Global Warming Issues and Academic Staff of Universities in South-South Nigeria

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Abstract
*This study examined the **g**lobal warming issues in relation to climate change as perceived by academic staff of universities in south-south Nigeria. The sample size for the study was 342 sampled from the population of academic staff of six Universities in South-South Nigeria. A structured questionnaire was used to gather data from the respondents. The instrument used for the study was a survey questionnaire tagged "Global Warming Issues and Academic Staff (GWIAS). This instrument was partitioned into four sections that were structured in five-point likert rating scale and also in the pattern of three-point rating scale. The instrument was faced and content validated by an expert in the Department of Vocational and Technology Education in Rivers State University, Port-Harcourt. To ascertain the reliability of the instrument, Cronbach Alpha Reliability Coefficient method was used to measure the internal consistency of the instrument which yielded a reliability coefficient of 0.73. Data were analyzed with the use of frequency, percentage and mean. The findings revealed that climate change causes flooding, drought, spread of infectious diseases amongst others. The study also revealed that university staffs get awareness of climate change mainly from institutions, newspaper, radio, government agencies and NGOs. Based on the study, it was recommended that climate change clubs be established in universities and related issues be embedded in school curricula. Workshops and seminars on global warming issues should be organized from time to time to create awareness and academic staff be encouraged to plant trees.*

***Keywords**: Global warming, Climate change, University lecturers, Global impact, Greenhouse, Tree planting, South-south Nigeria*

Introduction

Global warming also referred to as Climate change has been described as extreme reactions of the weather phenomenon which creates negative impact on agricultural resources, water resources, human health, depletions of ozone layer, vegetations, soil and doubling of Carbon dioxide (CO_2) in the ecosphere (United Nations Environmental Programme (UNEPA, 2000). Also, Medugu (2009) described climate change as an increase in average global temperatures caused by natural events and human activities, which are believed to be contributing to an increase in average global temperatures. Ozor (2009) also described climate change as a change of climate that is attributed directly or indirectly to human activities that alters the composition of the global atmosphere in addition to natural climate variability observed over comparable time periods. In this context, climatic change could be described as a variation in atmospheric condition resulting from man's daily activities which leads to flooding, drought, high temperature, diseases and even decline in soil condition.

From the foregoing, global warming takes place as a result of variation on the atmosphere. The Earth is known to be surrounded by a layer of gases, also known as greenhouse gases that act to trap heat. These so-called "greenhouse gases" are necessary to sustain life on Earth. The greenhouse gases traps the radiating heat and redirects it to the earth thereby keeping the planet warm enough to allow life to thrive. Over the past 250 years, deforestation, combustion of fossil fuels, and production of agricultural commodities such as rice and livestock have caused atmospheric concentrations of carbon dioxide (CO2) and other greenhouse gases to rise significantly (Darwin, 2001). As the amount of carbon dioxide (CO2) increases, more heat is trapped and this result to the increase in the amount of heat redirected to the earth surface, thereby increasing the temperature on the planet, which could be described as climate change. Thus, increase in human activities leads to the release of much greenhouse gases which makes the greenhouse effect stronger. This is in consonance with Millennium Ecosystem Assessment (2005) that climate can be exacerbated by human induced actions such as: the widespread use of land, broad scale deforestation, and major technological and socioeconomic shifts with reduced reliance on organic fuel, and accelerated uptake of fossil fuels.

In the World today, global warming is considered one of the major threats for sustainable development. It influences health, infrastructure, settlements, food security and agriculture, forests and marine ecosystems. It has become a new reality with deleterious effects affecting seasonal cycles and disrupting ecosystems; agriculture, water needs and supply and food production adversely affected. Global warming also leads to sea-level rise with its attendant consequences and includes fiercer weather, increased frequency and intensity of storms, floods, hurricanes, droughts, fires, poverty, malnutrition and series of health and socio-economic consequences. Devereux and Edwards (2004) stated that countries in tropical and subtropical regions are likely to suffer agricultural losses as a result of climate change in coming decades. The most devastating adverse impacts of climate change in Nigeria and other subtropical countries according to Ishaya and Abaje (2008) includes frequent drought, increased environmental damage, increased infestation of crop by pests and diseases, depletion of household assets, increased rural urban migration, increased biodiversity loss, depletion of wildlife and other natural resource base, changes in the vegetation type, decline in forest resources, decline in soil conditions (soil moisture and nutrients), increased health risks and the spread of infectious diseases, changing livelihood systems, among others. More so, climate change brings about changes in rainfall patterns with resulting changes in agriculture, food security and economic growth; increased temperatures; increases in the prevalence of vector-borne diseases; decreased water security; sea level rise; and increased variability of floods and droughts (DFID in Shewmake, 2008).

