

## **CHALLENGES OF CLIMATE CHANGE ON PROVISION OF AND ACCESSIBILITY TO QUALITY EDUCATION IN NIGERIA**

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**ABSTRACT:** *This paper deals on challenges of climate change on provision of and accessibility to quality education in Nigeria. It also looks at the implications for quality education in Nigerian educational system. The study is a survey carried out in the three education zones in Ebonyi State. The population is made up of 2,855 secondary school teachers and simple random sampling technique was used to draw a sample size of 300 secondary school teachers. Two research questions guided the study. A structured questionnaire made up of 26 items was used for data collection. Two experts in curriculum studies and one expert in Measurement and Evaluation validated the instrument. To determine the reliability of the instrument, a pilot test was done outside the area of the study. Using Cronbach Alpha method, a reliability coefficient of 0.78 was obtained. Data collected were analyzed using mean statistics. The findings of the study among others, showed that climate change-related problems adversely affect teaching and learning by causing the following: lateness and absenteeism to school among teachers and students; destruction of school buildings and learning materials, unconducive learning environment, destruction of means of livelihood; incompleteness of curriculum content, ineffective instructional supervision, and poor performance in examinations. Based on the findings the following recommendations were made: climate change should be integrated into secondary school curriculum; and seminars, workshops, and conferences should be organized for teachers, students, and school administrators on adaptation and mitigation measures of climate change.*

**KEYWORDS:** Climate Change, Accessibility, Quality Education

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### **INTRODUCTION**

Education is the bedrock for meaningful development in any country. It is the wheel on which other developmental effort revolves. A country cannot develop beyond the level of education of its citizens. The cardinal role education plays in nation building informs the reason why many nations of the world invest heavily in education, and educationists all over the world are constantly carrying out research on how to improve the quality of education in order to meet the ever growing and changing needs of their societies. Unfortunately, education sector in many developing countries, such as Nigeria, is beset with many challenges which mar the efforts of the government and educationists in providing quality education.

One of the most pressing challenges facing the provision of quality education in Nigeria is climate change with its associated hazards. Climate change is the variation in global or regional climates over time. Offorma (2010) defined climate change as a continuous, rapid, and prolonged alteration of climate in one direction which reflects changes in the variability or average state of the atmosphere overtime scales, ranging from decades to millions of years. Wikipedia, the Free Encyclopedia (2012), defined climate change as a significant and lasting

change in statistical distribution of weather patterns over a period ranging from decades to millions of years.

Human activities and natural phenomena have been identified as the two major causes of climate change. The human activities include: bush burning, deforestation, desertification, burning of fossil fuels, and industrial pollutions. These activities of man, cause the release of excess carbon dioxide (CO<sub>2</sub>) and other heat trapping emissions such as methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), chlorofluorocarbons (CFCS) and Ozone (O<sub>3</sub>). These green-house gases contribute to the depletion of the Ozone layer in the atmosphere leading to global warming. The natural phenomena that contribute to climate change include: Solar output, variations in earth's orbit, volcanic eruptions, and ocean variations Ekpo (2009). Stated that every system, whether human or otherwise is tied to climate and that changes in climate affect many related aspects of where and how people, plants, and animals live.

Commenting on the adverse effects of climate change, the Union of Concerned Scientists (2012), stated that climate disruptions put our food and water supply at risk, endanger our health, jeopardize our natural security and threaten other basic human needs.

### **Statement of the Problem**

One of the basic human needs being seriously threatened in Nigeria by climate change and its related problems are the provision of and accessibility to quality education. Adverse effects of climate change touch the habitat, security, Agriculture health and economic life of the people, all of which has direct and indirect negative impacts on teaching and learning.

In recent times in Nigeria, flood has caused the loss of homes of many people which led to mass movement of people in search of better place of abode. Migration due to flood has adversely affected the education of many children. School buildings and learning materials were swept off thereby disrupting the education of the children. Loss of homes due to flood has heightened the insecurity condition of secondary school students in Nigeria, whose security and education are already being ravaged by the activities of the Boko Haram group.

