



# CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT IN AFRICA

PROCEEDINGS OF THE SECOND  
UNIVERSITY OF CAPE COAST  
AND  
UNIVERSITY OF ILORIN  
JOINT INTERNATIONAL  
CONFERENCE

*Edited by*  
**I. O. OLOYEDE**



# **CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT IN AFRICA**

**Edited Proceedings**

**Second University of Cape Coast and University of Ilorin Joint  
International Conference**

**Edited by  
I. O. Oloyede**

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## **CHAIRMAN'S OPENING REMARKS**

### **SECOND JOINT INTERNATIONAL INTER-UNIVERSITY CONFERENCE OF THE UNIVERSITIES OF ILORIN, NIGERIA AND CAPE COAST, GHANA**

**Akin L. Mabogunje**

Retired Professor of Geography, University of Ibadan, Nigeria

*(Being text of an address delivered at the Opening Ceremony of the Second Joint International Conference of the University of Ilorin, Nigeria and the University of Cape Coast, Ghana on "Climate Change and Sustainable Development" held at the University of Ilorin on May 2-5, 2011 at the University Auditorium)*

All Protocols observed.

Let me start by welcoming all participants to this International Conference on "Climate Change and Sustainable Development" jointly hosted by the University of Ilorin, Nigeria and the University of Cape Coast, Ghana. I want in particular to welcome all the dignitaries who have come to join in the formal opening ceremony of this event, particularly the Vice-Chancellors of the two institutions. I note that this is the second joint hosting of such international conference and wish to sincerely commend the two institutions for this remarkable initiative. It is my expectation that this initiative provides the venue for bench-marking and evaluating the progress of research in both institutions on particular topics of interest on such occasions.

Climate Change, which is the topic for this particular joint conference, has assumed a global status not only as a very privileged problem of scientific enquiries but also as a practical challenge of policy making by governments all over the world. The well known school of skeptics about the urgency of the phenomenon has been largely silenced by the cascade of extreme climatic and physical events of recent times such as the Katrina Hurricane in the United States, the Tsunamis in south east Asia and recently in Japan, the devastating tornadoes also in the United States and the spate of disastrous flooding in many countries, the latest being in northern Australia.

It could, of course, be claimed that Africa and, in particular, West Africa, has been providentially protected from all of these extreme events and therefore need not be overtly bothered about the probability of their occurrence and be made ready to deal with the consequences of their incidence. No scientist can subscribe to such a position indeed, no scientist can ignore the reality of global causation of climatic change nor deny the reality of green house emissions and of global warming. This is particularly so when some of the resultant effects such as the thawing away and disappearance of the polar ice-caps and glaciers are so

patently visible that their consequences with respect to rising sea-levels cannot be wished away. Indeed, for West Africa in particular, the significance of this exigency is the fact that our colonial masters in the past deemed it fit to locate most of our capital cities and metropolitan centres in the coastal areas of our countries.

As scientists, therefore, the challenge in respect of climate change and sustainable development is the quality of our capacity to monitor the rate, the scale and the areal extent of these various climatic and physical parametric values so as to be able to determine the probabilities of occurrences of any of these extreme events of climatic change in the West African region. Rigorous, persistent and multivariate measurements are, of course, the bedrock of such capacity. Only through such measurements would we be able to analyse, explicate and predict the chances of occurrence of any of these extreme phenomena.

In West Africa, we have always been presented with climatic phenomena whose basis are still a matter of enlightened rationalization. The anomalous "Togo gap" of relative low precipitation on the coast between Accra and Lome, the "little dry season" of August in the southern rainy belt of the region are examples of such not- fully-understood phenomena. How these are shaping or are being transformed in the context of secular changes in global atmospheric circulation are still awaiting greater scientific attention.

Features of changes in these and other climatic parameters are bound to have significant effects on sustainable development in our region. Some of these changes may be gradual and widespread in their incidence such as reduced total precipitation or drought, undermining the livelihoods and welfare of a large section of the population. Others, such as floods and ocean surges, and even tsunamis, may be sudden and concentrated in their catastrophic dimension, destroying property and lives and posing serious challenges to the insurance industry and to government's capacity for disaster management. Knowledge of probabilities of both types of climatic changes could help in various ways to prepare national capacity to mitigate, minimize, cope with or prevent the impact of such occurrences on the socio-economic development of our region.