However, there is a global awareness about climate change, especially in developed countries. Thus, as a developing nation, it is imperative for Nigeria to be sensitive to the effects of climate change. According to Apata, Samuel and Adeola (2009) and Akpomi (2016), Nigeria specifically ought to be concerned about climate change because of the country's high vulnerability due to its long (800km) coastline that is prone to sea-level rise, the risk of fierce storms and the fact that almost 2/3 of Nigeria's land cover is prone to drought and desertification. Moreover, rain-fed agriculture practiced and fishing activities from which 2/3 of the Nigerian population depend primarily on foods and livelihoods are also under serious threat (Apata et al, 2009). Despite the fact that Nigeria is prone to climate change, it is not clear whether Nigerians are aware of what climate change is or its effects. This is because Olorunfemi (2010) and Akpomi & Vipene (2016) opined that the biggest obstacle in handling global warming issues in Nigeria is the lack of awareness and knowledge. More so, the UNDP report (2010) state that the level of awareness about climate change is rather low in Nigeria and it is likely to continue if no intervention measures are

taken. Therefore, Nigerians need to be educated and informed about global warming issues and how it can change lives drastically. Lack of information (awareness) and knowledge (education) about climate change also means that many Nigerians are reluctant to accept the reality of global warming.

However, to achieve proper awareness on global warming issues, there should be adequate provision of relevant materials on climate change. One of the sources through which materials can be made available for the populace is the integration of materials about climate change into primary, secondary and tertiary curriculum across the nation (Council for Security Cooperation in the Asia Pacific (CSCAP), 2010). Apart from the integration of materials about climate change into primary, secondary and tertiary curriculum, CSCAP (2010) further suggested that there is a need for regional and national training schemes to improve the skills base required to manage climate security risks at all levels and across sectors. This includes developing skills in, for example: integrated water resource management, disaster risk management, public health and primary health care, and renewable energy systems. More so, Governments can encourage agronomic research for the development (by either traditional breeding or biotechnology) of new varieties better able to withstand the effects of global warming (Darwin, 2001). Given the existing low level of awareness about climate change in Nigeria, this research is carried out to find out how much academic staff of universities in South-South Nigeria know about climate change.

Purpose of the Study

This study ascertained the knowledge of global warming issues by academic staff of Universities in South-South Nigeria. Specifically the study attempted to;

1. examine the effects of global warming
2. find out the level of academic staff awareness of global warming issues
3. find out the sources of information on global warming issues by academic staff
4. find out climate change issues academic staff want government to consider

Research Questions

1. What is the effect of global warming on the activities of academic staff?
2. How much awareness of global warming issues do academic staffs have?
3. What are the sources of information on global warming to academic staff?
4. What climate change issues do academic staffs want government to consider?

Methodology

The design adopted for the study was a descriptive survey research. The population of the study comprised all the academic staff of South-South Universities. The sample size for this study was 342. This was obtained through simple random sampling of 57 academic staff members (without recourse to population) from each of six universities (University of Benin, Benin-City, Edo State; Delta State University, Abraka, Delta State; Niger Delta University, Amassoma, Bayelsa State; University of Port-Harcourt, Port-Harcourt, Rivers State; University of Uyo, Uyo, Akwa-Ibom State and University of Calabar, Calabar, Cross River State) in South-South Nigeria respectively, without recourse to their specific population. The instrument used for the study was a survey questionnaire tagged "Global Warming Issues and Academic Staff (GWIAS). This instrument was partitioned into four sections that were structured in five-point likert rating scale and also in the pattern of three-point rating scale in section 4. The instrument was faced and content validated by an expert in the Department of Vocational and Technology Education in Rivers State University, Port-Harcourt. To ascertain the reliability of the instrument, Cronbach Alpha Reliability Coefficient method was used to

measure the internal consistency of the instrument. This was achieved through the simple random sampling of 10 academic staff of Rivers State University, Port-Harcourt who responded to the instrument. The reliability coefficient was 0.73. Copies of the instrument were administered and retrieved by the researchers and five colleagues from the other selected Universities. Frequency, percentage and Mean were used to answer the research questions. Mean scores < 3.00 were rejected while Mean scores ≥ 3.00 were accepted and also mean scores < 2.00 were disagreed while mean ≥ 2.00 agreed in section 4 of the instrument.

