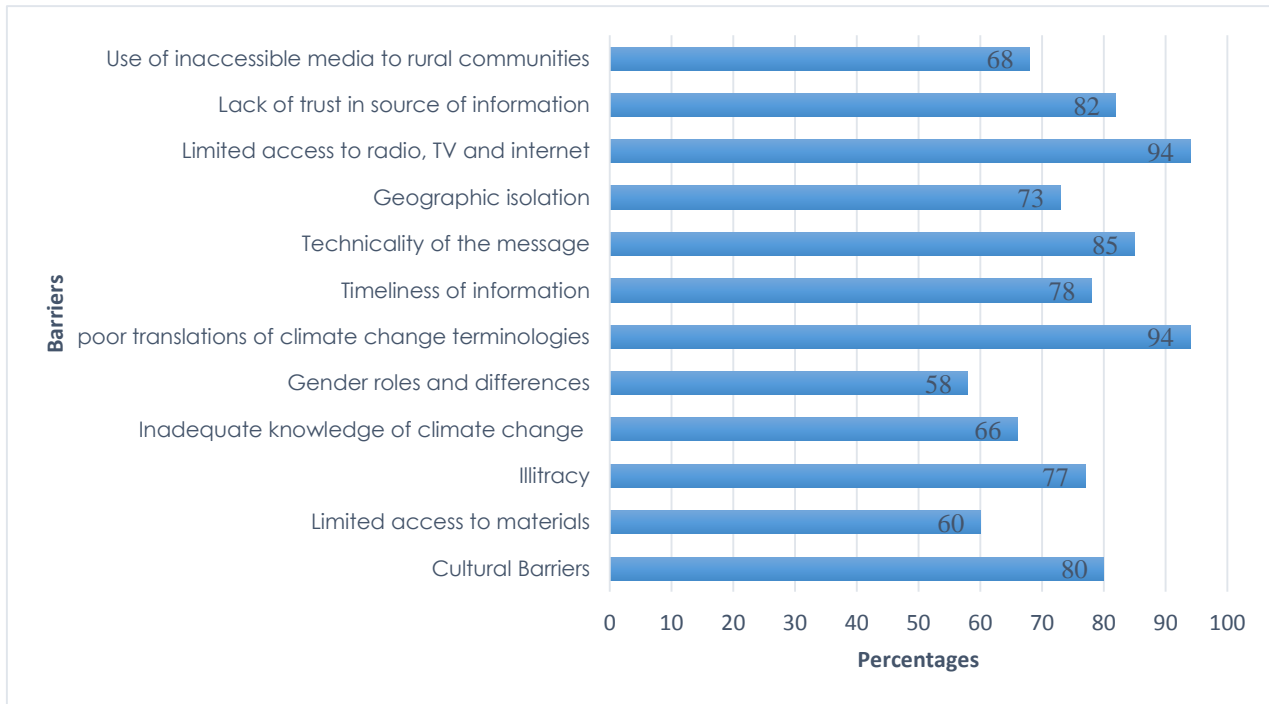


Figure 6: Barriers to effective communication of climate information. Source: Field survey, 2015.

6.0 CONCLUSION AND RECOMMENDATIONS

The study investigated access and utilization of climate change information among vulnerable communities. The study portrayed that greater proportion of respondents were aware of climate variability. Adverse impact of climate change on the livelihood activities of the respondents is very severe. Climate information was identified as critical in farm level decisions in the study area. In particular, early warning signals, rainfall predictions and drought forecasts were noted to be highly needed by farmers for crop planning. Assessment of the preferences of channel of climate information communication confirmed that farmers preferred friends/neighbors, radio and extension workers. However, limited access

to radio, TV and internet as well as poor translation of climate terminologies were noted as major impediments to climate information utilization.

In view of the findings of the study, a number of policy options were suggested. These include:

- Government should enhance the combination of extension agents, radio and local administration in climate information dissemination to rural farmers
- Government to ensure that Climate Change Information be tailored to meet needs of local stakeholders
- Government should guarantee timely access to climate information by farmers for planned adaptation.

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