Both the Universities of Ilorin in Nigeria and Cape Coast in Ghana can thus be seen as occupying quite strategic positions of being providers of studies and knowledge which can serve as warning signals for governments in our region, if not globally. It is my expectation that these joint conferences are meant to enhance the capacity of the two institutions to perform this role creditably and meritoriously. I like again to congratulate the authorities of both institutions on this initiative and to wish this particular Conference fruitful deliberations.

I thank you all for your attention.

## INTRODUCTION

### ARRESTING CLIMATE CHANGE IMPACTS THROUGH INSTITUTIONAL COOPERATION

There is nothing on earth that sustains, develops and progresses as well as promotes institutional growth and excellence than cooperation. Indeed, cooperation stoutly stands out as a virile and veritable arch and measure that resolves every potential challenge and opens up new lease of life, energy and strength that often herald new rigours and incremental achievements and successes to the institutional growth and developments.

Within this sphere, it is of note to take cognizance of the fact that these treasures of the earth, both livings and non-livings, could best be protected, secured, fed and be given other bounties of life through joint efforts and cooperation. Hence, problems and issues that are generated are commonly resolved by way of concern and interest particularly whenever such bears either direct or indirect effect on the populace. No doubt, this fact most appropriately affirms the symbolic relationship vis-à-vis its significance to the academic world, their environments, locations (domains) and the populations. Therefore, the conference in the series of international joint efforts of the University of Cape Coast and University of Ilorin, under the theme which provided the book titled "Climate Change in Africa". If I may reiterate, the original idea that culminated into the holding this conference on an annual basis was a product of the conversation between the then Vice-Chancellors of University of Cape Coast and University of Ilorin some years back. In actual fact it was the foresight of the authorities of the University of Ilorin to, some three decades earlier, make the University of Ilorin an international centre of excellence for all the peoples of the world that unconsciously laid the foundation for this expanding pan African collaboration which currently embraces three of the five sub regions of Africa. Prof E A Obeng of Ghana and Prof Is-haq Oloyede of Nigeria who were then engaged as lecturers in the Department of Religions of the University were the respective Vice Chancellors of UCC and UNILORIN who initiated this continental project with a view to kick -starting the process of inaugurating a formidable African platform of interaction and development. Broadly, the plan was to institute an annual conference with a theme predicated on aspects of the growth and progress of development of Africa, by alternating venues among member- universities. While the first in the series was held in 2009 at the University of Cape Coast, Ghana, the second conference took place in 2011 at the University of Ilorin, Nigeria. The current Vice-Chancellor of UCC, Prof. Naana Jane Opoku-Agyemang followed up with some pleasant feminine touch and insightful dimensions for sustainability. I am in no doubt about the institutional commitments of the two universities and the other members of the Network, to this initiative.

The spate of rising wave of climate change and the widely spread of many unnatural wash of disastrous, apocalyptic dimensional attendants like

volcanic eruptions, tsunamis, famine, drought, earthquakes, landslides, ocean surge, water hyacinth, flood, fire disaster, erosion, green house gases emission, pollutions, deforestation and rainstorm among others have all invented a regime of disaster which underlines the course, process and trajectories to positive development of the Africa region in one form or another.

Unfortunately, as it is in the entire global order, particularly the third world countries of which Nigeria and Ghana are inclusive. They are embodied in a calamitous situation with perhaps a sealed hope invented and hinged on the lackadaisical attitudinal disposition to the perilous state occasioned by the climate change. Despite the fact the ruins of various dimensions that cut across both human life and properties of various sizes that worth colossal amount are involved in losses, still effort to tackle the calamity is still obviously missing. Hence, the threat and challenges which climate change has imported is still a deep enslavement of mankind and a lesson of sort for the mankind to unshackle itself from the bondage of climate variation.

Having said this, mankind needs to free himself totally from the epic swirl of climate change and its contradictions in which it has been engulfed. Thus, inventing every order of technological schema and systemic (i.e. ICT) ways to arrest and resolve the challenges of climate change in the contemporary world order.

However, the best antidote that could safely blow off or at least mitigate and ensure that climate change is more reasonably and timely put under control or managed most adequately in so many ways, is through effective understanding, knowledge and awareness creation. Studies or researches of some sorts needed to be directed on climate change as it cuts across all fields of human endeavours, interdisciplinary, intra-disciplinary and transcends all forms and platforms of knowledge, career and profession to ensure that Africa stands out firm against side effects of climate change.

As it is, climate variation has been pointed as a causative agent that favours spread of endemic diseases with peculiarity to one climate instance or the other. For instance, disease like cerebro-spinal meningitis is acclaimed to be effected by hot and dry weather syndrome. So also, an array of epidemic diseases like cholera, typhoid, deformity of all sorts and untimely deaths are common effects of climate change. This has been the burden and a mere catalogue of the endless catastrophic resultant effects of climate change in Africa.