Results and discussions

Table 1: Effects of global warming on activities of academic staff

Effects of global warming	SA	A	U	D	SD	M	Remark
flooding	152(44%)	108(32%)	33(10%)	28(8%)	21(6%)	4.00	Accepted
drought	134(39%)	128(38%)	15(4%)	34(10%)	31(9%)	3.88	Accepted
increased infestation of crop	148(43%)	99(29%)	34(10%)	15(4%)	46(14%)	3.84	Accepted
depletion of wildlife	114(33%)	128(38%)	49(14%)	14(4%)	37(11%)	3.78	Accepted
spread of infectious diseases	97(28%)	148(43%)	33(10%)	25(7%)	39(12%)	3.70	Accepted
sea level rise	68(20%)	159(47%)	49(14%)	38(11%)	28(8%)	3.59	Accepted
changes in vegetation type	144(42%)	123(36%)	42(12%)	12(4%)	21(6%)	4.00	Accepted
decline in forest resources	171(50%)	91(27%)	38(11%)	24(7%)	18(5%)	4.09	Accepted
decline in soil condition	105(31%)	140(41%)	41(12%)	21(6%)	35(10%)	3.76	Accepted

Source: Field Survey of 2017. Numbers in parentheses are percentages. n = 342. Mean scores < 3.00 were rejected while Mean scores ≥ 3.00 were accepted.

Table 1 showed responses on the effects of climate change. The percentage and mean responses of respondents showed that the following are effects of climate change: flooding (76% & 4.00), drought (77% & 3.88), increased infestation of crops (72% & 3.84), depletion of wildlife (71% & 3.78), spread of infectious disease (71% & 3.70), sea level rise (67% & 3.59), changes in vegetation type (78% & 4.00), decline in forest resources (77% & 4.09) and decline in soil condition (72% & 3.76). The percentages were accepted based on the fact that the percentages were > 50%, while the means were accepted based on the fact that the mean

scores were > 3.00.

This is in conformity with Ishaya and Abaje (2008) that the most devastating adverse impacts of global warming in Nigeria includes frequent drought, increased environmental damage, increased infestation of crop by pests and diseases, depletion of household assets, increased rural urban migration, increased biodiversity loss, depletion of wildlife and other natural resource base, changes in the vegetation type, decline in forest resources, decline in soil conditions (soil moisture and nutrients), increased health risks and the spread of infectious diseases, changing livelihood systems, among others.

Table 2: Awareness about global warming

Awareness of global warming	Very Much	Much	Little	Very Little	Nothing	Mean	Remark
Wind patterns	145(42%)	150(44%)	30(9%)	12(4%)	5(2%)	4.22	Accepted
Climate change	160(47%)	120(35%)	35(10%)	25(7%)	2(1%)	4.20	Accepted
Extension of dry season	200(59%)	57(17%)	50(15%)	32(9%)	3(1%)	4.22	Accepted
Reduction of dry season	180(53%)	77(23%)	54(16%)	26(8%)	5(2%)	4.17	Accepted
temperature pattern	198(58%)	99(29%)	30(9%)	14(4%)	1(0%)	4.40	Accepted
Desertification	230(67%)	100(18%)	6(12%)	4(3%)	2(1%)	4.28	Accepted
Extension of raining season	235(69%)	90(26%)	11(3%)	5(2%)	1(0%)	4.62	Accepted
Reduction of raining season	256(75%)	54(16%)	21(6%)	10(3%)	1(0%)	4.62	Accepted
Milting of ice carps	50(15%)	70(21%)	100(29%)	99(29%)	23(7%)	3.07	Accepted
Ozone layer depletion	200(59%)	64(19%)	44(13%)	22(6%)	12(4%)	4.22	Accepted

Source: Field Survey of 2017. Numbers in parentheses are percentages. n = 342. Mean scores < 3.00 were rejected while Mean scores ≥ 3.00 were accepted.

Table 2 showed responses on awareness about global warming. The percentage and mean responses of respondents showed that there is awareness about the following global warming issues: wind pattern (86% & 4.22), climate change (82% & 4.20), extension of dry season (76% & 4.22), reduction of dry season (76% & 4.17), temperature pattern (87% & 4.40), desertification (85% & 4.28), extension of raining season (95% & 4.62), reduction of raining season (91% & 4.62) and ozone layer depletion (78% 4.22). On the other hand, the percentage of respondents on melting of ice carps (36%) showed that there is no much awareness on melting of ice carps, but the mean calculated showed acceptance by respondents. The percentages were accepted based on the fact that the percentages were > 50%, while the means were accepted based on the 0fact that the mean scores were > 3.00. This study is in disagreement with the UNDP report (2010) which states that the level of awareness about climate change is rather low in Nigeria, and it is likely to continue if no intervention measures are taken. More so, Olorunfemi (2010) & Akpomi & Vipene (2016) opined that the biggest obstacle in handling climate change in Nigeria is the lack of awareness and knowledge.

