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**PUBLIC OFFICIALS, CLIMATE CHANGE AWARENESS
AND ECOPOLICY FORMULATION
FOR APPROPRIATE MITIGATION:
LESSON FROM NIGERIA**

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Abstract:

Debates globally rest on the conclusion that the environment is witnessing rapid climate change. The confirmation of this conclusion is manifest in the dimensions of devastations witnessed all over the world. From the Tsunami through the hurricanes of debilitating magnitude to drought with desert feature, the occurrence remains the same the world over. In 2012, Nigeria witnessed the worst flooding ever having swept over twelve states. Emphasis is placed on mitigating or adapting to climate change in Nigeria. The question is; how aware are public officials of climate change to guarantee appropriate mitigation and adaptation policies? The study therefore, assesses the climate change awareness level of public office holders in Cross River State, Nigeria. The study assumes that there is an inextricable link between the level of awareness by public officers and eco-policy formulation to address climate change. The study adopted the survey design method and collected data through Climate Change Awareness Test (CCAT) questionnaire and was analyzed through frequency counts and bar charts. 266 public office holders split into 133 each for political office holders (politicians) and career civil servants constituted the respondents for the study. Results suggested that climate change awareness level of public officials was low with variation in awareness level among the two categories of public office holders. Career civil servants seem to be more aware than the political office holders. The study recommended among others a rigorous sensitization of public office holders on the prevalence and dangers of climate change through consistent seminars and workshops.

Keywords:

Awareness level, climate change, Eco-policy, public office holders

Citation:

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INTRODUCTION

Until recently (pre-colonial and early post-colonial) in Nigeria, the issue of climate change was rarely heard. However, there were teachings on the depletion of the ozone layer causing global warming. Between 2010 and 2012, extreme high daily temperatures in the range of 40.0°C and above were recorded in Nigeria. This rate of warming was higher than the 1971-2000 normal and slightly warmer than year 2009 (NIMET, 2012). This shows a tremendous increase in the warming trend between 1971 and 2012. This trend is common around the world. According to the EPA, the global temperature increased between 0.7 and 1.5 degrees Fahrenheit (0.4 to 0.8 degrees Celsius) during the twentieth century. There is speculation that global warming caused the massive heat wave in Europe in 2003, which killed more than 25,000 people. The IPCC predicts that in another hundred years, the earth could be 2 to 10 degrees Fahrenheit warmer (www.connection.ebscohost.com).

In 2012, Nigeria witnessed the worst flooding ever, having swept over twelve states including locales in the dry northern region. Official figures hold that 360 people lost their lives with more than two million rendered homeless, and quartered in camps across the country. The worst affected states included Bayelsa, Benue, Cross River, Delta, Edo, Kogi, Kwara, Osun, Oyo, Lagos, Ogun and Niger. The estimated asset loss was valued at N300billion (about \$2billion). Vanguard editorial (2013) described it as the most widespread flooding in Nigeria and the worst in more than 80 years. Flood related diseases such as cholera was reported to have affected over 40,000 people and killed over 1,500.

This study is significant in some respect. First, it fills a gap by providing a concise empirical analysis of the level of awareness and comprehension of climate change prevalence by public officials and the implication of this on climate change mitigation and adaptation strategies in Nigeria. Second, Nigeria possesses one of the largest forest and mineral resources in Africa which is undergoing serious threat of extinction with rising menace of climate devastation. Cross River State which contains one of the highest concentration of forest animal species and rock basement in Nigeria may lose its biodiversity in the near future due to unfavorable farm practice, uncontrollable quarrying activities and illegal lumbering. The forest is fast moving away and the environment is daily exposed to concentration of greenhouse gases. The state system must respond swiftly by minimizing the rate of destruction of the natural ecosystem and adjust public practices that accentuate persistent warming of the environment. This can only take place if the public officials understand the dangers of these unwholesome practices. But how aware are they of the rising changes in the climate and why it comes about? The study brings to fore the necessity of adequate understanding of climate change trend including its causes and consequences by public office holders as an important stimulus to robust eco-policy for addressing the ravaging impact of climate change in Nigeria and Cross River State in particular. The study contributes to climate change theory by identifying ways by which public leadership in backward societies can gradually become integrated into climate change consciousness and scholarship.

OBJECTIVE OF STUDY

The objective of the study is to assess the climate change awareness level of public office holders in Nigeria with particular reference to Cross River State. It therefore, seeks to inform a broad audience about public officials' comprehension of climate change. The study assumes that there is an inextricable link between the level of awareness of public officers and eco-policy formulation to address climate change. It

assumes further that appropriate legislation on forestalling climate change and its mitigation is limited by little or no awareness of the phenomenon by public office holders.

