# Government Officials and Climate Change Awareness: Implications for Climate Change Mitigation and Adaptation Policies in Cross River State, Nigeria

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## Abstract

*The prevalence of climate change is evidenced in increased heat waves, drought, flooding, irregular rainfall pattern and desertification. World leaders are faced with evolving mitigation strategies to climate change. The study posited that effective mitigation and adaptation policies are contingent on the level of awareness of climate change by government functionaries. The question in the Nigerian context is: how aware are government functionaries of climate change? The study assessed the climate change awareness level of government functionaries in Cross River State, Nigeria and whether this affects their contribution to climate change discourses for appropriate mitigation and adaptation policies. The study adopted the cross-sectional design and collected data through Climate Change Awareness Test (CCAT) questionnaire, which was summarised descriptively using percentages and frequencies and displayed using tables and appropriate charts. Chi-Square statistical technique was used to analyse the association between respondents' awareness of climate change and their contribution to climate change discourses. Results showed that the climate change awareness level of government functionaries was low, with career civil servants being more aware than the politicians in office. The study recommended, among others, a robust sensitisation of government functionaries by organising regular seminars, workshops and conferences on climate change and its consequences.*

**Keywords:** Awareness level, climate change, mitigation, adaptation, government functionaries

## Introduction

In the 1980s, Nigeria was living very close to the forest. In 2026, there is a tremendous disappearance of the forest and an increase in desertification and drought. Weather events have been at the extreme, affecting fresh water resources and leading to land degradation. There is extreme variation in rainfall patterns with an associated rise in sea level and torrential flooding. Between August and September 2025, torrential rainfall, river floods and flash floods have cumulatively affected 33 states, causing massive destruction of homes, farmlands and infrastructure. It impacted negatively on over 340,000 people across Nigeria. Injuries and fatalities have been kept at over 500 and 230, respectively, with about 43,936 people displaced (IFRC, 2025). These occurrences show that Nigeria's climate is changing.

Climate change is increasingly posing a serious challenge to the socio-economic development of Nigeria. The ravaging effect of climate change is evidenced in the collapse of agriculture and rising food shortage due to rain-fed agriculture practised in Nigeria. The temperature has been increasing and expanding the heat wave to all time high. The World Bank projects a mean annual temperature to increase between $1.1^0$ C and $2.5^0$ C by 2060, and between $1.4^0$ C and $4.6^0$ C by the 2090s (World Bank, 2021).

The adverse variation in climate conditions brings about a negative impact on the welfare of the populace and has also contributed to a reduction in hydro power generation (Osho, 2026). A vast literature on climate change narrates the impact of climate change mainly on agriculture and individual farming communities, while others focus on adaptation and mitigation strategies from recommendations and not on the outcome of empirical studies. Limited studies abound on the interrogation of how aware public officials are of climate change and the vagaries associated with the variation. "While there is some necessary capacity building at the individual, group and community level to engage in climate change responses" (Haider, 2019:1), there is less attention on the awareness level of public functionaries at the level of the state on climate change. This article attempts to close that gap in the literature.

Climate change affects the global environment as well as the socio-economic and political existence of our communities. It is a very disturbing environmental issue and has drastically altered the way we live now, reason, and think. It requires serious awareness at the level of policymakers for appropriate and committed mitigation/adaptation programmes to be put in place. As Jamet & Corfee-Morlet (2009) have rightly posited, "estimating the impacts of climate change is key to any discussion of mitigation or adaptation policies. To decide whether action is needed or not and to choose the target, policy makers need to know the cost of inaction and how the cost of mitigation policies weighs against the benefit of acting". Awareness of climate change issues by public officials is critical to informing policies on climate change mitigation and adaptation. Its importance is diverse. It has the capacity to drive behavioural changes among policymakers towards encouraging climate-friendly activities in the system. It could also drive support for policy as informed public functionaries are likely to evoke the political will to formulate and implement strict climate policies. Finally, understanding climate risk is likely to cause government officials to prepare towards managing climate impact when it occurs. Knowledge of climate change issues by policy makers is therefore, at the core of policy measures to drive mitigation and adaptation.

Data relating to surface temperature in Nigeria between 1981 and 2025 indicates an increasing trend ($40^0$ C and above) in annual mean temperature over previous last decades (NiMet, 2025). This shows a constant rise in the warming trend between 1980 and 2025. The earth's temperature has also increased by $1^0$ C ($1.8^0$ F) since 1900, with the greater part of the increases

occurring from 1970 onwards (The Royal Society, 2020). This trend is worrisome, more so given the prediction of the IPCC that in another hundred years, the earth could be 2 to 10 degrees Fahrenheit warmer (www.connection.ebscohost.com). It is therefore evident that the World's climate is changing. The options pursued generally are mitigation and adaptation. Effective mitigation, however, lies at the level of policy, and policy contents are informed by the level of awareness of policymakers on the issue area. Here lies the relevance and justification for this study.

The significance of this study is diverse. Theoretically, it contributes to the body of knowledge by empirically analysing the level of awareness of public officials in Cross River State, Nigeria, of climate change and its associated vagaries. Second, it brings to the fore the importance of an adequate understanding of climate change trends by government functionaries as an important stimulus to evolving informed mitigation policies.

The objective of the study is to examine the level of awareness of public functionaries in Cross River State, Nigeria, of climate change and its surrounding issues. It is to provide a range of information on how policymakers comprehend climate change and how such knowledge affects mitigation at the level of policymaking. The study covers the period from 1999 to 2024.

The study hypothesises that there is no significant difference in the awareness level of civil servants and that of the politicians on climate change, and that there is no significant association between the awareness level of respondents and their contribution to climate change discourses.