Therefore, considering the level, height and spate of Africa development, aids and grants that the western worlds and the rest of the advanced world offer to cushion the effects of the climate change are insufficient. The Africa region should hold the bull by the horn. How do we hold the bull by the horn? The fact is not farfetched than for the region to stand up on his feet with precise study on climate change and come up with suggestions on how to manage climate change in Africa successfully. This is the thrust of this conference.

The collection of papers herein, each in its own right, speak on the context and processes of climate change and management of climatic variations



in the region. The collection is most clearly a veritable order to address the ubiquitous challenges posed by the context and processes of climate change via its management as suggested by each of the contributors ranging across the disciplines in science, agriculture, social science, arts and education. Better still, it offers a roadmap with damning truth to import a resounding relieve by reason and fact of being a domicile. Thus, the explication of climate change with its aetiology, its theoretical frameworks cum its impacts and practice to illuminate profusely our minds on the subject matter and to ensure a safe delivery of our region from the calamitous effects of the climate variations become necessary.

As I have earlier indicated, the book's themes collect around from scholars of note on their responses to the changing climate. While the arrays of case studies that form the basis of quite a number of these essays provide a deep-down insights, thus constituting one of the best, if not the fullest profiles of climatic variation to effect a regime of better climate change management. The statistics herein, lend credence to positive alternatives with a force of clarity on difficult issues, a measure of consideration of the needs to order an ultimate beneficent, growth and progress of the region.

Taking cognizance of African living standard, which is seemingly in coma, the social and moral responsibility is for the African intellectuals to be courageously imaginative in the present of all odds. The vicissitude is the challenge posed by the climate variation (change) and we must stand against this challenge and render it impotent by subduing the threat that it poses. Thus, in its depth, range and wideness, this is the context and philosophy of this conference, the duo initiators in West Africa, University of Cape Coast and University of Ilorin are building for the present and subsequent generations of scholars and policy makers.

**Is-haq Oloyede**

*Editor-in-Chief*

*Vice-Chancellor*

*University of Ilorin, Nigeria*

*April, 2012*

## **Islamic Faith-based Approach to Addressing Climate Change in Nigeria**

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### **Abstract**

*Changes in climate are a source of concern to many nations. Nigeria is not exempted from the effects of climate change. Based on the geographical location of the country, it is faced with threat of desertification in the North and coastal erosion in the South. Nigerian government has attempted to reduce the impact of climate change in some northern states by planting trees and preventing cattle farmers from overgrazing, but these have not stopped the advancement of the neighboring Sahara desert sands. The Nigerian government has not been successful due to a complacent attitude and a similarly complacent public. In 2010, the Minister of Petroleum Resources, Mrs. Deziani Alison-Madueke announced that the Federal government has drafted a policy that will make Nigeria Carbon Neutral in 2025. She said the policy will focus on adaptation, mitigation, finance and technology. How far these will go in making Nigeria climate better is yet to be ascertained. The present paper proposes a faith based approach to solving current issues related to climate change. More specifically, Islamic principles that can be applied to man's relationship with the environment were highlighted, since a substantial number of Nigerians are Muslims. The principles in question include amānah (trust), iḥṣān (good) and khīlafah (vicegerency). The article also explored how these Islamic principles can be incorporated into government programmes for successful application.*

**Keywords:** Faith, Climate, Amānah (trust), Iḥṣān (good), Khīlafah (vicegerency), Mizan (Balance).

### **Introduction**

The issue of climate change is coming to the fore in many discussion circles and various ways have been proposed in order to solve the problem of climate change in Nigeria. Most solutions such as Development of National Green House Gas Inventory, Establishment of Databank Management System for Geo-Spatial Information and National Reference Emission Level, Satellite

Remote Sensing Determination of Vegetation Loading, auditing of downstream energy sector technologies and others have all focused on technical and scientific aspects of solving the problem. Some have proposed 'greening' the environment, others have thought of eco-capitalism, yet, the problem still persists. This is because the answers provided by some scientists do not take into consideration the attitude of people to their environment. An effective way of resolving the issue is to focus on religio-spiritual solution to the problem.

Climate is a typical weather in a region or the average weather or regular variations in weather in a region over a period of 35 years. "Climate change is a change in the state of the climate that can be identified (e.g by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period typically decades or longer" (IPCC, 2007). Climate change is an adjustment in global weather pattern. It can also be seen as a long-term alteration in global weather patterns, especially increases in temperature and storm activity.