METHODOLOGY

I adopted the survey design method in this study. Studies that make use of this approach are concerned with obtaining a picture of the present condition of a particular phenomenon at the time of investigation. In this case, I sought to find out the present condition of awareness of climate change by public office holders in Cross River State, Nigeria. The population of study covered all political office holders – Commissioners (10), House of Assembly members (25), Special Advisers (6), Chairmen of Local Government Councils (18), Councilors (180), Commission Chairmen (8) and Senior Civil Servants from the rank of Directors and above (250). The sample size was 266 respondents drawn equally from the political office holders (133) and the senior civil servants (133).

All Commissioners, Chairmen of Councils and House Members were all included because of their small number. The top 4 house officers of Local Government Legislature were purposively included in the sample. All Permanent Secretaries, because of their number, which is small, were all included, while 123 Directors were randomly selected.

Data were generated through personally constructed climate change awareness test (CCAT) questionnaire. Analysis was by simple percentage and frequency count. Results were expressed on tables and bar charts for purposes of clarity. Awareness was tested in three focal areas of climate change - Awareness of climate change manifestations, Awareness of human induced causes of climate change and Awareness of basic mitigation strategies.

LITERATURE REVIEW

Conferences and campaigns on the environment in recent years have directed sufficient attention to the ravaging presence of climate change the world over. The Intergovernmental Panel on Climate Change (2007) refers to climate change as any change in climate over time, whether due to natural variability or as a result of human activity. Climate Change Canada (2012) further describes climate change as a long term shift in weather condition identified by changes in temperature, precipitation, winds, and other indicators. The human factors that cause climate change according to Climate Change Canada (2012) include the burning of fossil fuels and the conversions of land for agriculture in recent times have also contributed substantially to climate change (www.climatechange.gc.ca). Global climate change is possibly the greatest environmental challenge facing the world this century. Although often referred to as 'global warming', global climate change is more about serious disruptions of the entire world's weather and climate patterns, including impacts on rainfall, extreme weather events and sea level rise, rather than just moderate temperature increases. Global warming refers to the increase in the earth's average temperature that occurs naturally or, as theorized in recent years, is induced by human activity. Most discussions on global warming today cite a correlation between an increase in global temperature and the increase in carbon dioxide, nitrous oxide, methane, and chlorofluorocarbons (CFCs) in the atmosphere. Human activity increases the amount of these gases in the atmosphere and, as a result of the greenhouse effect, increases the earth's temperature. As the earth's temperature rises, glaciers melt, ocean levels rise, and unusual weather patterns occur. Scientists warn of the loss of ecosystems and the endangerment of human lives and communities as a result of climate change (www.connection.ebscohost.com).

The developing world faces greater challenges than the developed world, both in terms of the impacts of climate change and the capacity to respond to it (DEAT, 2004). Climate

change will pose risks and challenges for people, coastal economies and local industry. It may also affect access to, and quality of, basic goods and services.

Climate change mitigation is largely a governance issue. The concern of governments and major integrations suggest that governance has a lot to do in climate change mitigation and adaptation. The concern of the U. S President's Council of Advisors on Science and technology (Broder, 2013) and the vote of the European parliament (Reed, 2013) suggest public efforts at addressing the menace of climate change. Chamber, Schoeffler, Shukla, Dadi, Davidson and Alpan-Atamar (2002) had also studied climate change mitigation condition in developing countries using Brazil, China, India, Mexico, South Africa and Turkey as case studies. The six case studies identified a broad range of mitigation activities and potentials ranging from tax incentives to the use of natural gas. The authors concluded that the report from these case studies is suggesting that many developing countries are already taking actions that are significantly reducing their greenhouse gas emissions growth.

Studies on climate change in Nigeria are diverse. One of such studies was conducted by Ekpoh and Ekpoh (2011). The authors assessed the level of climate change awareness among secondary school teachers in Calabar Municipality, Nigeria and discovered that the level of climate change awareness is low generally among teachers.

Nzeadibe, Chukwuone, Egbule and Agu (2011) also studied the climate change awareness and adaptation in the Niger Delta Region of Nigeria. Findings of the study indicate that the level of awareness of local communities of climate change impacts is still low in the region. The study recommended adequate investment in research for building resilient adaptation to climate change impacts in the Niger Delta region of Nigeria.

