ANALYSIS OF PUBLIC KNOWLEDGE AND ATTITUDE TO CLIMATE CHANGE ISSUES IN IBADAN, NIGERIA

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Abstract
Climate change presents significant threats to all facets of life. This paper analysed public knowledge and attitude to climate change issues in Ibadan metropolis. Data for the study was collected by administering questionnaire on 478 respondents randomly selected in seven LGA's in the city. The results showed that the public had low level of knowledge on climate change. The level of public education was observed to be significantly related to the public knowledge of climate change. The study also showed that there is no significant relationship between knowledge of climate change and attitude to climate change. A positive relationship was however observed between knowledge of climate change and attitude to climate change.

Keywords: Climate Change, Public Knowledge, Attitude, Global Warming, Climate Change Education.

Introduction

The natural environment is of crucial importance for social and economic life. Climate is a fundamental element of the environment and a change in climate will consequently cause a change in the entire environment affecting other elements of the environment. It can be viewed either as a resource encouraging development or as a constraint limiting it.

Global environmental change includes changes in the physical and biogeochemical environment, either caused naturally or influenced

by human activities such as deforestation, fossil fuel consumption, urbanisation, land reclamation, agricultural intensification, freshwater extraction, fisheries over exploitation and waste production.

It is now well established that climate changes are occurring at an increasingly rapid rate. This has been confirmed by the Fourth Assessment report of the Intergovernmental panel on climate change published in 2007 (IPCC, 2007). Climate change represents the latest in a series of environmental drivers of human conflict that have been identified in recent decades following others including drought, desertification, land degradation, falling water supplies, deforestation, fisheries depletion and even ozone depletion (Brown, Hammill and McLeman, 2007). Climate change is a major challenge currently facing the world, and it is caused by either natural or/and anthropogenic factors. Researchers have shown that for the past few decades, anthropogenic factors like urbanization, deforestation, population explosion, industrialisation and the release of greenhouse gases are the major contributing factors to the depletion of the ozone layer and its associated global warming and climate change (Odjugo, 2007).

The greenhouse gases accumulate in the atmosphere resulting in global warming. Thus, the evolving climate change is associated with increasing temperature. According to the Intergovernmental Panel on Climate Change (IPCC, 2001), the average global temperature rose by 0.74^0C in the last century. The IPCC has also projected that if greenhouse gas emissions the leading cause of climate change continue to rise, the mean global temperatures will increase from 1.4-5.80C by the end of the 21st Century (IPCC, 2001). High income countries are responsible for a large percentage of these emissions. Low and middle income countries are considered more vulnerable to the effects of climate change because of high dependence on natural resources and low capacity to adapt (Awuor, Orindi and Adwera, 2008).

Climate change has important health related consequences. These consequences including the emergence and re-emergence of infectious illnesses, heat stress and respiratory illnesses, demonstrate how global climate change interacts with the complex and rapidly changing socio-political environment and consequently determine the security of individuals, communities and the society. Effects are observed in both chronic and acute disease, spanning both developing and industrialized countries (Tsai and Liu, 2005).

Climate change is also likely to affect agriculture especially in developing countries and accelerate the current pace of out-migration of agricultural workers (Martin, 2010).Climate change threatens water and food security, the allocation of resources, and coastal populations, threats which in turn could increase forced migrations, raise tension and trigger conflict. It is likely that both extreme weather events (storms, floods, heat waves) and changes in mean temperatures, precipitation and sea level will in many cases contribute to increasing levels of mobility.

Africa is one of the most vulnerable regions in the world to climate change. As a developing nation, Nigeria is particularly sensitive to the effects of climate change. A large part of our economy depends on natural resources which are particularly vulnerable to climate change .When these resources are affected, whole communities are implicated. Odjugo (2007; 2010) reported the increase in rainfall amount in the coastal areas of Nigeria since the 1970s and a constant decline in rainfall amount and duration in the continental interiors of the semi-arid region of Nigeria. The increasing rainfall in the coastal cities may be partly responsible for the increasing floods devastating the coastal cities of Warri, Lagos, Port Harcourt and Calabar as observed by (Odjugo, 2010).

The decreasing rainfall, increasing temperature and evapotranspiration have resulted in either reduction of water levels or total drying up of some rivers and lakes in Northern Nigeria is reported to be shrinking in size at an alarming rate since the 1970s (Odjugo 2007; Onuoha, 2008). Climate change has also been associated with the constant loss of forest cover and biodiversity in Nigeria (NEST, 2003; Ayuba, Maryah and Gwary, 2007).

