

# Environmental Literacy Awareness and Information Dissemination among Adolescents in Calabar Municipality Local Government Area Secondary Schools In Cross River State, Nigeria

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*Date Received: November 4, 2014; Date Revised: June 29, 2015*

**Abstract** - This paper assessed the level of environment literacy awareness and information, dissemination among adolescents in secondary schools in Cross Rivers State. This becomes very necessary especially when it is realized that most of the misconceptions and insufficient knowledge about climate change concepts arise due to ignorance of the various categories of audience affected by the change. Four hundred (400) respondents were picked from six senior secondary schools and stratified sampling methodology facilitated the selection of the students from the various classes using the class register as the sample frame. Questionnaires were used to obtain data and information from the respondents. The response were tested using chi-square statistical analyses at 0.05 level of significance. Results showed that information promotes the understanding and awareness of climate through the generation and dissemination of general and technical facts that leads to attitudinal/ behavioral change among adolescents. Based on this, it was recommended that environmental education should be inculcated in the curriculum from primary school level. That awareness campaigns and public enlightenment by the Ministry of Information and Ministry of Environment should be intensified through print and electronic media, workshop and place to inform, educate various target audiences on the consequences of environment problems.

**Keywords:** Environmental Literacy, Awareness, Information Dissemination, Adolescents

## INTRODUCTION

Climate revolution is the most advertised revolution in the world history. Understanding of the climate and its impact on our society is not widely

held by most persons. As a result, people rely on local knowledge possessed by communities to make prediction and long term assessment of climate change in the face of uncertainty (Asuquo and John, 2007). Environmental literacy is the acquisition of climate related knowledge for the purpose of use in solving the daily problems in our environment. The population of an egalitarian society consists principally of the adults, the adolescents and children and the adolescents or youths constitute the highest population (over 65%) of a particular community Leow and Ologe (2001). This increase in climate awareness is yet ineffective among the adolescents in rural areas of most developing countries where majority of the population live.

“Effective School Model” belief that all children can learn. The goal is that learning is for all no matter what it takes. In the effective schools, there is orderly, purposeful, business-like atmosphere which is free from threat of physical harm. In effect, it is presumed that there is prevalence of positive and safe climate conducive to teaching and learning. Nevertheless, teachers are aware of the negative effects of nature on the stability of human beings. The impacts of weather and climate change on group behavior therefore need not to be ignored.

Climatologists perceive weather of a place as the momentary state of the atmospheric conditions (temperature, pressure, winds, moisture and precipitation) for a short period of time. Invariably, these elements of weather sometime have controlling impact on human activities and endeavours. Climate, on the other hand is a composite or generalization of the variety of day to day weather condition. Climate change is the long-term change in the average weather. Climate change is a very likely to affect the frequency and intensity of weather events such as

storms and floods around the world, sea level rise due to thermal expansion of the ocean and the melting of the mountain glaciers. Glaciers are considered among the most sensitive indicators of the climate change.

The impacts of climate change border essentially on sensitivity and health. The population is vulnerable for specific health outcomes to changes in temperature, rainfall, humidity, etc. vulnerability is a function both of changes to exposure in climate and of the ability to adapt to that exposure. Natural disaster, water quality and quantity heat waves and wilder winters, air pollution, social location, infection and diseases are direct outcomes of climate change (Okeke, 2010).

### **OBJECTIVES OF THE STUDY**

Climate change has posed serious challenge to national development worldwide. The increase in the amount of carbon dioxide emitted directly into the atmosphere is as a result of man's action on the environment. In 1984, the Buhari administration launched a tree planting campaign in Nigeria. The intention of that tree planting programme was to bring to national consciousness the inherent danger of rapid depletion of environmental resources. The policies provide serious challenges to school administrators, teachers, youths and adults in today's era of rapid climate change. What are the awareness and involvement of the schools and the public in the environmental policies enforcement. The role schools and various agencies of information have to play in environmental protection, what strategies do schools and government agencies adopt in waste disposal management, awareness and information dissemination among adolescents in Calabar Municipal Local Government in preventing environmental degradation and preventing the environment from climate change hazards. These are some of the puzzles that motivated the researcher to carry out this study.