Ishaya and Agbaje (2008) clearly studied the indigenous people's perception of climate change and adaptation strategies in Jema'a Local Government Area of Kaduna State, Nigeria and found out that over 84% of the indigenous population is not aware of climate change and its impacts. These findings vindicate Olorunfemi (2010) who posited that one major obstacle to mitigating climate change in Nigeria is the limited knowledge and awareness of the phenomenon.

The United Nations Development Programme (2010) survey of Nigeria concludes that climate change awareness is low. Increasing population of the country is also making it more vulnerable to natural and human-induced changes in climate and environment (Soneye, 2012).

Similar studies conducted by Friends of the Earth International (FOEI) (2007) revealed that climate change is severely affecting livelihoods in Nigeria by altering seasonal rainfall patterns. Asiyanbi's (2012) study of awareness level of elites in Lagos shows that about 81% of the respondents are aware of climate change and perceives it as a risk.

Climate change scourge is increasingly becoming too pronounced in the developing countries and effort to tackle it is hindered by limited public officers' awareness of the phenomenon. In other words, awareness crises permeate public life of Developing Countries. The position of the Department of Environmental Affairs and Tourism of South Africa supports this observation. It argues that general awareness within government on the likely impacts of climate change is somewhat limited especially in those departments not directly involved with climate change issues. Officials in other departments, within all spheres of government, often do not see climate change as a priority and some even see it as working against national development priorities (DEAT, 2004). Limited awareness has the potential to hinder the formulation of public policies to

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mitigate climate change. In order to adapt to climate change, and to prepare adequately for the likely impacts, capacity has to be built. This will ensure that the policies formulated will adequately address climate change adaptation and mitigation. Limited awareness is also common among Kenyan population. Mutimba, Mayieko, Olum, and Wanyatma, (2010) study of Climate Change Vulnerability and Adaptation Preparedness in Kenya shows that climate change awareness is low countrywide, particularly, among the rural folk, who also happen to be the most vulnerable to the adverse impacts of climate change because of their high dependency on climate-sensitive natural resources and high poverty rates. This calls for enhanced climate change awareness in a simplified language and manner understandable to different groups (women and youth, disabled, farmers and pastoralists, etc) so that they can be better prepared to deal with the problem.

In India also, Climate change awareness has been discovered to be low. Gallop's (2010) survey of awareness level of climate variability in India reveals that only 37% of Indians in all claim the know something about climate change. In other words, about 63% do not know anything about global warming. Further studies by Leiserowitz and Thaker (2012) on Climate Change in the Indian Mind, confirms Gallop's earlier findings. This study also found limited awareness of global warming as an issue. Only 7 percent of respondents said that they know "a lot" about global warming and 26 percent said they know "just a little". By contrast, 41 percent said they had either "never heard of it" or "don't know". As have been observed by the authors and which is rightly so, lack of awareness of the issue does not mean that individuals have not observed changes in local weather and climate patterns, as evidenced above. This suggests that many Indians may have observed changes in their local climate and weather patterns, without understanding the broader issue of global climate change.

Awareness could be delineated along demographic group. In other words within the same population certain age brackets may be more aware of climate change and its impact than the other. The result of the study by Fernandez-Bilbao, Zsomboky, Smith, Knight, and Allan, (2011) on the Impacts of Climate Change on Disadvantaged UK Coastal Communities captures this position. In responding to questions on the level of awareness of the indigenous population of the study area, respondents generally agreed that older people were less likely to be aware of the impacts than other groups. Respondents linked this less awareness to several factors which include the perception that climate change will not happen in their lifetime. In other words environmental changes around them were not attributable to variations in climate conditions. Older people were more likely to be worried about pressing issues such as low incomes, lack of jobs or the price of fuel than dealing with climate change. This shows clearly that poverty contributes to lack of interest in understanding climate change, its impacts and mitigation necessity. Awareness may not adequately explain effective comprehension of the dangers of climate change. It is not in every dimensions of climate change that adequate awareness is established even in the advance countries. A highly informed people may be aware of the changing climate situation around them but may not appreciate the associated danger. Some locales in Developed societies also suffer from this unidirectional awareness. Fernandez-Bilbao, Zsomboky, Smith, Knight, and Allan, (2011) argue that in some UK coastal communities even where there was awareness, people's perceptions of climate change risks were often limited to one manifestation (e.g. flooding), with a lack of understanding of the wider impacts and potential consequences. The awareness level of public officials of climate change, its causes, consequences and remedy needs to be studied, monitored and evaluated regularly since effective mitigation process is largely a policy matter.