## Methodology

The design adopted was a cross-sectional descriptive design. 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. The study sought to find out the level of awareness of climate change by public functionaries in Cross River State, Nigeria and whether this affects their contribution to climate change discourses. The population of study covered all political office holders – Commissioners (20), House of Assembly members (25), Special Advisers (6), Chairmen of Local Government Councils (18), Supervisors and unit heads of Local Government Councils (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).

Given that the number of Commissioners, Unit heads of local government Councils, House Members and Permanent secretaries were small, they were all included. 123 Directors were randomly selected using the hat and draw method of the simple random sampling technique.

Data was collected using a constructed climate change awareness test (CCAT) questionnaire. Data was summarised descriptively using percentages and frequencies and displayed using tables and appropriate charts. Chi-Square statistical technique was used to analyse the association between respondents' awareness of climate change and their contribution to climate change discourses. The study examined awareness in three domains of climate change:

i. Human-induced causes of climate change
ii. Basic mitigation strategies
iii. Expected action of the government on mitigation

## Exegesis on Climate Change

Climate change is a significant long-term variation in the global climate arising from increasing average atmospheric temperature. Scholars and researchers agree that the effect of climate change is devastating on human existence and therefore, has to be addressed substantially by state-directed policies. Gases which occur naturally (carbon dioxide, methane, nitrous oxide and water vapour)

and are responsible for the Greenhouse effect have also been found to account for climate change (Baliram & Jadhav, 2020). The Intergovernmental Panel on Climate Change (2007) described climate change as any change in climate over time, whether due to natural variability or as a result of human activity. It is further seen as a long-term shift in weather conditions identified by changes in temperature, precipitation, winds, and other indicators (Climate Change Canada, 2012). Stringent mitigation has been suggested to substantially reduce the scourge of climate change. Mckenna et al. (2021) posit that effective commitment in holding long-term warming below $1.5^0$ C reduces the risk of unprecedented warming rates in the next 20 years by a factor of 13 compared to where mitigation is not instituted. Ilissa et al. (2021) argue that fast action to reduce methane emissions is the needed mitigation timeline to reduce global warming. Pursuing rapid mitigation measures could slow the global mean rate of near-term decadal warming by about 30 per cent.

A lacklustre approach to dealing with the climate change scourge places the ecosystem at serious risk. Xi et al. (2021), who studied the future impact of climate change on inland Ramsar wetlands, highlighted that climate mitigation is essential for future Ramsar wetlands conservation, in addition to the minimisation of human disturbance. The study concluded that sites most vulnerable to shrinkage in the absence of mitigation are all seasonal water bird migration hotspots located in the Mediterranean, Mexico, Central America and South Africa. Similar studies conducted by Izaguirre et al. (2021) revealed the danger of unmitigated climate change conditions on global port operations. They argue that climate change is likely to compromise port operations, resulting in an increase in operational shutdowns and subsequent economic losses if mitigation measures are not adequately enforced. Areas of amplified risk include increased coastal flooding and overtopping due to sea level rise and heat stress impacts of higher temperatures.

Climate change also impacts astronomically on agricultural production. Food and Agriculture Organisation (FAO) data cited in Arora (2019) showed that with the current Greenhouse Gas (GHG) emissions and climate change, there will be a drastic decline in the production of major cereal crops. There will be an astronomical drop in maize yields (20-45 per cent), wheat (5-50 per cent) and rice (20-30 per cent). If this trend should continue unmitigated, crop losses may increase in an unprecedented rate leading to spiked food prices and untold hardship on the rising population estimated to hit 9.7 billion by 2050. Climate change has affected the human life supporting system and global food production, leading to food insecurity in terms of food availability, accessibility, utilisation, and food system stability (Shankar & Shikha, 2018).

Governance is at the core of climate change mitigation. Public effort is highly required to stem the tide of climate change (Broder, 2013 & Reed, 2013). Chamber, Schoeffer, Shukla, Dadi, Davidson and Alpan-Atamar (2002) had recorded the efforts of Brazil, China, India, Mexico, South Africa and Turkey in mitigating climate change. Many studies have been conducted on climate change in Nigeria, ranging from its causes to its consequences. A couple of studies have been carried out around awareness of climate change.

Ekpoh & Ekpoh (2011) observed low awareness levels among secondary school teachers in Calabar Municipality, Nigeria, just as the study by Nzeadibe et al. (2011) discovered low levels of awareness among local communities of Nigeria's Niger Delta Region. 84 per cent of the indigenous population of Jema'a in Kaduna state were not aware of climate change and its impacts (Ishaya & Agbaje, 2008). These findings were affirmed by 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) is also of the submission that climate change awareness in Nigeria is low. However, Asiyanbi's (2012) study of elites in Lagos showed that about 81per cent of them are aware of climate change and perceive it as a risk.

Limited awareness of climate change is not only peculiar to Nigeria. Few studies report limited awareness around the world. Mutimba et al. (2010) had studied climate change vulnerability and adaptation preparedness in Kenya. Their findings suggested that the level of awareness, particularly among the rural dwellers, is low countrywide. The situation in India is similar. A survey by Gallop (2010) indicated that a little over a third (37per cent) of the study population claimed they knew something about climate change, suggesting that 63 per cent were not aware of global warming. Leiserowitz & Thaker's (2012) study along this line confirmed Gallop's earlier findings. This study also identified limited awareness of global warming among most Indians.