### **PURPOSE OF THE STUDY**

The study is aimed at examining the level of environmental policies enforcement and public enlightenment among the youth in schools in Calabar Municipal Council Area in Cross River State; examining the different kinds of information that are to be used to create awareness and promote understanding of climate issues among adolescences in Calabar Municipal Council Local Government Area in Cross River State; and identifying guidelines and ensure appropriate formulation of policies to initiate

measures and adapt strategies for the implementation of the measures.

### **METHODS**

A descriptive study with survey design was used to assess climate awareness and relevance among adolescents in the secondary schools in Cross River State, Nigeria. The research area in terms of geographical location is Calabar municipality Local Government Area in Cross River State. It lies wholly within the tropics between latitude 5.5° and 6° and 9° 30°. It is bounded to the South by Calabar South, Akamkpa to the West, Bakassi- Akpabuyo to the East and to the North by Odukpani.

The land has vibrant vegetation and Climate varies from tropical to sub-tropical region. The temperature is generally high but decreased as one moves from the Southern to the Northern part of the Local Government Area resulting in wide varieties of agricultural produces that makes Calabar Municipality highly an interesting place.

Calabar Municipality covers vast land of geographical area. It is sub-divided into political wards and these different wards have the same language but slightly different in tone and word pronunciation. Worthy of note are some of the villages in this local government, they are Big Qua, Akim Qua, Ishie, and Ediba Qua. The major occupation of the people include; farming, trading, the people are also highly educated. The main cash crops produced are pineapple, plantain, banana, and cassava.

### **Sampling method**

A simple random sampling/stratified technique was used to select four hundred male and female adolescents from six secondary schools in Calabar Municipality Local Government Area. A simple random sampling/ stratified technique was used to select twenty eligible students from each senior secondary classes (SS1, SS2, SS3). By balloting method, a class was chosen from each level of the senior class and using the sample frame (Classes Register), every third name was picked alternately from a class of 60 registered

students. A total of sixty students were obtained. Research Instrument: The selected students were served with structured questionnaires. Data Analysis: The generated data were analyzed using descriptive statistics such as percentages, pie, bar charts and Pearson correlation analysis.

**RESULTS**

Basically, the climate literacy programme component is for enlightenment of the different categories of audience. The objectives, goals, roles and expectations of the target audiences were to be highlighted at such enlightenment campaign. Information promotes the understanding and awareness of climate through the generation and dissemination of general and technical facts. It also, motivates people to adopt new attitudes, behavior and change their perceptions of a programme (Ameago, Nevcy, Joan, and Davis, 2001).

According to Wikipedia (2008), awareness Creation involves fostering of interest in, seeking support for: changing of the general public opinion towards climate programmes. This is carried out through public enlightenment activities provided to all sectors of the Nigeria society.

**Types of Climate Change Information**

It is widely acclaimed that education has a dominant role to play in the attainment of improved quality life (Nwafor, 2006). To this end, and in order to promote people's capacity to understand climate change and its effects on the individual, the society and the nation adequate information must be provided. Different kinds of information are used to create awareness and promote understanding of climate issues and acceptance of their relevance to daily living. These can be classified into technical and general information.

**Technical Information**

Technical information includes basic and statistical information from survey researches. These constitute the body of scientific and technical knowledge required from survey researches (NERDC, 2006). These constitute the body of scientific and technical knowledge required to understand global warning phenomena. Technical information is predominantly communicated through printed materials FEPA (1999). They are mostly intended for policy formulation and are used as foundation for programme activities. They also serve as important references for policy planners and administration.

**Public information**

Public information is also known as general information. These are mostly on climate and development issues needed by opinion leaders, as such people can greatly influence decision matters and help gain support for government programme. They include representatives of the print and broadcasting media; community and religious leaders; educators, etc. Public information contributes to steady growth in knowledge and greater understanding of issues (WEDO, 2007). Media coverage of climate agenda programmes, issues such as feature articles, news items, press report are classified as public information. This has generated lively debate and reinforced public confidence in government programmes.