The literatures reviewed in this study attempts to assess climate change awareness in Nigeria and other developing countries among school teachers, local community farmers, some rural inhabitants and selected corporate elites. While they make interesting contributions to scholarship, none addresses the awareness levels of public office holders on climate change in Nigeria. This study therefore addresses that lacuna in literature and contributes to knowledge at the level of scholarship. Here lies the significance of the study.

Recent activities that suggest an increasing contribution to global warming in Cross River State, Nigeria

In the last 13 years, the quantum of industrial and private establishments that sprang up in Cross River State has been very unprecedented. The speed with which urban sprawl is growing in the state suggests that before 2020, annual rate of urban sprawl will hit 5km².

The table below shows the human activities in Cross River State that are capable of contributing to global warming.

Table 1: Showing recent activities that could contribute to global warming

URBAN DEVELOPMENT	INDUSTRY & EXTRACTION	SOCIO-ECONOMIC DEVELOPMENT	TRANSPORTATION
Ekorinim Layout	United Cement	TINAPA Business Resort	2000 cars for public transportation
Satellite Town	Wemco Wood	Marina Resort	1,000 cars for politicians
Ikot Nkebre Layout	NIPP Odukpani	Cable Car Obudu Ranch	500 cars for civil servants
Ikot Effanga Layout	Nyagachang Quarry	Bebi Airstrip	
Parliamentary Extension	Obung Quarry		
New Parliamentary Village	Nsan Quarry		
Akpabuyo Housing Estate			
Odukpani Fed. Housing Estate			

Source: Fieldwork, 2013

Between 2000 and 2013, eight new residential layouts were developed around Calabar the state capital and its environs. This shows a rapid urban expansion that surpasses the rate of urbanization between 1960 and 1999.

In the area of industry and extraction, the United Cement Company (UNICEM) built a high capacity cement factory at Mfamosing alongside the existing factory owned by Calabar Cement Company (CALCEMCO) located at Obutong, Calabar. Quarrying activities have also expanded beyond what was conducted at Old Netim. These new quarries blast over 20,000 tonnes of stones everyday for commercial purposes.

There is also the construction of National Independent Power Plant (NIPP) at Odukpani to supply about 1000mw of electricity to the national grid. Wemco Wood Industry is a company located at Ikom, Cross River State exploiting wood resources for export.

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One major socio-economic development activity embarked upon by the government of Cross River State was the construction of the TINAPA Business Resort in Odukpani Local Government Area near Calabar. It is a large business layout with many emporiums and facilities for industrial productions. It occupies a land area of about 20km² (20 square kilometers). The Marina Resort is a leisure outfit located along the coastal lines of the Calabar River. It occupies a land area of about 3sqkm.

Tourists' delight in Cross River State is the Obudu Ranch Resort situated at the mountain top of 1,566meters above sea level. The road to the mountain top is windy and fearful. Recently, the government of Cross River State constructed a cable car from the bottom-hill to the top to facilitate the movement of tourists with ease. This cable car is described as the longest cable car in the world. The government also acquired a large expanse of land in a community called Bebi near the ranch and constructed an airstrip for smaller airplanes going to the ranch.

In terms of transportation, the government, in its bid to stop the business of commercial motorcycle, purchased about 2000 cars for public transportation. Also, every serving political office holder especially councilors, chairmen of local government councils, commissioners and members of the legislature, are made to compulsorily own a car supplied to them by the government. This has become a common practice that every new set of political office holders must buy a new car. Over 1000 cars have been distributed to politicians in the past six years. Senior civil servants are also given the opportunity to get a car from government and pay on installment basis from their salaries.

The essence of this analysis is to show the extent to which recent human activities explain a state that is gradually contributing to climate change phenomenon as well as how government actions contribute to global warming through their policies of compulsory purchase of cars to political office holders and granting of licenses to quarrying companies in an incessant manner.

The rapid urban expansion as well as other socio-economic activities removes vegetation cover, thereby exposing the surface to direct heat of the sun. It therefore cuts off evapo-transpiration, and creates urban heat island. The flouromonocarbon generated by the cars of which government is a major contributor adds up to overheating the earth surface which leads to climate change.

ANALYSIS AND RESULT

The study addressed three focal points of awareness. These include:

- (1)The understanding of the manifestation of climate change
- (2)Understanding the human-induced causes of global warming that leads to climate change, and
- (3)Understanding mitigation strategies. Respondents' awareness level was tested along these three areas of climate change scholarship.