The paper begins by explaining climate and climate change followed by the causes of climate change. It later takes a cursory look at the impact of climate change in Africa and Nigeria in particular. It also examines the various project proposed by the Federal government of Nigeria in tackling climate change. The study concludes by proposing some Islamic teachings as an effective way of changing people's attitude to climate change.

### **Climate Change**

That the climate is changing is incontestable but what is being argued over the years borders on the main causes of climate change. Climate change is made possible by the increase in the atmospheric concentration of Green House Gases (GHG) such as carbon dioxide, methane, chlorofluorocarbons, and nitrous oxide. All these gases absorb terrestrial infrared radiations.

According to Oyeбанjo (2010), the greenhouse effect is uncontested as without it, the earth would have been 33 degrees cooler. Infrared radiation from the high temperature sun has short wavelength. This is absorbed by the earth and some are reflected by both the earth and the atmosphere. The proportion absorbed by the earth warms up the earth to the suitable temperature required for the earth. With increasing concentration of greenhouse gases in the atmosphere, infra red radiations reflected into the atmosphere are absorbed and re-emitted to the earth. This tends to increase the average temperature on the earth surface once the concentration increases without any control. The balance between the incoming and outgoing radiation has always fluctuated from time immemorial in terms of the atmospheric constituents, their relative composition and concentration, solar variations and so on leading to corresponding changes in the climate. What has remained an argument is the degree to which the actions of mankind have contributed to this imbalance (Oyeбанjo, 2010).

According to Jamieson (2004), climate scientists have discovered that from 1860 to 2000 there was an increase of about 34 percent in atmospheric

carbon dioxide, more than half of that occurring since the 1960s. Other greenhouse gases are also said to have increased by even greater percentages during the same period. The major reason for increase in concentrations of these gases is activities that are essential to economic growth and development. at least as they are presently conceived: fertilizer use, deforestation, food-animal production, fossil fuel combustion and rice-paddy agriculture.

Jamieson (2004) further explains that scientists unanimously believe that the greenhouse effect exists, and that concentrations of greenhouse gases in the atmosphere are increasing. But it is important to note that not all scientists agree about the likely effects of these increasing concentrations. This is as a result of some extremely complex and ill-understood pointers in the climate system. The effects of these pointers could be to stabilize climate even in the face of changes in the atmosphere, or to exaggerate the effects of climate change. Since some of these pointers are not well understood, the scientific community's prediction of a significant greenhouse warming should be and is a guarded one.

### **Impact of Climate Change in Africa**

The Intergovernmental Panel on Climate Change (IPCC) describe Africa as one of the most vulnerable continents to climate change and climate variability (Department for International Development, 2009, p.15). Records have shown that Africa has been warming throughout the 20th century at a rate of about 0.05°C per decade (DFID, 2009). The warming is more noticeable in the period June-November each year. One of the most significant changes to Africa's climate has been reduction in rainfall in the semi-arid regions of West Africa.

It is noted that in Nigeria's Sahel region, there has been a 25% decrease in rainfall on average in the last 30 years (Nkomo, Nyong, and Kulindwa, 2006). However, the reduction in rainfall has been more moderate in other parts of Africa. In the past 30 years, both droughts and floods have increased in frequency and severity, especially in the drier regions of the continent. Well publicized droughts in the 1970s and 1980s significantly affected West Africa in the 20th century and they severely affected large areas of northern Nigeria and the Sahel region. These drought periods are indications of the large variability in climate across tropical Africa, the most serious effects of which are usually felt at the drier margins of agricultural zones or in the regions occupied primarily by pastoral groups.

Recently, Africa has witnessed more floods and cyclones. The Nigerian delta has in particular seen a marked increase in flooding in the last few decades (Nkomo et al., 2006). Dust storms which are partly due to changes in land use such as grazing and deforestation in some parts of the Sahel have also increased, particularly between the 1950s and 1980s (Elasha, Medany, Niang-Diop, Nyong, Tabo & Vogel, 2006).

## **Impact of Climate Change on Nigeria**

Nigeria is one of the countries expected to be worst affected by climate change (Boko et al., 2007). Nigeria faces potentially serious risks both on the south coast and in the north of the country. To understand the deep impact climate change would have on Nigeria, a short explanation of Nigeria's climate is important. When considering Nigeria by climatic region, three regions emerge: the far south, the far north, and the rest of the country. The far south is defined by its tropical rainforest climate, where annual rainfall is 2,300 to 3,200mm a year. The far north (i.e. Sahel region) is defined by its almost desert-like climate, where rain is less than 800 mm per year. The rest of the country, everything in between the far south and the far north, is savannah, and rainfall is between 800 mm and 2,300 mm per year (DFID, 2009).