The devastating impact of climate change is rising rapidly around the globe. It is worrisome in the developing countries because mitigation efforts seem limited. Part of this could be blamed on the awareness level of government functionaries of climate change and its consequences. Awareness seems to be a serious challenge in dealing with climate change issues in Africa. The general awareness within government of the likely impacts of climate change seems somewhat limited. Limited awareness has the potential to hinder the formulation of public policies to mitigate climate change. Building capacity is important to prepare for the likely impact of climate change. This is highly informed by the level of awareness of government officials whose duty it is to formulate policies to deal with climate change issues.

While the literature reviewed in this study makes interesting contributions to the body of knowledge, none addresses the level of awareness of public functionaries on climate change in Nigeria. This study attempts to close that gap in the literature.

**Government Activities Leading to Climate Change**

Industrial and private activities have been on the increase in recent times in Cross River State. Urban sprawl is growing rapidly, with an annual rate of urban sprawl suggested to hit 7km$^2$ by 2025. Some of these activities are captured in Table 1.

**Table 1: Showing recent activities that could contribute to climate change**

| Urban Development | Industry & Extraction | Socio-economic Development | Transportation |
|---|---|---|---|
| Ekorinim Layout | United Cement (Larfage) | TINAPA Business Resort | 2000 cars for public transportation |
| Satellite Town | Wemco Wood | Marina Resort | 1,300 cars for politicians |
| Ikot Nkebre Layout | NIPP Odukpani | Cable Car Obudu Ranch | 700 cars for civil servants |
| Ikot Effanga Layout | Nyagachang Quarry | Bebi Airstrip | |
| Parliamentary Extension | Obung Quarry | Poultry farm PAMOL, Calabar | |
| New Parliamentary Village | Nsan Quarry | Calabar International Conference Centre | |
| Akpabuyo Housing Estate | Ayade Industrial Park | Super Highway | |
| Odukpani Fed. Housing Estate | Cocoa Processing factory, Ikom | Obudu International Airport | |

| | |
|---|---|
| CICC Residential Layout | Pylon factory, Awi |

Source: Fieldwork, 2024

The recently developed residential layouts around Calabar urban areas surpasses the rate of urban expansion from 1960 to 1999. Industrial and extraction activities peaked with the construction of cement factories as well as quarrying activities in Akamkpa Local Government, with the quarries blasting over 20,000 tonnes of stone on a daily basis. The National Independent Power Plant (NIPP) at Odukpani was constructed to supply about 1000mw of electricity to the national grid. Wemco Wood Industry exploits wood resources for export.

The socio-economic development activities likely to threaten the climate were the construction of the TINAPA Business Resort and the Marina Resort, with a land area of 20km$^2$ (20 square kilometres) and 3sqkm respectively. The longest cable car in Africa was constructed at the Obudu Ranch Resort, a mountain top of 1,566 meters above sea level. The Bebi airstrip for smaller aeroplanes going to the ranch and another cargo airport at Obudu occupies a large expanse of land claimed from the existing forest around the Obudu plains. The government of Cross River State also aids public transportation. In this regard, it purchased and distributed 2000 cars for commercial purposes and 1,300 cars for political office holders, as well as 700 cars for senior civil servants.

The growing urban sprawl, as well as the socio-economic activities of the government impacts on vegetation cover and expose the surface to direct heat of the sun. It therefore cuts off evapotranspiration and creates an urban heat island. The fumes (fluorocarbons) emitted from the cars distributed by the government to the environment add up to overheating the Earth's surface, which leads to climate change. The analysis shows the extent to which deliberate government activities could gradually contribute to the climate change phenomenon.

**Results and Discussion**

How aware were government functionaries in the following areas of concern of the study?

(1) The understanding of the manifestation of climate change
(2) Understanding human-induced causes of global warming that lead to climate change
(3) Understanding mitigation strategies.
(4) Understanding what the State involvement should be in the mitigation programmes.

Respondents' awareness level was tested along these four areas of climate change knowledge.

Are government functionaries aware of climate change and the concern it has attracted internationally? The responses show that about 39.8 per cent (106 respondents) know of climate change and the international concern about it. 60.2 per cent (160 respondents) seem not to be aware of the climate change phenomenon and the debates it generates internationally. The classification of responses shows that 101 politicians and 59 civil servants were not aware of climate change and its international concern. 74 civil servants and 32 politicians, on the other hand, were aware. These results show that civil servants were more aware of the phenomenon of climate change than politicians. Figures 1 and 2 capture this analysis.