First, respondents were asked whether they are aware of climate change and the concern it has attracted internationally. The responses show that 106 respondents representing 39.8% are aware of climate change, its impact and the international concern about it, while 160 representing 60.15% are not aware of the seriousness of the phenomenon and the international debate about it. Further analysis of the results revealed that 101 respondents who were not aware were politicians while 59 civil servants were also not aware. On the other hand, 74 civil servants were aware as well as 32 politicians. This shows that in terms of being abreast with the phenomenon, civil servants were more aware of the prevalence of the phenomenon of climate change than the politicians. These results are presented on the figures below.

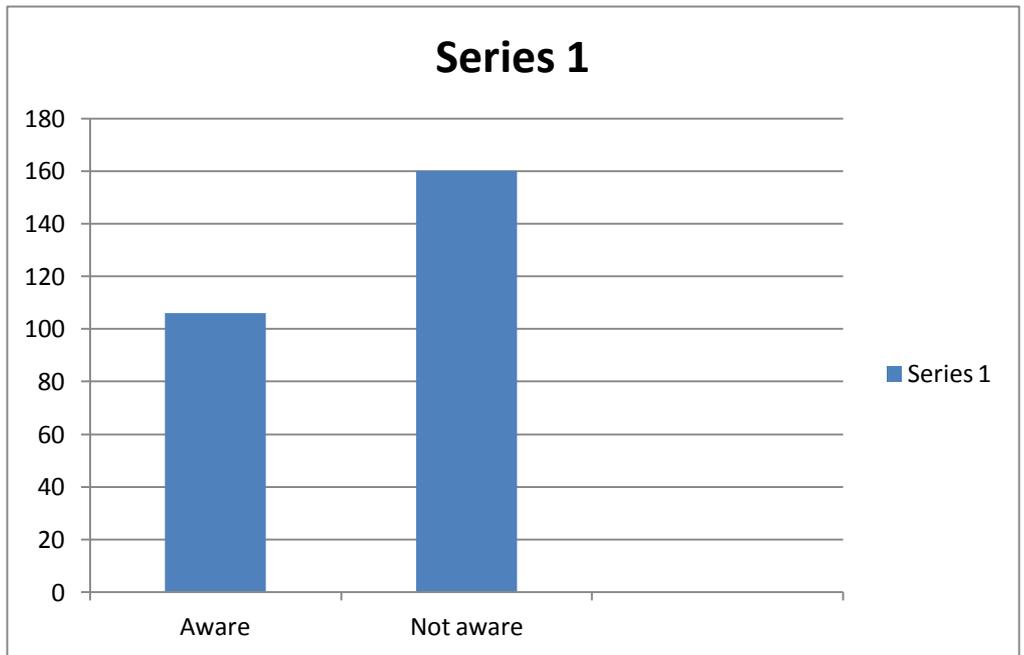


Fig. 1: Awareness of climate change and international concern

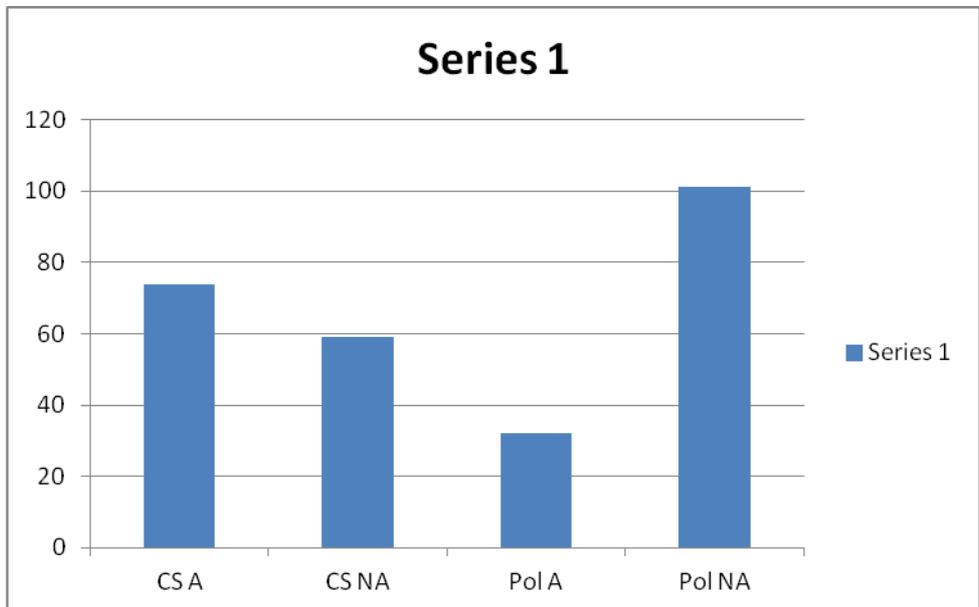


Fig 2.: Class distribution of awareness level

KEY:

CS A – Civil servants aware

CS NA – Civil servants not aware

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POL A – Politicians aware

POL NA – Politician not aware

Awareness of Climate Change Manifestation

In terms of the manifestation of climate variability, respondents expressed how they understand climate variability in their localities. Their responses are presented on the figure below.