Climate change education has become more relevant today than before. This is because of the increasing threats climate change poses to our lives and future generations. Also, because education has a pivotal role to play in helping to raise climate change awareness across generations and can also enforce widespread behavioural change to mitigate the menace.

Thus, climate change is one of the most important environmental issues facing the world today. The effects of climate change are expected to be most severe in developing countries (IPCC, 2007).There are already noticeable consequences of climate change in

Nigeria (Odjugo, 2010). According to Ekpoh and Ekpoh (2011), there is the need for government to make significant contributions to improve public awareness of climate change issues.

Statement of the Problem
Climate change is one of the most important environmental issues facing the world today. The effects of climate change are expected to be most severe in developing countries. There are already noticeable consequences of climate change in Nigeria showing the need for government to make significant contributions to improve public awareness of climate change issues. This study was thus carried out to conduct an analysis of public knowledge and attitude to climate change issues in Ibadan, Nigeria.

Research Questions
1. Does the public have knowledge of climate change?
2. What is the attitude of the general public to climate change issues and problems?

Hypotheses
1. There is no significant relationship between public education and their knowledge of climate change.
2. There is no significant relationship between public knowledge of climate change and attitude to climate change.

Methodology

Research Design
The study was carried out using descriptive survey design of expo-facto type. Data were analysed using descriptive and inferential statistics.

Population and Sampling Procedure
The population of the study comprised the 33 local government areas in Ibadan. But for the purpose of the study, 478 respondents were randomly selected from 7 local government areas in Ibadan metropolis namely Ibadan North, Ibadan North West, Ibadan North East, Akinyele, Egbeda, Ido and Ona Ara. The probability sampling method of disproportionate stratified random sampling was employed.

Instruments
Data for the study were collected using a structured instrument titled 'Questionnaire on Public Knowledge and Attitude to Climate Change' (QPKACC). The instrument was designed to elicit information on knowledge and attitude to climate change issues. The instrument was validated and tested for reliability. A reliability coefficient of 0.87 and 0.75 respectively was obtained.

Results
RQ 1: Does the public have knowledge of climate change?

Table 1:   Knowledge of Climate Change Score

Score range	Remarks	Frequency	Percentage
0-1	Very poor	100	20.9
2-3	Poor	202	42.3
4-5	Fair	98	20.5
6-7	Good	58	12.1
8-10	Excellent	20	4.2
Total		478	100

Table 1 above shows that there is low level of public knowledge of climate change among the respondents.

RQ 2: What is the attitude of the general public to climate change issues and problems?

Table 2:   Attitude to Climate Change issues and problems

Item	Strongly agree	Agree	Disagree	Strongly Disagree
The earths' climate is changing more rapidly than ever before	226(47.3%)	184(38.5%)	62(13.0%)	-
Nigeria's climate is already changing	231(48.3%)	177(37.0%)	70(14.6%)	-
Climate change will have an effect on me	197(41.2%)	144(30.1%)	84(17.6%)	53(11.1%)

Climate change will have an effect on future generations	184(41.2%)	227(47.5%)	41(8.6%)	26(5.4%)
Climate change will affect the types of food we can grow in Nigeria	223(46.7)	129(27.0%)	109(22.8%)	17(3.6%)
Environmental problems can cause climatic changes	158(33.1%)	156(32.6%)	160(33.5%)	-
Atmospheric changes have effect on the general way of life e.g consumption/dressing pattern	95(19.9%)	149(31.2%)	173(36.2%)	34(7.1%)
I am certain that climate change is real	153(32.0%)	184(38.5%)	80(16.7%)	44(9.2%)
Climate change is personally important to me	118(24.7%)	155(32.4%)	151(31.6%)	27(5.6%)
It is necessary to take major steps to combat climate change starting from now	188(39.3%)	144(30.1%)	112(23.4%)	34(7.1%)
I believe that there is plenty of time to prepare for climate change	70(14.6%)	79(16.5%)	241(50.4%)	71(14.9%)
I am seriously concerned with what problems climate change may bring	79(16.5%)	138(28.9%)	167(34.9%)	77(16.1%)
I believe that there is religious significance to	73(15.3%)	151(31.6%)	199(41.6%)	55(11.5%)