Odjugo (2010) reveals how air temperature varies over the years in Nigeria within the 105 years (1901-2005). He noted that temperatures increased by 1.2°C in the coastal cities of the Niger Delta and 2°C in the northern extreme of Nigeria. He also mentions that a mean air temperature increase of 1.7°C was observed in Nigeria for the past 105 years. He observed that the lowest mean annual temperature was recorded on the Mambilla Plateau, followed by Obudu hills and the Jos Plateau as against the initial claims that Jos Plateau experiences the lowest temperature in Nigeria. He concludes that the current available evidences show that Nigeria, like most parts of the world, is experiencing the basic features of climate change (Odjugo, 2010).

Farmers in Nigeria are also increasingly aware of climate change. Water for domestic use is mainly from traditional wells and boreholes. Agroforestry is not common, though women depend heavily on firewood for domestic cooking. Issues faced by farmers include poor soil fertility, soil erosion, deforestation, loss of grazing land and desertification.

According to farmers from Gude community in Kano State, "The amount of rainfall has reduced drastically... a few days back it rained heavily and erosion has washed away our farmlands including the crops. This year we have suffered the impact of low rainfall and drought to the extent that we had to replant our crops three times before the rain became normal! After which pests and fungal diseases destroyed our crops. You can see to what extent we need information on climate change and weather forecasting." (Farm Radio International, p.2) According to a woman farmer from Unguwar Dogo community in Kaduna State, "Now that productivity is going down, we are also faced with inadequate fertilizer and irregular rainfall. To crown it all, we see fewer professionals who are willing to share information on this issue" (Farm Radio International, p.2).

According to Nigeria's First National Communication under the United Nations Framework Convention on Climate Change (Ministry of Environment Federal Republic of Nigeria, 2003), 15% of the country's population is affected in one way or the other by sea level rise and climatic variation. The Ministry of Environment's 2003 report also states that this is set to rise to between 50% and



60% with further anticipated climate change and sea level rise, and that between 25%-40% of the national capital stock could be adversely affected (DFID, 2009).

### **Government Efforts in Tackling the Problems**

The Federal Government of Nigeria through the Ministry of Environment proposed some projects in 2003 that were to help in mitigating against climate change. Most of the projects have duration ranging from 1 year to 2 years and all were expected to be completed by 2005. One of such projects is a Satellite Remote Sensing Determination of Vegetation Loading and Land use Change between 1995 and 2005 as Influenced by Human Activities and Biomass Burning. This was intended to improve the current poor data in land use change and agricultural sectors. The satellite remote sensing will make it easy for the government to update and monitor changes in the environment (DFID, 2009, p.f1).

Secondly, the Ministry proposed the auditing of downstream energy sector technologies as well as fuel consumption and projected demand side analysis for the downstream sector. The ministry expected that this effort was going to provide data of the actual rate of energy consumption in the country. The auditing was also to involve actual field estimate such as vehicle counts, survey of vehicle fuel consumption, fuel consumption in public sector and other institutions. The project was to take into consideration major downstream energy sectors such as road, rail, internal navigation, domestic and military aviation, industrial heat generation, private electricity generation (DFID, 2009, p.f1).

The Government also proposed the Development of National Emissions Data Systems (NEDS). This project was expected to be supervised by the Federal Ministry of Environment. The aim of the project was to develop and implement an institutional framework that would support sustainable evolution and implementation of NEDS. It was to help in development of linkages with major database networks within the country for purposes of providing inputs to emission inventories and mitigation assessment routine (DFID, 2009).

The Federal Government of Nigeria also planned proper Assessment of CH<sub>4</sub> Emissions from Leak Facilities in the Upstream Oil and Gas Sector and Options for Reduction. This would help in the determination of the components leading to fugitive emissions in the oil and gas sector in Nigeria, and the contribution of each generic components to the overall methane emission in the sector. The project was expected to provide data needed for accurate estimates of fugitive emissions from pipelines and other modules in the oil and gas sector (DFID, 2009).

Another plan of the government was Baseline Data Analysis for Risk Assessment of Impacts of Flood and Drought given climate change scenario in Nigeria. This was to help in quantifying the risk levels of the different flood or drought prone zones in order to assess the type (s) of intervention (local or international) required for adaptation (DFID, 2009).