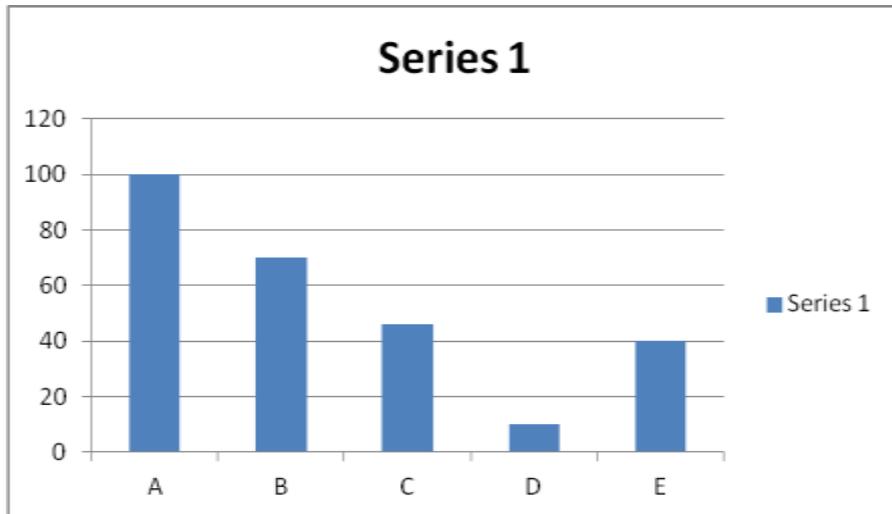


Fig 3: Respondents' observation of the manifestation of climate change in their localities

Legend:

A = increased hotter weather (higher sunshine)

B = increased rainfall beyond what is expected to be normal

C = increased flooding

D = very abnormal cool temperature

E = Duration of the seasons (becoming longer or shorter).

The figure above shows how respondents understood climate variability in their localities. 100 respondents representing 27.59% observed it as increased hotter weather occasioned by higher sunshine rate. 70 respondents representing 26.32% view it from increased rainfall beyond what is expected to be normal. 46 respondents representing 17.29% observed that the variation is noticed by increased flooding. 10 respondents representing 3.76% observed it in the form of very abnormal cool temperature while 40 respondents representing 15.04% pointed out that climate variation is noticed in the duration of the seasons.

Awareness of Human-Induced Causes of Climate Change

The result of the assessment of the awareness of human-induced causes of climate change by public officials is presented on the table below:

Table 2: Responses on the awareness of human-induced causes of climate change in Cross River State

	Categories of Human Activities	RESPONSES			TOTAL
		YES	NO	UNSURE	
A	Use of personal effects: Aware of whether the use of air conditioners, fridges leads to climate change	60 (22.5%)	180 (67.67%)	26 (9.77%)	266
B	Urban development: Aware of whether urban extension seen in the rapid development of residential layouts contribute to climate change	70 (26.32%)	165 (62.03%)	31 (11.65%)	266
C	Industry/Extraction: Aware of whether industrial activities and extractions such as UNICEM, quarry and wood extraction lead to climate change	105 (39.47%)	148 (55.64%)	13 (4.89%)	266
D	Government socio-economic development: Aware of whether government socio-economic activities such as TINAPA, Marina and Obudu ranch resorts contribute to climate change	50 (18.80%)	185 (69.55%)	31 (11.65%)	266
E	Government's public and private transportation support: Aware of whether every car given by government to politicians, civil servants and private transporters contribute to climate change	80 (30.08%)	150 (56.39%)	36 (13.53%)	266

Source: Fieldwork, 2013

Table 2 above shows that 67.67% of the respondents are not aware that the use of personal effects such as air conditioners and fridges can contribute to climate change. About 22.56% and 9.77% were aware and unsure respectively. In terms of the contribution of urban development to climate change, 62.03% do not understand that rapid urban expansion contributes to climate change. 26.32% of the respondents are aware while 11.65% are not sure.