Agriculture has been adversely affected by climate change. Many farmers in Nigeria have lost their farm lands and farm produce due to flood. Flood has increased the salinity of farm lands in affected areas, rendering them unfit for crop production. Farmers in some areas not affected by flood experience drought which lead to low yield of crops. This condition has led to shortage of food supply in the country. Different species of animals and plants need certain type of climate to survive. Some of these animals and plants many not get used to new changes in climate and could die (Ogundipe, 2006).

People's health has also been adversely affected by climate change. Climate change has resulted to increased diseases that lead to loss of lives, some of who are the students as well as parents and guardians that sponsor the education of their children and wards. The economic life of the people in Nigeria has not been spared by climate change related problems. Farm lands, business premises, factories and offices are destroyed by flood thereby impoverishing the people.

All these adverse effects of climate change directly and indirectly affect the provision of and accessibility to quality education in Nigerian secondary schools due to the fact that what affects the society, affects the school. Provision of sustainable development in Nigeria could

be difficult if the problems posed by climate change to education are not properly tackled. The school serves the society. The school is one of the major institutions through which the society meets its needs, solves its problems, and achieve its aspirations. The school therefore needs to contribute it's own quota in tackling the challenges posed by climate change to the provision of and access to quality education in Nigeria. It is imperative that there should be curricular intervention in secondary schools to help in tacking the problem posed by climate change. This paper therefore looks into the challenges posed by climate change to provision of and accessibility to quality education in secondary schools in Nigeria, as well as the curricular interventions that can be used to tackle the challenges.

### **Purpose of the Study**

The main purpose of this study is to determine the challenges of climate change on provision of and accessibility to quality education in Nigeria.

Specifically the study aims to determine the following:

1. Challenges posed to quality teaching and learning as a result of climate change.
2. Curricular interventions to the challenges of climate change.

### **Research Questions**

Two research questions guided the study. They are:

1. What are the challenges posed to quality teaching and learning in secondary schools as a result of climate change?
2. What curricular interventions can be applied in secondary school education to meet the challenges posed by climate change?

### **METHOD**

The study adopted a survey research design, eliciting opinions of secondary school teachers, on the challenges of climate change to quality teaching and learning. The study was carried out in the three education zones in Ebonyi State with a total population of 2,855 secondary school teachers. Simple random sampling technique was used to draw a sample size of 300 secondary school teachers from the three education zones. Researcher-made questionnaire made up of 26 items was used for data collection. The instrument is made up two clusters. The first cluster was based on challenges of climate change on quality teaching and learning and it is made up of 21 items, while the second cluster is based on curricular interventions to climate change related problems and it is made up of five items. Four point weighting scale of strongly agree – 4points, Agree – 3points, Disagree – 2points, and Strongly Disagree - 1point, was used to weigh the responses of the respondents. The instrument was validated by two experts in Curriculum Studies and one in Educational Measurement and Evaluation all in Ebonyi State University, Nigeria. To determine the reliability of the instrument, a pilot test was carried out. 30 copies of the instrument were administered to secondary school teachers outside the area of the study. Cronbach Alpha statistical method was used to ascertain the instrument's reliability and it yielded a reliability coefficient of 0.78. Statistical mean was used for data analysis. Mean of 2.50 was accepted while mean below 2.50 was rejected.