The Improvement of the Quality of Meteorological Data for Climate Change Impact and Application Studies is another area the Federal Government intended to explore. This was expected to increase the number stations used for collecting the data to meet the World Meteorological Organization (WMO) standards. It was also to increase the quantity and quality weather measuring instruments (DFID, 2009).

The government also intended to Improve Efficiency of Transport System in Nigeria. The main aim of the project was to improve the quality of the environment through the reduction of the number of the road transport vehicles and decongest city centres of commercial activities (DFID, 2009).

Apart from the projects identified above the Nigerian Government established the Special Climate Change Unit under the Ministry of Environment. The Unit implements policies of government on climate change and also collaborated with other relevant governmental organizations and non-governmental organizations (Odey, 2010).

The government also aimed at creating public awareness on climate change to sensitize the general public to integrate measures in their programmes to reduce the emission of the greenhouse gases and, where necessary, to co-operate on adaptation measures for the impacts of climate change. An example is the Federal Ministry of Environment in collaboration with Nigerian Environmental Study/Action Team (NEST) project funded by Canadian International Development Agency (CIDA) with the name Canada-Nigeria Climate-Change Capacity Development (CN-CCCD). The project had duration of 6 years i.e. 2001 to 2007 and aimed at raising public awareness and capacity building on climate change (Odey, 2010).

## **Islamic View of Nature**

### ***Nature***

Islām encourages the contemplation on the wonders of the natural World. It is expected that a thorough meditation on nature will lead to an intimate connection between Man, Nature and God. In Islām the contemplation on nature is seen as a way of assisting people in transcending the material world, and grow closer to their Creator (Armstrong, 2001, p.96).

The Qur'an calls nature *ayat* meaning sign. It is used to refer to both nature, and also to verses in the Qur'an itself (Hussain, 2007, p.9). According to Nasr (1998, p.119), Islām views nature as having sacred qualities, and that Muslim sages saw upon the face of every creature letters and words from the pages of the cosmic Qur'an. (Nasr, 1998, p.120) He believes that the early Muslims have great love for nature because they see Allah as *al-Muhit* (the All encompassing) and so maintain awareness of the sacredness of nature through permeation of God presence in nature (Nasr, 1998, p.121). There are numerous instances in which the Qur'an refers to nature and contemplation on nature as containing signs are as follows:

Behold! in the creation of the heavens and the earth; in the alternation of the night and the day; in the sailing of the ships through the ocean for the profit of mankind; in the rain which God sends down from the skies, and the life which He gives therewith to an earth that is dead; in the beasts of all kinds that He scatters through the earth; in the change of the winds, and the clouds which they trail like their slaves between the sky and the earth - (Here) indeed are Signs for a people that are wise. (Qur'an 2:164)

Verily! In the creation of the heavens and the earth, and in the alternation of night and day, there are indeed signs for men of understanding. Those who remember Allah standing, sitting and lying down on their sides, and think deeply about the creation of the heavens and the earth, (saying:) "Our Lord! You have not created this without purpose, glory is to you! Give us salvation from the torment of the Fire. (Qur'an 3: 190-191)

Another important point that Nasr put forth is that benefits that can be derived from nature are not just to feed and shelter our physical bodies, but also to nurture our souls. In other words, nature serves the spiritual needs of the masses. The implication of this spiritual dimension associated with the natural world is that when it is fully realized it would lead to a particular attitude, behaviour and reverence towards it. And because nature is serving this purpose, it can be said to be serving the deeper need of the people.

Another interesting angle on the issue of natural world from Islāmic perspective can be seen in views of Qur'anic commentators that each species and each generation of God's creatures is a world unto itself, and that as a product of a divine and special creation, each life-form warrants special respect (Hussain, 2007, p.10). To support this argument is the Qur'anic *ayat* ...There is not a thing but celebrates His praise, but you understand not how they declare His glory. (Qur'an 17:44)

The above point further brings to mind the beautiful story of the sixteenth century Turkish Sufi, Sunbul Efendi, who asked his disciples to bring flowers to the school. While many of them returned with fine flowers, one of them, Merkez Efendi, gave the master only a little withered flower. Merkez Efendi told his master 'all the others were engaged in the praise of God and I did not want to disturb them; this one, however, had just finished its dhikr, and so I brought it'(Schimmel, 1994).

In relating the above point to climate change, we would discover that the effect of killing a creation of God is not just physical but also spiritual. If action on climate change can be supported by people in religious community, it will go a long way to curb the effect of climate change.