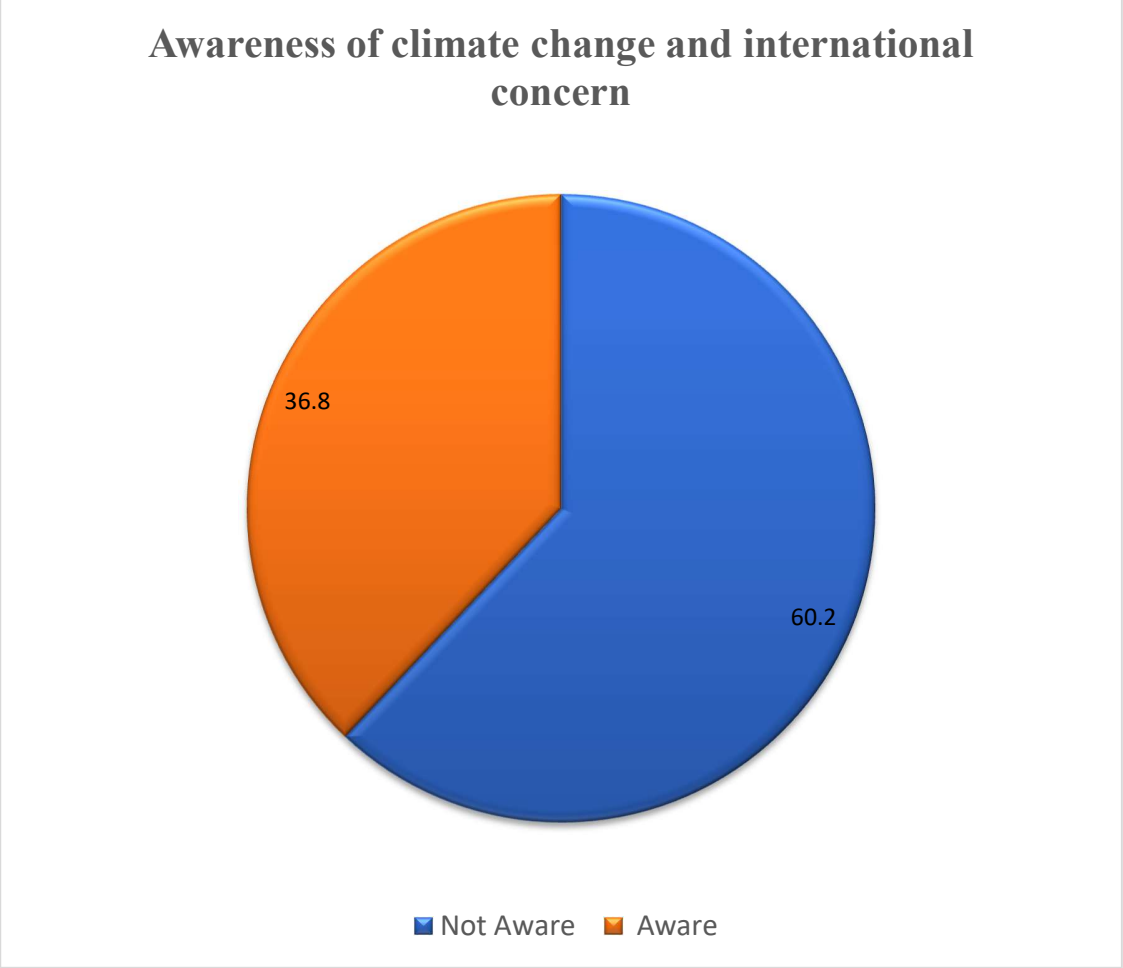


***Fig. 1: Awareness of climate change and international concern***

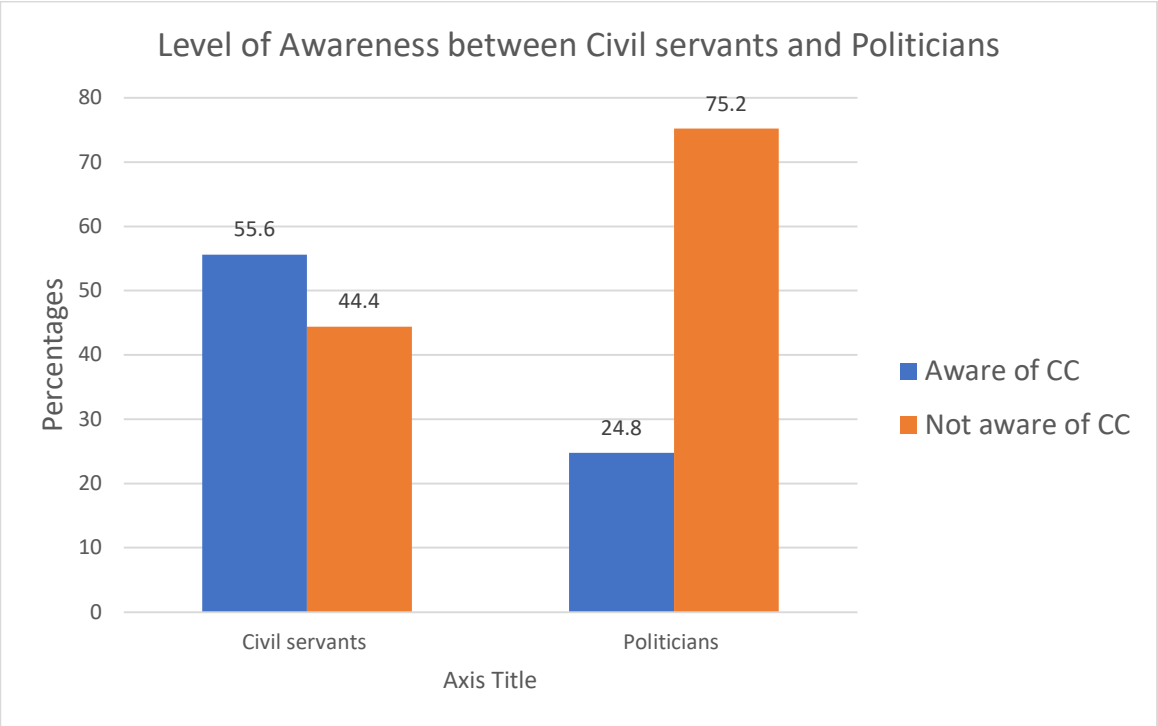


Fig. 2: Level of awareness between civil servants and politicians

**Awareness of Climate Change Manifestation**

Climate change manifests in several ways. How do respondents understand these variations? Their responses are presented in Figure 3.