**Table 1. National Environmental Factors and Information Required for Student**

<b>Data Required</b>	<b>Information Sources/Predictive Techniques</b>
<b>Air Quality</b>	
<b>Health</b> Change in air pollution concentrations by frequency of occurrence and number of people at risk.	Current ambient concentrations, current and expected emissions, dispersion models, population maps.
<b>Nuisance</b> Change in occurrence of visual (smoke, haze) or olfactory (odour) air quality nuisance, and number of people affected.	Baseline citizens survey, expected industrial processes, traffic volumes.
<b>Water Quality</b> Change in permissible or tolerable water uses and number of people affected - for each relevant body of water.	Current and expected effluents, current ambient concentrations, water quality model.
<b>Noise</b> Change in noise levels and frequency of occurrence, and number of people bothered	Changes in nearby traffic or other noise sources in noise barriers; noise propagation model of monograph relating noise levels to traffic, Barnes etc. baseline citizen survey of current satisfaction with noise levels.

### Sources of climate information

To incorporate environmental and social considerations into every place of the environmental and to ensure appropriate formulation of mitigation measures, adaptation strategies and the effective implementation of these measures, it is imperative that a sound climate knowledge must first be established (UN, ESCAP, 2001). The reason for this is that information provides a focus and guidelines on relevant issues concerning the weather. Information could be sourced from the following centres and networks;

- Nigerian meteorological Agency (NMET)
- National Root Crop Research Institutes (NRCRI)
- Geography departments in schools
- Federal environmental protection agency
- Federal ministry of environment
- State ministry of environment and solid minerals
- Local government environmental agencies
- Pan African documentation and information system (PADIS)
- 2000 Nigerian environmental management act (Draft)
- Harmful wastes (special criminal provision)
- The harmful waste (criminal provisions) act no. 42 of 1988
- International and Regional Conventions
  - ❖ Montreal protocol on substances that deplete the ozone layer of 1987.
  - ❖ All main multilateral environmental agreements
  - ❖ World Bank Guidelines
  - ❖ World health organization (WHO) Guidelines
- **Climate Change Network Centres**
- United Nations Development Programme (UNDP)
- Global Environment Facility (GEF)
- Environmental Impact Assessment (EIA)
- Centre for environmental Management and Planning (CEMP)
- Department for International Development (DFID)
- United Nations Environment Programme (UNEP)
- International Association for Impact Assessment (IAIA)
- United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP).
- United Nations Convention (UNCCD) on Biological Diversity (UNCBD)

- United Nations Framework Convention on Climate Change (UNFCCC)
- The United Nations Educational, Scientific and Cultural Organization (UNESCO)
- The Demographic Research and Training Centre in Cairo (DRTC)
- Nigerian Institute for Social and Economic Research (NISER)
- Universities Libraries
- National Council for Population and Environmental Activities (NCPEA)
- National Planning Commission (NPC)
- United states Agency for International Development (USAID)
- Federal Office of Statistics
- Federal Ministry of Information and Culture Nwafor (2006).

These organizations make use of their regular and occasional publications to disseminate climate change information worldwide. The range of information contained in the publications include: adaptation strategies, mitigating measures and approaches in mitigating the effects of greenhouse gases for sustainable development, (Odekunle, 2004). Catalogues of these publications can be obtained from advanced information centres with computerized data base. Linkages maintained with both the national and international sources enable developing nations build an enviable resources base and increase its knowledge base. The developing countries like Nigeria sign treaties, attend international conventions and undertake exchange of information through networks with agencies engaged in environmental impact assessment activities. This is done through regular acquisition of each other's publications and internet services.

Consequently, there has been an increase in the volume and wider range of literature on climate change adaptation and mitigation strategies. The information received is processed, transformed and repackaged for wider dissemination and usage by policy makers and implemented. Climate information received were repacked into accessions/acquisitions lists and bibliographies for awareness purpose. Abstracts, excerpts/extracts and reprints of information were also provided for end users. The socio-demographic characteristics of the respondents, the level of awareness are presented in Table 2,3 and 4.