**RESULTS****Table 1: Mean Responses on the ways Climate Change Pose a Challenge to Teaching and Learning**

S/N	Items Statements	SA	A	D	SD	$\bar{X}$	Dec.
1.	Climate change related problems such as flood cause absenteeism amongst teachers and students	320	360	120	40	2.8	Agree
2.	Climate change related problems cause lateness to school amongst teachers and students	440	255	140	35	2.9	Agree
3.	Teachers and students find it difficult to get means of transportation to school due to flood and hurricane	360	261	120	63	2.7	Agree
4.	School buildings are destroyed by flood and hurricane thereby adversely affecting teaching and learning	400	315	68	61	2.8	Agree
5.	Teachers and students loose their homes and property due to climate change related problems thereby making them unsettled for academic work.	344	405	72	43	2.9	Agree
6.	climate change related problems cause students to drop-out of school	380	261	94	71	2.6	Agree
7.	Excessive heat due to climate change makes classrooms uncondusive for learning	480	300	100	30	3.0	Agree
8.	Teaching and learning materials are destroyed due to climate change factors	472	228	132	40	2.9	Agree
9.	Parents and guardians are impoverished due to flood and other climate change problems thereby making it difficult for them to provide school fees and learning materials for their children and wards.	384	243	140	50	2.7	Agree
10.	Some teachers and students lose their lives due to climate change related health hazards	520	294	38	53	3.0	Agree
11.	Teachers and students fall sick due to pollution of air and water as a result of climate change	460	243	88	60	2.8	Agree
12.	Climate change related problems make cognitive task difficult	552	231	100	35	3.1	Agree
13.	School equipment are destroyed by climate change	352	309	140	39	2.8	Agree
14.	Climate change causes waste of resources invested in education	424	376	124	38	3.2	Agree
15.	Climate change with its attendant problems adversely affect instructional supervision thereby giving room for truancy amongst teachers and students	352	360	108	38	3.2	Agree
16.	Climate change related problems make instructional supervision ineffective	420	237	130	51	2.8	Agree
17.	School calendar is interrupted by climate change related problems	340	297	164	34	2.8	Agree
18.	Climate change causes incomplection of curriculum content leading to production of half-baked school leavers.	388	309	92	54	2.8	Agree
19.	Students do not have in-depth knowledge of curriculum content leading to poor performance in examinations due to climate change challenges	520	330	48	36	3.1	Agree
20.	Climate change jeopardizes government's effort towards eradicating illiteracy, thereby increasing the level of illiteracy in the country	400	279	68	73	3.0	Agree
21.	Climate change adversely affects food production, causing malnutrition amongst teachers and students, consequently leading to poor mental development of the students	432	255	120	47	2.8	Agree
	Grand mean					2.89	

Table 1 above shows that all the items scored above the benchmark mean of 2.50, which is an indication of acceptance among the respondents. This shows that the respondents agree that climate change, with it's related problems cause among others: lateness, absenteeism and ill-

health among teachers and students and also cause destruction of school structures and learning materials, school drop-out among secondary school students, poor supervision of instruction, incompleteness of curriculum content; and poor performance in examinations among the students.

**Table 2: Mean Responses on Curricular Intervention to the Challenges of Climate Change**

S/N	Items statements	SA	A	D	SD	$\bar{x}$	Dec.
22.	Climate change should be integrated into secondary school curriculum.	480	294	62	51	2.9	Agree
23.	Workshops, seminars and conferences should be organized for secondary school teachers and students to enlighten them on Climate change related issues	804	297	-	-	3.6	Agree
24.	Atmospheric radiation measurement programme should be introduced in secondary school curriculum.	160	174	200	102	2.1	Agree
25.	Environmental science should be included in secondary schools	380	228	168	45	2.7	Agree
26.	Resource persons should be engaged to teach teachers and students in secondary schools adaptation and mitigation to Climate change	408	345	66	100	3.1	Agree
	Grand means					2.88	

Table 2 above indicates that all the items have means above 2.50 except item number 24 which has mean of 2.1, an indication of rejection. In other words, the respondents agree that climate change and environmental science should be integrated into secondary school curriculum, workshops, seminars and conferences on climate change should be organized for teachers and students and that resource persons should be engaged to teach both teachers and students adaptation and mitigation measures to climate change. The respondents however rejected that atmospheric radiation measurement programme (ARM programme) be introduced in secondary schools.