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In relation to industry and extraction, 55.64% of the respondents do not know that industrial activities and extractions can lead to climate change. 39.47% are aware and 4.89% are not sure.

The response on government socio-economic activities shows that 69.55% of the respondents are not aware that socio-economic activities of government such as the ones in Cross River State can contribute to climate change. 18.80% are aware while 11.65% are not sure.

Regarding government's private and public transportation support, 56.39% are not aware that the quantum of vehicles government give to public office holders and private transporters at regular intervals contributes to emission of gases that leads to global warming. 30.08% are aware while 13.53% are not sure.

Awareness of Basic Mitigation Strategies

The responses on the awareness of basic mitigation strategies are presented on the table below.

Table 3: Awareness of basic mitigation strategies

	MITIGATION STRATEGIES	RESPONSES			TOTAL
		YES	NO	UNSURE	
A	Whether the use of public transit, walk or bike whenever possible will assist to mitigate climate change	45 (16.992%)	170 (63.91%)	51 (19.17%)	266
B	Whether embargo on logging is appropriate in mitigating climate change	140 (52.63%)	110 (41.35%)	16 (6.02%)	266
C	Whether energy-saving habits can mitigate climate change (e.g. turnoff lights when not needed, turn off computers and unplug electronics when not in use, using energy-efficient compact fluorescent bulbs	80 (30.08%)	145 (54.51%)	41 (15.41%)	266
D	Do you know what REDD+ is all about?	62(23.31)	200(75.19)	4(1.50)	266

Source: Fieldwork, 2013

Table 3 shows that 63.91% of the respondents are not aware that the use of public transit, walking and biking can reduce greenhouse gas build up thereby leading to a reduction in global warming. This is so because a reduction in the amount of fumes from so many vehicles on the road will assist in the mitigation of climate variation. 45.92% are aware and 19.17% are not sure.

In terms of forest preservation and conservation, 52.63% are aware that embargo on logging is appropriate in mitigating climate change. 41.35% are not aware while 6.02% are not sure. Respondents' familiarity with this strategy is not unconnected with the fact that the Cross River State Government has an existing embargo on logging.

54.51% of the respondents are not aware that energy-saving habits such as turning-off lights when not needed and using compact fluorescent bulbs can help to reduce the rate of warming. 30.08% are aware while 15.4% are not sure.

23.31% of the respondents know what REDD+ is all about. The sharp contrast is that 75.19% of the respondents are not aware of REDD+ and do not understand what it is all about while 1.50% are not sure.

DISCUSSION

The results presented above generally indicate that public office holders' awareness of climate change in terms of its global concern, causes, impact and mitigation is low. They show significant limited awareness of the contribution of government socio-economic activities to worsening climate change situation. In other words, public ignorance is generally high. These results buttress the finding of Skea (1992) who discovered that ignorance, confusion and apprehension explains public attitude on climate change. Paltry (2000) cited in Ekpoh and Ekpoh (2011) observed also that some people have no clear understanding of the meaning, causes or effects of climate change. Greater percentage of the respondents (75.19%) do not understand what the REDD+ programme is all about. The worry here is that when public officers do not understand globally-directed mitigation programmes such as REDD+ it shows their limited comprehension of and involvement in the global effort at mitigating the scourge of climate change. The implication is that the formulation of policies on some of the human practices that REDD+ programme tries to stop may be limited or not enacted at all because of the level of ignorance of public officers. Deforestation and forest degradation, through agricultural expansion, conversion to pastureland, infrastructure development, destructive logging, fires etc., accounts for nearly 20% of global greenhouse gas emissions, more than the entire global transportation sector and second only to the energy sector. It is now clear that in order to constrain the impacts of climate change within limits that society will reasonably be able to tolerate, the global average temperature must be stabilized within two degrees Celsius. This will be practically impossible to achieve without reducing emissions from the forest sector, in addition to other mitigation actions (UN-REDD, 2013). Public officers need to be adequately aware of this before they can stimulate robust eco-policy to address forest devastation in Nigeria.

The low level of awareness is not peculiar to Nigeria. A survey by the China Centre for Climate Change Communication (2012) revealed that 93 percent of the respondents know just a little about climate change in China. It further confirms Bord, Fisher and O'Connor (1998) assertion that errors in assessing causes of climate change are global in nature. Bruun (2012) study of Central Vietnam shows that ignorance results in fragmented approaches to managing climate situation in Central Vietnam.