## Balance

In the Qur'an, the Arabic word used to translate balance is *Mizan*. It occurs in several places in the Qur'an. For example, the sun and the moon follow courses (exactly) computed; And the herbs and the trees both (alike) bow in adoration. And the firmament has He raised high, and He has set up the Balance (of Justice); in order that ye may not transgress (due) balance. So establish weight with justice and fall not short in the balance. (Qur'an 55:5-9)

Another verse that captures the idea of balance in the Qur'an is: Verily, all things have We created in proportion and measure. (Qur'an 54:49). The word balance in the Qur'an has been interpreted to be pertinent to a wide range of contexts. However the basic notion is the same, which is that everything has been created with due concern to each and every other detail of creation, and thus as Armstrong (2001, p.96) writes, "with all things in their correct relationship to one another."

According to Hussain (2007, p.12), "the underlying concept captured by the words balance and proportion, as in translations of the Qur'an, can provide an ethical dimension for Muslims on climate change. It is, after all, the concentration or proportion of greenhouse gases, which can be measured in parts, relative to a quantitative value of the earth's atmosphere, that is increasing, and for which an increasing number of scientists and scientific bodies regard human behaviour to be an important factor. The consequences of this change in proportion, has profound implications for the entire planet. Hence, within the discussion on climate change, from an Islāmic perspective the responsibility can be viewed to clearly rest on our collective shoulders and within the natural world the concept that underpins the current process taking place, is balance and proportion, which in terms of greenhouse gases has been disturbed."

## Disasters

Muslims have the impression from the Qur'an that Islām does not support the idea that disasters occur naturally. The Qur'anic verse that supports this point is: "Corruption has flourished on land and sea as a result of people's actions and He will make them taste the consequences of some of their own actions so that they may turn back." (Qur'an 30:41).

The word translated as corruption in the above verse, is *fasad* in Arabic. The word if considered in its general sense can also include disasters. If the effect of climate change is regarded as evil, it can also be said that it is as a result of some evil actions as well. Although, Africa which contribute very negligible portion is highly affected by climate change. There is another reference in the Qur'an that alludes to collective punishment "And beware of that temptation to evil which does not befall only those among you who are bent on denying the truth, to the exclusion of others; and know that God is severe in retribution." (Qur'an 8:25).

Even though disaster is evil, it can still be seen as an opportunity. In Islam disasters are sometimes seen as an opportunity to reflect on whether one

has disobeyed Allah's laws. It can also be seen as a punishment or a test and an opportunity to ponder on how to put things right, to feel sorrow and ask for forgiveness and reform, or to consider how best to pass the test. It is these opportunities that are to be pursued, hence providing a purpose in the face of tragedy. According to Hussain (2007, p.19), "If God is viewed in this way, then the need for a precise logical explanation for disasters diminishes, and it becomes more in alignment with the nature of the faith to reflecting on the symbols and signs that are experienced through the senses that give a window of insight into the mind of God, whilst presenting an opportunity for an individual to spiritually evolve into a more God-conscious person."

### **A Faith-based Solution**

It can be noticed from the above discussion that there are interesting concepts in Islām that can help the Federal Government of Nigeria in educating the populace about climate change. The government can better address the problem by not only focusing on adaptation, finance and technology but also addressing the attitude of masses to their environment. This paper is proposing that Islāmic concept such as *iḥsan* (good or excellence), *khalīfah* (vicegerent), *amānah* (trust) and unity of creation (*tawhid*) could be included in the message of the government to the people. These concepts are examined in the context of climate change as follows:

#### ***Tawhid* (Unity of creation)**

The concept of *tawhid* is a fundamental belief in Islām. It is to believe in one God. It can also be seen as a symbolic representation of the unity of creation (Hussain, 2007). In Islām, all creations are from one source and that is God. The idea of unity of creation is captured in both the first pillar of Islām, which comprises a statement representing a belief i.e *La illaha illa lahu* (there is no god worthy of worship except Allah). By reflecting on nature, one can understand the unity in creation. This is because the way to God-consciousness is by living one's life in a state of increasing awareness of this unity. This will also make one understand better ones position in the wider creation.

#### ***Iḥsan* (Good or Excellence)**

*Iḥsan* can be translated as good or excellence. It is a complete and permanent submission of the heart and the mind to God's Will. Majeed (2003, p.468) describes *iḥsan* as meaning beauty and virtue. It can also be seen as related to the inner beauty or the beauty of the soul. *Iḥsan* in Islām is understood to transform every human activity into an art and every art into the remembrance of God (Majeed, 2003, p.468).