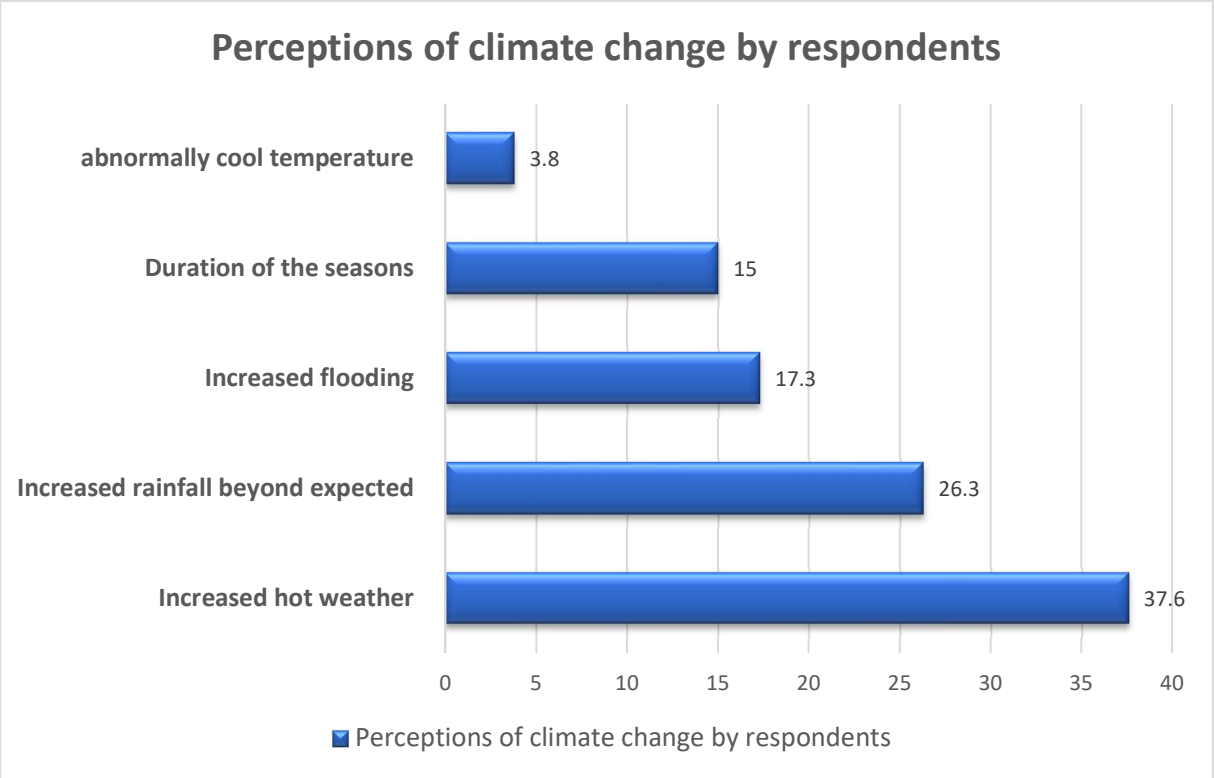


Fig 3: Respondents' observation of the manifestation of climate change in their localities

Figure 3 captures how respondents understood climate change in the locality where they reside. 27.59 per cent of the respondents (100 respondents) noticed climate change as increased hot weather and higher sunshine rate. 70 respondents (26.32 per cent) understood it from higher rainfall above what they consider normal. 46 respondents (17.29 per cent) noticed the change due to increased flooding. 10 respondents (3.76 per cent) understood it from the perspective of abnormal cool temperature, while 40 respondents (15.04 per cent) observed it from the duration of the seasons.

**Awareness of Human-Induced Causes of Climate Change**

How aware are the respondents of the possibility of government deliberate activities to cause climate change? The responses are presented in Table 2.

**Table 2: Awareness of possible causes of climate change in CRS**

| Variable | Frequency | Percentage |
|---|---|---|
| Awareness of possible causes of climate change | | |
| **Use of personal effects -Air-conditioning, fridge** | | |
| Yes | 60 | 22.6 |
| No | 183 | 68.8 |
| Unsure | 23 | 8.6 |
| **Urban development- Residential Layout** | | |
| Yes | 70 | 26.3 |
| No | 165 | 62.0 |
| Unsure | 31 | 11.7 |
| **Industrial extraction – Lafarge/ Quarry** | | |
| Yes | 105 | 39.5 |
| No | 148 | 55.6 |
| Unsure | 13 | 4.9 |
| **Government socio-economic development at Tinapa** | | |
| Yes | 50 | 18.8 |
| No | 185 | 69.5 |
| Unsure | 31 | 11.7 |
| **Government Public/Private transportation/GHG** | | |
| Yes | 80 | 30.1 |
| No | 150 | 56.4 |
| Unsure | 36 | 13.5 |

**Source: Fieldwork, 2023**

The results from Table 2 show that 68.8 per cent of the respondents do not know that the use of air conditioners and fridges could emit gases that contribute to climate change. Only about 22.6 per cent were aware, while 8.6 per cent were not sure. 62.0 per cent of the respondents did not

know that rapid urban expansion contributes significantly to changes in climatic conditions. 26.3 per cent of the respondents were aware, while 11.7 per cent were unsure.

In terms of industry and extraction, a little above half (55.6 per cent) did not relate industrial activities to climate change. 39.4 per cent were aware that such activities contribute to climate change. About 4.9 per cent of the respondents were not sure. Whether government socio-economic activities could lead to climate change received varied responses. 69.5 per cent do not know the linkage between these activities and climate change. 18.8 per cent were aware of this relationship, while 11.7 per cent were not sure.

The government, at regular intervals, supports the transport sector by providing vehicles for private and public transportation. Does the use of these vehicles contribute to climate change? Respondents differed in their understanding. 56.4 per cent were not aware that the emission of gases from these vehicles can lead to climate change over time. 30.1 per cent were aware, while 13.5 per cent were not sure.