**Table 2. Socio-demographic Data of Respondents (N=400) in Calabar Municipality, Nigeria**

Demographic variables	F	%
<b>Sex</b>		
Male	240	60.0
Female	160	40.0
Total	400	100
<b>Age(years)</b>		
10-14	100	27.5
15-19	200	50.0
20-24	90	22.5
Total	400	100
<b>Religion</b>		
Christianity	394	98.5
Islam	-	-
Traditional	6	1.5
Total	400	100
<b>Tribe</b>		
Efik	116	29.0
Ibibio	216	54.0
Efut	-	-
Quas	8	2.0
Other	60	15.0
Total	400	100
<b>School</b>		
Boys only	-	-
Girls only	-	-
Mixed	6	100
Total	6	100
<b>Class</b>		
SSS1	140	35.0
SSS2	120	30.0
SSS3	140	35.0
Total	400	100

Majority of the respondents were male with a total of 240(60.0%) while 160 (40.0%) respondents are female. Respondents in age class of 15-19 years were the majority with 200(50.0%) persons. This is followed by age class 10-14 years with 110 (27%) respondents and age class of 20-24 years with 90(22.5%) respondents. Most of the respondents about three hundred and ninety four (98.5%) were Christians, while 6(1.5%) respondents were traditionalist. Other socio demographic variables are shown in Table 2.

**Table 3. The distribution of respondents according to the level of awareness**

Level of Awareness	Number of respondents	Percentage (%)
None	50	12.5
Low	60	16.5
Moderate	192	48.0
High	92	23.0
<b>Total</b>	<b>400</b>	<b>100</b>

The awareness of climate change among the respondents was generally good. 192(48.0%) respondents had moderate level of awareness and 9.2 (23.6%) respondents had a high level of awareness, 60(16.5%) respondents had low level awareness, and 50 (12.5%) respondents were completely not aware of any effects of climate change.

### DISCUSSION

The discussion of this study was to assess the level of awareness, and information dissemination among adolescents in the selected secondary schools in Calabar Municipality L.G.A Cross River State. The level of awareness was generally good. This is in accordance with UNFPA (2000) Declaration that it is a fundamental human right of all individuals to have knowledge which would enhance the understanding of individual's and societal implication of the weather and that awareness of climate change should be made accessible to all and should be inculcated into the school curriculum and adolescent empowered by it. But this finding was contrary to FEPA (2001) which said that in many developing countries, insufficient knowledge about environmental problems pose barriers to providing young people with the information and service they need. Most information about climate change is obtained from friends, peer groups and from books. The study also revealed that awareness of climate change was proportional to educational level hence the more people are educated the more they have knowledge about weather conditions. This finding agrees with Obioha (2009) which stresses that education is the strongest predictor of people's knowledge and attitude towards events. This finding is also similar to Garcia (2006) who reported that climate literacy awareness increased over time but remained at just 20 percent at follow-up Honduras.

Tables 4 shows that over 90% of adolescents in Cross River State are not aware of the issue of climate change and over 80% of adolescents in each of the communities in Calabar municipality, Big Qua, Akim Qua, Ishie town, Ediha Qua, Ibibio, Efik and others.

**Tables 4. Level of Adolescent Awareness of Climate Change (N=50)**

Communities	Unawareness (%)	Awareness (%)
Calabar municipality	90	10
Big Qua	88	12
Akim Qua	95	5
Ishie town	95	5
Ediha Qua	93	7
Efik	95	5
Other	80	20
Total	90	10

Source: Author

The level of unawareness is highest among Akim Qua, Ishie Town, Efik, Ediha Qua (93-95%), this is followed by Big Qua, Calabar Municipality (88-90%) and it is lowest in others and Big Qua (80-88%). The percentages of those that are aware of climate change issue are predominantly youths who engaged in farming for domestic consumption only. However all the adolescents in the areas opined that they have observed changes in the weather in form of high temperature, increased rainfall with variation in set and cessation from their own crude knowledge of planting season for the past twelve years (2008-2009).

The factors responsible for the low level of awareness according the adolescents are low per capita income which is below a dollar a day; as such they cannot afford a television, newspaper and lack of public education by government agencies. There is therefore the need for the Cross River state government to educate adolescents in the state on the danger of climate change on agriculture and food security.

## CONCLUSION

The study indicates that without appropriate and sufficient knowledge to reduce vulnerability of our environment, climate change portends grave danger for the human beings as well as our biotic and a biotic environment. It advocates the need to enlighten the youths on various challenges of climate change and educate the adolescents on vulnerability and adaptation measures to cushion the effect of climate change. Since the magnitude of global warming has been increasing even more quickly than before, all developmental advances made so far by man could be destroyed or reversed over a very short period of time. Therefore, understanding of these climate change concepts will not only help mankind to reverse, if possible, or regulate this change, but will also ensure

sustainable development for the benefit of man and his environments.