Majeed further explains that in Islām, the concept of beauty is intimate to God. He understood *iḥsan* as a feeling that can manifest through humans in the form of beautiful geometry, gardens, calligraphy. He explains that just as these are expressions of *iḥsan*, which reflects God-consciousness, the effect of



witnessing these forms of expression can themselves affect the individual, leading to a greater appreciation of God.

*Iq̣san* can lead to the attitude of gentleness to the earth, to nature and to the natural environment. A person, who understands the concept of *iq̣san* will want to live in peace within his environment, will respect not only living but non-living things on earth. Thus the qualities of gentleness to nature, peacefulness to people, moderation in spending and consumption and devotion to the Lord of all things will be integrated within someone who imbibes the attitude of *iq̣san*.

### ***Amānah (Trust)***

This is a very significant teaching in Islām. Man is expected to see everything he owns (or think he owns) as a trust. The trust can be seen as a burden that Allah has placed on man. The Qur'an says: We did indeed offer the Trust to the Heavens and the Earth and the Mountains; but they refused to undertake it, being afraid thereof: but man undertook it...(Qur'an 33:72). According to Abdullah (1992, p.1268),

The trust is something given to a person, over which he has a power of disposition; he is expected to use it as directed or expected, but he has the power to use it otherwise. There is no trust if the trustee has no power, and the trust implies that the giver of the trust believes and expects that the trustee would use it according to the wish of the creator of the trust, and not otherwise.

The verse showed that the heavens, the earth and the mountains understood the magnitude of the trust and so rejected the offer. Man was ignorant but also audacious enough to accept the offer. The reward is that those who act well based on the trust will be rewarded and those among men who betrayed the trust will be punished.

If we treat the earth and the natural things that surround it as trust, the society and Man's environment will be safe and healthy to live in. But by doing the opposite, man creates more problems for himself and the future generations yet unborn.

Another interesting point is that the word *amānah* is intricately connected with the notion of *aman* which means security. This security can be seen in the light of physical and spiritual dimensions. By betraying the responsibility of trusteeship, man not only endangers the security of those entrusted to his care, but he also losses the right to his own physical and spiritual security in this world and in the next.

### ***Khalīfah (Vicegerent)***

The Qur'an informs us that when Allah wanted to create man, he told the angels "I will create a vicegerent on earth". The word for vicegerent in Arabic is *Khalīfah*. It can also be described as guardianship. Llewellyn (2003, p.190) is of the view that most of the discussions on this word among Muslim writers in the

last few decades have over-emphasised the right associated with this role because most of them stress on the point that man is superior to other creations of God. However, Llewellyn believes *khalifah* should not only be seen as a privilege position, but a trust, responsibility and trial. The position is not just to take but to give, is not just to receive but to serve.

The problem of climate change can also be seen from the fact that man has failed in his position as a *khalifah* on earth. It is believed that the condition of Man's environment can be used to gauge how well man has fulfilled the enormous responsibility given to him by God. It is obvious to us that man is dreadfully close to shattering the trust that comes with the position he is occupying based on the impact of human activities on climatic system. This simply means a serious awakening is needed for those who believe in the position of *khalifah* as described in this paper, if they want to succeed in their test of guardianship.

### **Conclusions**

This paper has examined the issues related to climate and climate change in Africa with specific reference to Nigeria. It has demonstrated Nigerian government efforts and proposed plans in mitigating against the negative impact of climate change. Most of the Federal Government's plans are focused on scientific and technological means of solving the problem. This has limited the pace in which the problem of climate change can be solved.

Nevertheless, this essay has highlighted a religio-spiritual approach that can be added to the government's efforts of finding a solution. This approach will help to change the attitude of a substantial number of the populace to their environment and inadvertently the climatic condition of the country. This paper suggests a systematically formulated message by the Federal Government of Nigeria that will be drawn from the rich and still very much alive religio-spiritual conscience of the populace. It can be premised on concept such as *ihsan*, *amānah*, and so on. In other words, the message of the government can be premised on beauty, excellence, and perfection of people's actions both the inward and the outward.

Most of the time, governments forget to think seriously and deeply in terms of deconstructing, re-viewing, re-visioning the core attitude of people towards nature through the renewal of spiritual rather than physical resources.

Finally, unless the certainty of personal responsibility before God of justice, Who is also the Creator of man and his environment, is taken into consideration, it may be very difficult to change people's attitude to their environment. This paper therefore should be seen as giving positive and practical ideas rooted in basic understanding of Islamic principles.

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