**Awareness of Basic Mitigation Strategies**

The responses on the awareness of basic mitigation strategies are presented in Table 3.

**Table 3: Awareness of basic mitigation measures for climate change in CRS**

| Variable | Frequency | Percentages |
|---|---|---|
| **Awareness of Basic mitigation measures for Climate change in CRS** | | |
| **Use of public transport, walking, or cycling** | | |
| Yes | 45 | 16.9 |
| No | 170 | 63.9 |
| Unsure | 51 | 19.2 |
| **Embargo on logging** | | |
| Yes | 140 | 52.6 |
| No | 110 | 41.4 |
| Unsure | 16 | 6.0 |
| **Energy-saving habits** | | |
| Yes | 80 | 30.1 |
| No | 145 | 54.5 |
| Unsure | 41 | 15.4 |
| **Knowledge of REDD** | | |
| Yes | 62 | 23.3 |
| No | 200 | 75.2 |
| Unsure | 4 | 1.5 |

**Source: Fieldwork, 2023**

Table 3 shows that 63.9 per cent of the respondents were not aware that the use of public transport, walking, and biking can reduce greenhouse gas emissions. 16.9 per cent were aware, while 19.2 per cent were not sure.

Preservation and conservation of the forest is a possible mitigation strategy. How aware are government functionaries? A little above half (52.6 per cent) were aware that an embargo on

logging is appropriate in mitigating climate change. 41.4 per cent were not aware, while 6.02 per cent were not sure. Respondents' familiarity with this strategy could be linked to the existing state law on logging, which forbids the exploitation of woods.

In terms of energy saving habits, 54.5 per cent of the respondents are not aware that habits such as turning off lights when not needed and using compact fluorescent bulbs can help to reduce the rate of warming. 30.1 per cent are aware, while 15.4 per cent are not sure. Do respondents know what REDD+ is all about? 23.3 per cent knew what it is and what it pursues. 75.2 per cent of the respondents were not aware of REDD+ and did not understand what it is all about, while 1.5 per cent were not sure.

**Awareness of what is expected of the government to mitigate climate change**

In dealing with climate change issues at the level of policy, government functionaries are expected to have an idea of the basic actions to curb climate change. How familiar are they? The responses are provided in Table 4.

**Table 4: Awareness of expected government actions to mitigate climate change**

| Variable | Frequency | Percentages |
|---|---|---|
| **Awareness of what the government should do as interventions for climate change in CRS** | | |
| **Control bush burning activities** | | |
| Yes | 0 | 0 |
| No | 230 | 86.5 |
| Unsure | 36 | 13.5 |
| **Afforestation programme** | | |
| Yes | 10 | 3.8 |
| No | 240 | 90.2 |
| Unsure | 16 | 6.0 |
| **Sustainable management of the forest** | | |
| Yes | 80 | 30.1 |
| No | 145 | 54.5 |
| Unsure | 41 | 15.4 |
| **Stop the destruction of natural vegetation** | | |
| Yes | 62 | 23.3 |
| No | 200 | 75.2 |
| Unsure | 4 | 1.5 |
| **Sensitize to enhance forest carbon stock** | | |
| Yes | 6 | 2.3 |
| No | 210 | 78.9 |
| Unsure | 50 | 18.8 |

| | | |
|---|---|---|
| **Encourage Paperless administration** | | |
| Yes | 0 | 0 |
| No | 256 | 96.2 |
| Unsure | 10 | 3.8 |
| **Driving Programme on recycling** | | |
| Yes | 20 | 7.5 |
| No | 230 | 86.5 |
| Unsure | 16 | 6.0 |
| **Contribute to climate change discourses** | | |
| Yes | 70 | 26.3 |
| No | 140 | 52.6 |
| Unsure | 56 | 21.1 |

Source: Fieldwork, 2020

A significant percentage (86.5 per cent) of the respondents were not aware that controlling bush burning could be initiated at the policy level to mitigate climate change, and so also were they (90.2 per cent) not aware that an effective programme on afforestation could mitigate climate change. A significant number of the respondents (75.2 per cent) were not aware that stopping the destruction of natural vegetation by the government could mitigate climate change, just as 96.2 per cent did not know that encouraging paperless administration could reduce the pressure on trees used for the manufacturing of paper. Driving a programme on recycling was not seen by most respondents (86.5 per cent) as a measure by the government to reduce pressure on resources that could cause climate change. A little above half (52.6 per cent) of the respondents do not contribute to climate change discourses.

**Difference in Stakeholders' Awareness of Climate Change**

The study attempted to ascertain whether a significant difference exists between the responses of politicians and those of civil servants on awareness of climate change. Chi-Square statistical analysis of this test is shown in Table 5.

**Table 5: Difference between stakeholders' responses on awareness of climate change in CRS**

| **Variable** | **Awareness of Climate Change** | | **$\chi 2$** | **p-value** |
|---|---|---|---|---|
| **Stakeholder** | **Yes Frequency (%)** | **No Frequency (%)** | | |
| Politician | 32(24.0) | 101(76.0) | | |
| Civil servant | 74(55.6) | 59 (44.4) | 26.3 | **<0.0001** |
| Total | 106(39.8) | 160(60.2) | | |

This table reveals that a significantly higher proportion of politicians 101 (75.2%) compared to civil servants 59 (44.0%) were not aware of climate change ($p<0.0001$). The difference in the awareness level between politicians and civil servants is statistically significant at the 0.05 level.