climate change				
No special preparations are needed for climate change	118(24.7%)	167(34.9%)	121(25.3%)	45(9.4%)
I have purchased a generator for my house in anticipation of climate change	98(20.5%)	152(31.8%)	156(32.6%)	55(11.5%)
Climate change will pass like any other issue	206(43.1%)	155(32.4%)	79(16.5%)	28(5.9%)
There is little need for government to allocate additional funds for managing climate change	212(44.4%)	125(26.2%)	94(19.7%)	47(9.8%)
Climate change is important to my organization	138(28.9%)	171(35.8%)	101(21.1%)	68(14.2%)
Government should do more to help curb the effects of climate change	191(40.0%)	106(22.2%)	138(28.9%)	26(5.4%)
Public private partnership should be encouraged to combat climate change	136(28.5%)	195(40.8%)	123(25.7%)	4(0.8%)
Clean energy should be encouraged to fight climate change	126(26.4%)	174(36.4%)	161(33.7%)	17(3.6%)
I am willing to pay more in order to promote greener/environmentally friendly energy	153(32.0%)	128(26.8%)	160(33.5%)	17(3.6%)

People should be environment friendly because its nature's gift to man	190(39.7%)	66(13.8%)	90(18.8%)	94(19.7%)
Education, training and public awareness on climate change is important for full mobilization	111(23.2%)	82(17.2%)	202(42.3%)	83(17.4%)
Humans can solve the problem of climate change	84(17.6%)	176(36.8%)	95(19.9%)	70(14.6%)

Table 2 above shows that there is a positive attitude of study sample towards climate change issues and problems. What this means is that, the public in Ibadan metropolis show a positive attitudinal response towards existing climate change issues and problems.

HO₁: There is no significant relationship between public education and their knowledge of climate change

Table 3: Relationship between level of public education and knowledge of climate change

Source of variation	Sum of squares	Df	Mean square	F	T	Sig.
Regression Residual Total	6.289 511.522 517.8111	1 442 443	6.289 1.157	5.434	2.331	0.020
R(Correlation)= $R^{2=}$ 0.012 R^2 adjusted= 0.01 Standard error of regression= 1.076 Durbin Watson=1.432	0.110					

Table 3 above shows that there is significant relationship between public education and their knowledge of climate change (F cal=5.434, t=2.33, p<0.05, r=0.110). Therefore the null hypothesis is not accepted.

Ho$_2$: There is no significant relationship between public knowledge of climate change and attitude to climate change.

Table 4: Relationship between public knowledge of climate change and attitudes to climate change

Model	Sum of Squares	df	Mean Square	F	T	Sig.
Regression Residual Total	0.334 55.828 55.717	1 476 477	0.334 0.116	2.873	1.695	0.091
R correlation= R^2=0.006 R^2 adjusted=0.004 Std error of regression=0.34110 Durbin Watson=1.742	0.077					

Table 4 above shows that there is no significant relationship between knowledge of climate change and attitude to climate change (F cal=2.873, t=1.695, p>0.05, R=0.077).

Discussion of Findings

The fact that there is a low level of public knowledge of climate change among the populace of Ibadan metropolis shows that there is the need for massive public education/ enlightenment programmes on climate change issues. This is in agreement with the findings of Howart, Waterson and Mcdonald (2009) who posit that Attempts to increase public awareness of climatic issues now need to be re-focused.

Again, result has shown that even with the low level of knowledge of participants as regards climate change, their attitude towards it is positive. Populace of Ibadan metropolis are aware of climatic issues such as bush burning, changing weather conditions that are happening around. Though their observed practices do not show

that they are making any conscious effort to curtail the menace. This is in agreement with the findings of Rawlins, Chen, Rawlins, Chadee and Legall (2007) which stated that knowledge and attitude of climate change did not always correspond with practices.

Public education has been found to have a positive relationship with knowledge. This means that an additional level of public education on climate change will lead to higher knowledge of it. This is in agreement with the findings of Plotnikoff, Wright and Karunamuni (2004) stated that to encourage the population to make recommended environmental behaviours, mass media approaches (public education) may do well to target the specific beliefs that were deemed salient.

This study affirms the finding of Rawlins, Chen, Rawlins, Chadee and Legall (2007) by stating that the populace knowledge of climate change is in no way related to their attitude towards it.

Conclusion

Climate change is one of the biggest challenges in today's world and education is an essential element of the global response to it. This study has shown that there is a relationship between the level of public education and the knowledge of climate change. It has also affirmed no relationship between knowledge of climate change and attitude to climate change. It is therefore important to provide education and training, and promote public awareness to the broadest audience possible. This is because the climate related decisions that society will come across in the coming decades will require an informed citizenry. It will also require an educational system that provides students with the knowledge they need to make informed choices about responses to climate change. A lot needs to be done to improve climate literacy, improve public understanding of climate science and choices. Infusion of Climate change education in school curriculum is expected to bring about change in the attitude and behaviour of people and help them to adapt to climate change related trends.

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