## DISCUSSION

It is evident from the results of this study that climate change adversely affects teaching and learning directly and indirectly. The results of this study indicate that climate change-related problems directly affect punctuality and attendance to school among teachers and school supervisors. Other direct effects of climate change on teaching and learning include: disruption of school calendar, destruction of school structure and learning materials, incompleteness of curriculum content, and consequently, poor performance of students in examinations. These findings are in line with the observations made by Asian Disaster Preparedness Center (2008) that there is evidence that flooding inhibits completion of school programme, with schools located in flood-prone areas subject to at least one and a half months of closure due to flooding. According to Bangay and Blum (2010), school absenteeism and drop out are higher in flood-prone areas. In the same light, Zaidi (2011) stated that many children enrolled in secondary school do not complete their education due to

challenges that make it difficult for them to attend and participate in school, of which climate related hazards are inclusive. The result of the study indicates that climate change indirectly affects teaching and learning by adversely affecting the health of teachers and students food production; and by jeopardizing the efforts and resources expended by government on eradication of illiteracy and provision of quality education as well as other Millennium Development Goals (MDGs) projects. These findings agree with UNDP in Bangay and Blun (2010) that:

climate change is hampering efforts to deliver the MDG promises. Looking to the future, the danger is that it will stall and then reverse progress built-up over generations not just in cutting extreme poverty but in health, nutrition, education, and other areas (p. 6).

The results of this study also shows that a number of curricular measures can be applied to tackle the challenges climate change related problems pose on teaching and learning. This agrees with the position of Mumuni and Amadi (2013) that climate change draws knowledge from diverse disciplines and sub-disciplines of science. They stress that a wholistic understanding of climate change does not rely on knowledge from only one discipline or subject matter but amalgamation of subject matter but on amalgamation of subject matter with their diverse knowledge. This finding agrees with the fact that education is a veritable tool for tackling societal problems. In line with this finding, International Council on Human Rights Policy (2008) observed that education is as important as health and that a well educated populace is better equipped to recognize in advance the threats posed by climate change and to make preparations. According to Bourn (2008), learning which inculcate skills such as critical thinking and problem solving is key to addressing climate change and sustainable development. It is therefore, imperative that both teachers and students keep abreast with current issues and particularly on climate change related issues in order to acquire the necessary knowledge and skills that will help them proffer solutions to the problems of climate change. However, the result of this study shows that the respondents did not agree that Atmospheric Radiation Measurement Programme (ARM programme) should be introduced in secondary schools. This finding is not surprising owing to the fact that secondary school teachers in Nigeria are already agitating against and already over-loaded curriculum.

The findings of this study have a number of implications for quality education in Nigerian educational system. The study highlights the issue of lateness, absenteeism, school drop out, destruction of school buildings and learning materials, incompleteness of curriculum content as well as closure of schools due to climate change related problems. All these could increase the illiteracy level of the country and consequently jeopardize government's efforts towards meeting Millennium Development Goals. When teachers cannot cover the curriculum content in order to transfer the knowledge to the students, the students will not have in-depth knowledge of curriculum content and so find it difficult to perform well in examinations. Consequently, the students could resort to examination malpractice which is already a menace ravaging Nigerian educational system.

“Health”, it is said, is wealth. Qualitative education may hardly take place when climate change related hazards incapacitate the teachers, students and school administrators health-wise for academic work. Effective instructional supervision could be hampered by climate

change and this could lead to truancy among teachers and students. Climate change induces hazards that can destroy means of livelihood, thereby impoverishing parents and guardians, and then making it difficult for them to provide quality education for their children and wards. Moreover, climate change could lead to loss of lives that make up the human resources of the country for whom quality education is meant for.

## CONCLUSION

This study has shown that there is emerging awareness of the adverse potential impacts of climate change on teaching and learning. It is also evident from the study that curricular measures can be taken to address the menace of climate change.

## RECOMMENDATIONS

Based on the findings, the following recommendations were made:

1. Climate change should be integrated into secondary school curriculum.
2. Seminars, workshops and conferences should be organized for teachers, students and school administrators on adaptation and mitigation measures of climate change.

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