A significant number of politicians whose duty it is to make policies around mitigation are not aware of the climate change phenomenon.

**Awareness and Contribution to Climate Change Discourses**

The study sought to find out whether awareness influences respondents' contribution to climate change discourses at the policy level. The statistical test result is shown in Table 6.

**Table 6: Association between awareness of climate change and contribution to climate change discourse in CRS**

| Variable | Contribution to Climate change discourses | | $\chi 2$ | p-value |
|---|---|---|---|---|
| **Awareness of Climate Change** | **No Frequency (%)** | **Yes Frequency (%)** | | |
| Civil Servants | 59(22.2) | 74(27.8) | | |
| Politicians | 101(38.0) | 32(12.0) | 14.9 | **0.001** |
| Total | 160(60.2) | 106(39.8) | | |

A significantly higher proportion (p=0001) of respondents, 160 (60.2%), who were unaware of climate change, were less likely to contribute to climate change discourses compared to those 106 (39.8%) who had some level of awareness of climate change. In other words, those who were not aware of climate change were less likely to make meaningful contributions to climate change mitigation discourses.

**Discussion**

The results show a limited awareness level of government functionaries of the climate change phenomenon, its causes and mitigation strategies. A significant percentage of them do not know that some socio-economic activities initiated by the government could contribute to climate change. The level of ignorance of climate change concerns is therefore high. These conclusion is in tandem with the findings of Skea (1992), Paltry (2000) and Ekpoh & Ekpoh (2011) that ignorance, confusion and apprehension explain public attitude on climate change, with some people having no clear understanding of the meaning, causes or effects of climate change.

A significant percentage of the respondents (75.2 per cent) do not understand what the REDD+ programme entails. It is a bit disturbing here in light of the fact that when government functionaries do not understand globally-directed mitigation programmes such as REDD+, it projects their limited comprehension of climate change issues and involvement in the global effort at mitigation. It implies, therefore, that the formulation of policies on some of the human practices that the REDD+ programme may be limited or not enacted at all because of the level of ignorance of policymakers. Deforestation and forest degradation, through agricultural expansion, conversion to pastureland, infrastructure development, destructive logging, fires, etc., account 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 stabilised 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).

The low level of awareness is not just limited to Nigeria. It permeates the global space and accounts for the fragmented approach to managing climate change vagaries (Bruun, 2012; China Centre for Climate Change, 2012 & Bord, Fisher et al., 1998).

All societies do not exhibit the same awareness level of climate change. Awareness level seems to be higher in developed countries than in underdeveloped countries of Africa. A higher proportion of government officials in the United States of America initiates robust climate adaptation planning, suggesting their level of awareness (Poyer & Better-Simms, 2010). The same high level of awareness is applicable to the United Kingdom ( Fernandez-Bilbao et al., 2011).

Awareness precedes effective mitigation policies. Where a government exhibits limited awareness of the 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 government functionaries on climate change stems from the predatory political system largely operated in Nigeria. The interest of government functionaries 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 fertilises a condition where people with limited appreciation of public behaviour are primitively foisted on the polity, especially at the level of the legislature. The effect, therefore, is that instead of thinking about public problems and understanding them, they dissipate energy, time and thinking on how to use their offices to make so much money at the peril of the public.

**Conclusion**

The starting point in dealing with a problem is to understand the problem in the first place. Evolving mitigation policies will be contingent on the level of awareness of climate change by policymakers. This is a serious challenge among government functionaries in Nigeria and indeed Africa. Climate change mitigation is largely a policy matter, and it is imperative, therefore, that government functionaries should be aware of climate change, its causes, consequences and remedies. It is obvious from the findings of the study that the awareness of climate change, its causes and consequences by government functionaries in Cross River State and indeed Nigeria is low. This could certainly inform the pedestrian approach to addressing climate change in the study area.

As part of the national and local adaptation response, improving resilience to the climate change scourge by the government is important for Nigeria by initiating appropriate eco-policies to shape the behaviour of people on environmental conduct. The paper argues that it is only by adequate awareness of the phenomenon of climate change by government functionaries that such policies can be comprehensively put in place. Adequate governmental awareness would ensure that new development and infrastructure planning take climate change into account to avoid putting more people at risk. It is the submission of this study that until public officials sufficiently understand climate change and its consequences, efforts in mitigation will still remain at the periphery in Nigeria.

Against this finding, the study recommends a system of climate change education for government functionaries. The study suggests regular workshops and seminars on climate change, especially for the political class whose awareness level is low compared to that of the civil servants. It is expected that through climate change education, the awareness level of government functionaries could be raised to sufficiently prepare them for appropriate policy on climate change mitigation and adaptation. The utility of climate change education and its implications in this

regard is imperative, as it provides government functionaries with the advantage to evolve mitigation policies from the standpoint of knowledge.

**References**

Arora, N. K. (2019). Impact of Climate Change on Agriculture Production and its Sustainable Solutions. *Environmental Sustainability* 2, 95-96

Asiyanbi, A. (2012). Thinking climate change among the corporate elites in Lagos, Nigeria. Research Brief. www.academia.edu.

Baliram, L., & Jadhav, G. (2020). Impacts of Global Warming and Climate Change: A Geographical Study. DOI: 10.13140/RG.2.2.10305.51047

Bord, R. J., Fisher, A. & O'Conner, R. E. (1987). Is accurate understanding of global warming necessary to promote willingness to sacrifice? www.fplc.edu.

Broder, J. M. (2013). Slow start on environment in second Obama term. *The New York Times.*

Bruun, O. (2012). Sending the right bill to the right people: Climate change, environmental degradation, and social vulnerabilities in Central Vietnam. *Weather, Climate and Society, 4,* 250-262.