## RECOMMENDATIONS

Intensive education campaigns/workshops, school to school and house to house counseling should be instituted as steps that would lead to both attitudinal/behavioural change among the adolescents. Effective counseling should address the misconceptions and insufficient knowledge about climate change concepts. Environmental education should be inculcated in the curriculum from primary school and adolescents should be properly educated and guided on the consequences of environmental problems. Ministry of environment to ensure that publications are produced and effectively distributed nationwide. Awareness campaigns to inform and educate the various target audiences and ensure commitment to the programme are constantly carried out through: Collaborative ventures with print and electronic media on enlightenment activities on regular basis. This consists of airing of jungles, plays, discussion, interviews, debates, talks, etc on radio and television; feature articles in newspaper and magazines; press briefing and press release; and publicity of activities organized on the climate change programme.

Regular distribution of environmental education information and documentation brochures. In recent times, participation at Trade Fairs has been added to information dissemination and awareness creation activities in climate change education at the grass root level. Five cultural plays consequences of climate change in Yoruba, Hausa, Igbo, English and Pidgin English to be developed for public enlightenment at national, state and local government level. Develop and produce low-cost culturally relevant community specific information, education and communication materials (IEC) and distribute these to secondary schools and teachers. Coordinate sensitization and promote awareness activities include organization of seminars, workshops, enlightenment campaigns, television and radio discussions, plays and jingles; inter-school competitions, etc.

## REFERENCES

- Ameago, U., Nevicy, S. Joan K., and Davis, S. O. (2001). *Interfarm planning perspectives*, 23: 228-233
- Asuquo, A. O., John, M. (2007). Knowledge, Attitude, Acceptability and Practice of Permanent Methods

- of Contraceptives in Ediba Community. *African Journal of Public Health*
- Federal Environmental Protection Agency (FEPA) (1999). Environmental Impact Assessment No. 58 of 1988, amendment no. 59 of 1992 and 1999; FEPA, Lagos
- Federal Environmental Protection Agency (FEPA) (2001). Guidelines and Standards for Environmental Protection Agency (FEPA), 2001 Guideline and Standards for Environmental Pollution and Control in Nigeria, FEPA, Lagos.
- Garcia, M. U. (2006). *The future of social impact assessment and public involvement in Deneke*. Boulder, Colorado: West View Press
- Kowabi, J. M. and Kassam, A. H. (2005). Rainfall Pattern in the Sudan Savanna region of Nigeria. *Weather*, 33
- Leow, K. S. and Ologe, K. O. (2001). Desertification: A Precipitation Consideration. 24<sup>th</sup> Annual Conference, Kano: The Nigeria Geographical Association.
- Natis, S. (2001). *Climate Policies and Programme Lesson learned from two decades of experience, published for (UNFPA)*. New York: New York University Press
- Nigerian Educational Research and Development Council (2006). Perspectives in Climate Change, selected readings in climate literacy. Vol. 4, NERDC Press, pp. 45-54
- Nwafor, I. C. (2006). Environmental Impact Assessment for Sustainable Development: The Nigerian Perspective. Enugu: EDPCA Publications
- Obioha, E. E. (2009). Climate variability: Environment and Food Security. <http://www.knepublishers.com/02-JournalJHD>. Accessed 26<sup>th</sup> February, 2009
- Odekunle, T. O. (2004). Rainfall and length of the growing season in Nigeria. *International Journal of Climatology*, Vol. 24, pp. 467-479
- Okeke, B. S. (2010). Environmental pollution and climate change: The implications for classroom management. A paper presented at international conference of Nigerian Association for Educational Administration and Planning (NAEAP). Port Harcourt: 26-29 October, 2010.
- Uche, U. M., & Asagba, F. O (2010). Schools' role in environmental education in the era of climate change in obio-Akpo Local Government Area in Rivers State, Nigeria. A paper presented at international conference of Nigerian Association for Educational Administration and Planning (NAEAP). Port Harcourt: 26-29 October, 2010.
- United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP, 2001). Multi-stage Environmental and Socio-Economic Impact Assessment of Road Projects: Guideline for Comprehensive Process.
- WEDO (2007). Living and working with climate change: An information bulletin and climate change produced by community conservation and development initiative (CCODI).
- Wikipedia (2010). The free encyclopedia, <http://en.wikipedia>