Awareness levels differ from society to society. Governments in advance countries show high awareness level. Poyer and Better-Simms (2010) study of the U.S. shows that a growing number of substantial government bodies in the United States have initiated climate adaptation planning efforts which emphasize an array of climate impacts at different scales, scopes and levels of sophistication. In studying the perception of climate change among some coastal communities of the UK, Fernandez-Bilbao, Zsamboky, Smith, Knight, and Allan, (2011) discovered that even among some communities of the

developed countries, some show high level of awareness than others. Residents in Benbecula(Outer Hebrides, Scotland) showed higher awareness of climate change than those in other case-study areas such as Yarmouth (Norfolk, England), Skegness (Lincolnshire, England) and Llanelli (Carmarthenshire, Wales).

Awareness precedes effective mitigation policies. Where a government exhibits limited awareness of climate change phenomenon, it becomes deficient even in the policies it makes to address the scourge. Part of the reasons for limited awareness exhibited by public officers on climate change stems from the predatory political system largely operated in Nigeria. The interest of public officers lies substantially in the wanton depletion of public treasuries as against conscious effort at understanding the threats to society and how to mitigate them. Again, the prebendal and predatory political structure common in Nigeria's political landscape fertilizes a condition where people with limited appreciation of public behavior are primitively foisted on the polity especially at the level of the legislature. The effect therefore is that instead of thinking about public problem and understanding them, they dissipate energy, time and thinking-process on how to use their offices to make so much money at the peril of the public.

Conclusion

There are increasing efforts to understand how the public perceive climate change and how they respond to it. Beyond the ordinary citizens, it is very crucial that public office holders understand clearly what climate change is, its impacts and causes. This is important because climate change mitigation is largely a policy matter, and since public policy making falls clearly within the domain of public officials, it is imperative that they understand adequately the human—induced causes of climate change in order to direct appropriate legislation on its mitigation.

The finding of this study has some basic implications. First, government and the public would understand clearly that against expectations, public functionaries in Nigeria and indeed many African countries have limited knowledge of climate change and its consequences. This certainly informs the pedestrian approach to addressing climate change in the study area. Second, it highlights the necessity of climate change education on public functionaries on regular intervals in Nigeria and other developing countries with such limited awareness.

As part of national and local adaptation response, improving resilience to climate change scourge by government is important for Nigeria by initiating appropriate eco-policies to pattern the behaviour of people on environmental conduct. I argue that it is only by adequate awareness of the phenomenon of climate change by public office holders that such policies can be comprehensively put in place. Adequate governmental awareness would ensure that new development and infrastructure planning takes climate change into account to avoid putting more people at risk. Physical transformations are carried out haphazardly without comprehending the impact it poses on the environment. Limited awareness by public officers explains this deficiency.

It is often very difficult and in most cases misleading to decide on an issue you have insufficient knowledge about. This study discovered that the climate change awareness level of public office holders in Cross River State, Nigeria is low. It is the submission of this study that effective public mitigation strategies begin with adequate awareness of the human and in most cases government-induced causes of climate change by public office holders. Until public officials sufficiently understand the human factors and the government-induced causes of climate change, exercise in mitigation will still remain at the periphery in Nigeria.

For a successful adaption and mitigation of climate change in Nigeria and indeed other disadvantaged locales, this paper recommends therefore, that the Nigerian state should evolve a system of climate change education for public officials. This could come in form of regular workshops and seminars organized regularly for public office holders especially the political class on the causes, impacts and mitigation of climate change. This would certainly raise the awareness level and prepare them for appropriate eco-policy formulation to mitigate climate change scourge in Nigeria. The climate change education curriculum should encourage adequate sensitization on basic mitigation strategies such as energy-saving habits and the danger of allowing and patronizing what is referred to as fairly used electronics, air-conditioners and vehicles in the country. The mass media and other local communication mechanisms can be mobilized for this exercise. The utility of climate change education and its implication in this regard is robust. First, it places public functionaries on a vantage position to evolve mitigation policies from the standpoint of knowledge. Second, Nigeria is a leading voice in the African continent. The enhanced knowledge through regular climate change education could influence the African Peer Review of NEPAD and the African Union (AU) to evolve a continental eco-policy towards climate change mitigation in the continent.

Long-term development and infrastructure planning is imminent. In designing governments' approaches to spatial planning and management of development, it is imperative that impacts of such activities must be incorporated into such designs. This is important because it has the possibility to avoid putting the environment at risk of climate change. This again is a function of adequate awareness. Finally, government should improve public transportation system in a manner that it becomes safer and reliable enough to attract mass patronage. This will limit the tendency to own many vehicles that add up to gas emission, which contributes to global warming.

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