Chandler, W., Schaeffer, R., Dadi, Z., Shukla, P. R., Tudeca, F., Davidson, O. & Alpan-Atamer, S. (2002). Climate change mitigation in developing countries, Brazil, China, India, Mexico, South Africa and Turkey. Pew Centre. www.pewcentre.org.

China Centre for Climate Change Communication (2012). Public climate change awareness and climate change communication in China. www.environment.yale.edu.

Climate Change Canada (2012). Causes of climate change. www.climatecange.gc.ca.

Department of Environmental Affairs and Tourism (2004). A national climate change response strategy for South Africa. Pretoria, South Africa.

Ebscohost (2013). An overview of global warming. www.connection.ebscohost.com.

Ebscohost (2013). Current events related to global warming. www.connection.ebscohost.com

Editorial (2013). More flood warnings, *Vanguard,* p.2

Ekpoh, U. I. & Ekpoh, I. J. (2011). Assessing the level of climate change awareness among secondary school teachers in Calabar Municipality, Nigeria: Implication for management effectiveness. *International Journal of Humanity and Social Sciences*, 1(3), 106-110

Fernandez-Bilbao, A., Zsamboky,M., Smith,D., Knight, J., 7 Allan, J. (2011). Impacts of climate change on disadvantaged UK coastal communities. www.jrf.org.uk.

Friends of the Earth International. (2007). Nigeria: Raising awareness of climate change impacts, Amsterdam.

Haider, H. (2019).Climate change in Nigeria: Impacts and responses. Institute of Development studies. www.preventionweb.net 1-38.

Ocko, I. B., Ilissa, Sun, T., Shindell, D., Oppenheimer, M., Hristov, A. N., Pacala, S. W., Mauzerall, D. L., Xu, Y., & Hamburg, S. P. (2021). Acting rapidly to deploy readily available methane mitigation measures by sector can immediately slow global warming . *Environmental Research Letters*, 16 054042, 6(5), 1-11

Intergovernmental Panel on Climate Change (2007). Impacts, Adaptation, and Vulnerability. Contribution of working group II to the 4th Assessment Report of the IPCC. Cambridge University Press

International Foundation of Red Cross and Red Crescent Societies (2025). Emerging plan of action (EPoA) Nigeria: Floods N2. www.ifrc.org.

Ishaya, S. I. & Abaje, I. B. (2008). Indigenous people's perception of climate change and adaptation strategies in Jema'a Local Government Area of Kaduna State, Nigeria. *Journal of Geography and Regional Planning*, 1(8), 138-143

Izaguirre, C., Losada, I. J. & Stenek, V. (2021). Climate change risk to global port operations. *Nature Climate Change*, 11, 14-20.

Jamet, S. & Corfee-Morlot, J. (2009). Assessing the impacts of climate change: A literature review. OECD Economics Department Working Paper No 691. www.oecd.org/working-paper.

Leiserowitz, A. & Thaker, J. (2012). Climate change in the Indian mind. Yale project on climate change communication. Yale University.

Mckenna, C. M., Maycock, A. C., & Forster, P. M. (2021). Stringent Mitigation substantially reduces risk of unprecedented near-term warming rates. *Nature Climate Change*. 11, 126-131.

Mutimba, S., Mayieko, S., Olum, P., & Wanyatma, K. (2010). *Climate change vulnerability and adaptation preparedness in Kenya.* Heinrich BöllStiftung.

Nigeria Meterological Agency (2025). 2025 Seasonal climate prediction. *Climate and Health Bulletin*. www.nimet.gov.ng.

Nigeria Meterological Agency (2010). Nigeria climate review bulletin. www.nimetng.org.

Nzeadibe, T. C., Egbule, C. L., Chukwuone, N. A. & Agu, V. C. (2011). Climate change awareness and adaptation in the Niger Delta Region of Nigeria. Nairobi: African Technology Policy Studies Network. Working paper series No. 57.

Olorunfemi, F. (2010). Risk communication in climate change and adaptation: Policy issues and challenges for Nigeria. www.iopscience.top.org.

Osho, G. S. (2026). Hydropower, climate change, and the green energy transition in Nigeria: Assessing economic and policy pathway towards a low-carbon future. *International Journal of Advances in Engineering and Management, 8(1), 288-300.*

Poyer, K. A. & Beller-Simms, N. (2010). Early responses to climate change. An analysis of seven US states and local climate adaptation planning initiatives. *Weather, Climate and Society*, 2, 237-248

Reed, S. (April 16, 2013). Europe vote sets back carbon plan. *The New York Times*

Shiv, S. S., & Shikha, R. A. (2018). Impacts of climate change on agriculture and food security. In *Biotechnology for Sustainable Agriculture*: *Emerging approaches and strategies.* https/doi.ng/10.1016/B978-0-12-812160-3.00008-8.

Skea, J. (1992). Policy and awareness in the U.K. Proceedings of the Indo-British Symposium on Climate Change, New Delhi

Soneye, A. (2012). Population and climate change: Nigeria case study. Malawi, Lead Pan African Session

UN-REDD. (2013). About REDD+. www.un-redd.org.

UNDP (2010). Climate change awareness and adaptation in the Obudu Plateau, Cross River State. www.aradin.org/modules/ams/article.php.

United Nations Organization (2013). UN says 2012 was 9th hottest year since 1850 www.seatlapi.com.

Xi, Y., Peng, S., & Chen, Y. (2021). Future impacts of climate change on Inland Ramsar Wetlands. *Nature Climate Change*. 11, 45-51.