Table 3: Knowledge about sources of information on global warming issues

Source of information about global warming	Very Much	Much	Little	Very Little	Nothing	Mean	Remark
Scientific/research institutions	134(39%)	124(36%)	68(20%)	14(4%)	2(1%)	4.09	Accepted
News/print media	200(59%)	97(28%)	35(10%)	7(2%)	3(1%)	4.42	Accepted
Government agencies	167(49%)	148(43%)	20(6%)	6(2%)	1(0%)	4.39	Accepted
Groups/association	89(26%)	189(55%)	38(11%)	20(6%)	6(2%)	3.98	Accepted
NGOs	178(52%)	91(27%)	52(15%)	15(4%)	6(2%)	4.23	Accepted
Friends/family members	255(75%)	80(23%)	5(2%)	1(0%)	1(0%)	4.72	Accepted

Source: Field Survey of 2017. Numbers in parentheses are percentages. n = 342. Mean scores < 3.00 were rejected while Mean scores ≥ 3.00 were accepted.

Table 3 showed responses on knowledge about sources of information on global warming. The percentage and mean responses of respondents showed that respondents have knowledge about the following sources of information on global warming: scientific/research institutions (75% & 4.09), News/print media (87% & 4.42), government agencies (92% & 4.39), groups/association (81% & 3.98), NGOs (79% & 4.23) and friends/family members (98% & 4.72). The percentages were accepted based on the fact that the percentages were > 50%, while the means were accepted based on the fact that the mean scores were > 3.00. This is in line with Council for Security Cooperation in the Asia Pacific (2010) that one of the sources through which materials can be made available for the populace is the integration of materials about climate change into primary, secondary and tertiary curriculum across the nation.

Table 4: Respondents' suggestions to government on Climate change issues to consider

Respondents' suggestions to government on Climate change issues	Agree	Somewhat agree	Indifferent	Mean	Remark
Proper urban planning	297(87%)	40(12%)	5(2%)	2.85	Agreed
Municipal solid waste management	280(82%)	55(16%)	7(2%)	2.8	Agreed
Clean industrial energy services	255(75%)	77(23%)	10(3%)	2.72	Agreed
Sustainable agricultural/forest management practice	260(76%)	73(21%)	9(3%)	2.73	Agreed
Coastal zone and marine ecosystems management	200(59%)	134(39%)	8(2%)	2.56	Agreed

Source: Field Survey of 2017. Numbers in parentheses are percentages. n = 342. Mean scores < 2.00 were disagreed while mean scores ≥ 2.00 agreed

Table 4 showed responses on suggestions to government on climate change issues to consider. The percentage and mean responses of respondents showed that the following can be suggested to government on climate change issues: proper urban planning (99% & 2.85), municipal solid waste management (98% & 2.800, clean industrial energy services (98% & 2.72), sustainable agricultural/forest management practice (97% & 2.73) and coastal zone and

marine ecosystems management (98% & 2.56). The percentages were accepted based on the fact that the percentages were > 50%, while the means were accepted based on the fact that the mean scores were > 2.00. Therefore, if these suggestions are implemented, it will go a long way in reducing the problems associated with climate change. This is in consonance with CSCAP (2010) that suggested that there is a need for regional and national training schemes to improve the skills base required to manage climate security risks at all levels and across sectors. This includes developing skills in, for example: integrated water resource management, disaster risk management, public health and primary health care, and renewable energy systems. More so, Darwin (2001) opined that Governments can encourage agronomic research for the development (by either traditional breeding or biotechnology) of new varieties better able to withstand the effects of global warming.

Conclusions

It was concluded that flooding, drought, increase infestations of crops, depletion of wildlife, among others were effects of global warming. Also, it was deduced that academic staff were aware about the following global warming issues: wind pattern, global warming, extension of dry season, temperature pattern, desertification and many more. Hence, information on global warming issues are usually obtained from scientific/research institutions, News/print media, Government agencies, NGO_S, Families/ friends and others. However, it was further deduced that proper urban planning, municipal solid waste management, clean industrial energy services, sustainable agricultural/forest management practices and coastal zone and marine ecosystem management would help reduce the negative influence of global warming issues.

Recommendations

The following recommendations were made in this study

1. Awareness about global warming issues should be championed through Nigerian educational sector. It should start from basic education. This will help every child to have knowledge about global warming.
2. School curriculum should incorporate global warming issues to further create awareness amongst students. More so, Government should ensure that literature on climate change is made available to students and the populace. This will help sensitize the populace on climate change.
3. Inscriptions of slogans in global warming issues should be posted in strategic places on campus. The university authority in conjunction with Environmental Sciences faculty and Climate Change Club should do this. Such slogan as "Cut one tree, plant one tree". This will further create awareness among academic staff and the university community.
4. Workshops and seminars on global warming issues should be organized from time to time to create awareness among university members and their communities.

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