

EDUCATIONAL MANAGEMENT, ENVIRONMENTAL LITERACY AND CLIMATE CHANGE

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Managing Climate Change Studies in the Nigerian Educational System

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Abstract

The paper proposed the management of climate change studies in the Nigerian education system. It observed that though, climate change has been an issue of global discourse for quite a long time; Nigeria appeared not to have taken appropriate policy measures (including climate change education) to manage its negative impact on the Nation. The paper reviewed global trends in combating and mitigating the negative impacts of climate change. Nigeria must respond to the change in climate by introducing relevant policies including studies in climate to educate the populace on its adverse impact and how the public and private sectors can cooperate to fight the negative impact of the scourge. The paper further discussed the challenges confronting climate change management in Nigeria that includes: illiteracy of the populace, mass poverty of Nigerians, poor planning by government to manage the adverse effect of climate change, poor implementation of environmental laws and plans, unwillingness to adopt change strategy and failure to understand the effect of climate change. The paper concluded that Nigeria needs to address these challenges, by introducing at least a curriculum on climate change to respectively educate and prepare the nation on climate change, to control and manage its negative impact frontally. The proposed curriculum should address the change with respect to its effect on the educational, natural, health, political, social and economic areas of our national life. Finally the paper suggested that a climate change commission be establish to formulate and implement policy for mass education of the populace through public enlightenment as well providing funds for the control and management of climate change in Nigeria.

Introduction

Climate is an important aspect of human existence because it shapes the condition of the environment which in turn determines the conduciveness of living of all creatures, of which human is chief. This view tends to conform to the view of Onuka (2004) that development is evolved by man for man, implying that all things revolves around human being for his comfort or such thing becomes useless to itself and all else. In contemporary global discourse, the concept of climate change has been accorded the priority it deserves. Climate change is what every human in our contemporary world feels and knows exists. In most advanced countries of the world, proactive steps have commenced to fight the effects of climate change while in most developing countries, little or nothing is being done to moderate the effects of climate change (Ayoade, 2010).

There is a common mistake often made by many who equate climate to weather. Adebayo (2010) citing World Meteorological Organization (WMO) observed that weather is average atmospheric condition of a place at any given point in time while climate is the average weather condition of a place for a period not less than thirty five (35) years, in effect, weather is a subset of climate. Leong and Adeleke (1981) explained that one school of thought argues that the observations leading to climate change has not reached 35years so it is too early to assume or subscribe to the fact that climate change is around but the other school of thought is of the opinion that the emerging evidences such as the submergence of coastal towns in recent years, the depletion of the Ozone layer and the attendant crises as food crises occasioned by poor agricultural yields due to the unpredictability of climate might wipe the world away if urgent steps are not taken. In the attempt to re orientate the world, Education and Educational

institutions have a great role to play since the teaching on weather and climate has transcended ages. As usual with men, the process of acclimatizing with the new dispensation appear difficult hence this study.

Though, the concept of climate change is natural, its application is social as it involves every human being. The concept of climate change requires adaptation as it could bring in its wake changes in seasons, vegetation precipitation and weather conditions among others. If the concept of climate change is sacrosanct, the only option is for policy makers and executors to formulate implementable policy and programmes to combat any adverse effect of the change both in the short and long run. The objective of this study is to propose introduction of climate change studied in the Nigerian education system. In other words, how the Nigerian education curriculum could be made to include studies in climate change and how it could be combated to avoid any adverse effects arising from it.

Global Trends in the Studies of Climate Change

It is imperative to state that it is impossible to understand the concept and issues involved in climate change without an in-depth understanding of the concept and issues involved in weather as both of them are interrelated. Weather is the daily atmospheric observation of a place for a period of time (e.g. one year) while climate is the average weather condition of a place for not less than thirty five (35) years (WMO in Adebayo, 2010). The United Kingdom Environmental Change Network (UKECN, 2010) asserts that climate change is not a fallacy but a reality and goes on to show evidences of climate change. Evidences adduced by the Network to buttress this assertion include:

- Rising global temperatures by 0.6 degrees Celsius in the last 130 years
- Accumulation of Carbon dioxide in the atmosphere at an alarming rate occasioned by the burning of fossil fuel due to growing industrialization pollutions
- Increased human activities on the environment such as the decimation of forests reducing carbon dioxide utilizing plants and increasing methane content in the atmosphere
- Rising carbon dioxide accumulation results in the depletion of the Ozone layer of the atmosphere that shades the earth from the direct scotch of the sun.

Watson (2010) opines that climate change is not a fallacy, stating that its impact is being greatly felt in tropical Africa. In his discourse of the impact of climate change on Agriculture especially in tropical lands, Watson (2010) observed that the impact of climate change is much pronounced in Sub-Sahara Africa. He specifically predicted that by the year 2050 about forty years from now, the countries of Sub Saharan Africa will have a "novel" climate over half of their current crop area. In Watson's work, he predicted higher temperatures, longer droughts, increasing frequent and violent storms with the resultant effects of the emergence of new vegetational zones leading to the development of new crops and new species of animals. Mankind will have to adapt to the emerging social and environmental transformations by planning well ahead for it. To effect and prepare adequately for these predicted social, economic, agricultural and human transformations there is the need to address the present educational curriculum and societal values with the intention of taking proactive steps towards mitigating the impact and influence of climate change. Furthermore, Ayoade (2010) describes climate change as a dynamic phenomenon that involves the indices of weather deviating from the mean over a considerable period of time.

Climate change is caused by the changes in the atmosphere. These changes are principally due to human interference with the environment thereby increasing the levels of Carbon dioxide (CO₂) in the atmosphere. Several human actions that have been discovered to cause climate change are:

1. Increasing deforestation by man as substitute source of energy especially in Sub-Saharan Africa thereby depleting CO₂ consuming agents from the surface of the earth and depleting the Ozone layer that protects the earth from the direct rays of the sun.
2. Since the advent of the industrial revolution, the burning of fossil fuel has been increasing global temperatures and it is predicted that by 2050 the level of temperatures would have risen considerably. The UKECN (2010) disclosed in its website that global temperatures had risen by 0.6 Celsius in the last one hundred and thirty years.

Ayoade (2010) further stated in his work that the argument for or against climate change fall into two categories. He maintains that some argue that climate change is caused by changes in terrestrial geography while others say that it is caused by the effects of solar output in the universe. This trend in the discourse of climate change give rise to the need to find a way of developing a curriculum for the study of climate change and its impact in Sub-Africa which include Nigeria, so that its negative impact can be addressed frontally.

The Global Response to Climate Change

Most countries of the world have adopted climate change policies especially developed countries for example many advanced countries have been reflecting on curriculum reviews and adoption of new methods of learning as the concept involves unlearning what has been previously known and renewing a new concept entirely. The process will require the adoption of different strategies for instance, the Chinese have distributed the learning process on climate change to public fora to equip each Chinese with the basics of climate change and how to combat it in the interim. The American has formed special clubs from Adults through youth to children to combat the menace and equip its citizens with basics of combating climate change. Some question that arise is what will be in the curriculum of climate change in countries where changes have taken place and what steps should be taken by each segment of the population to combat climate change scourge? What has Nigeria done so far on climate change and what are the expectations on climate change as it relates to Nigeria?

Odey (2010), while declaring that the Federal Republic of Nigeria (FRN) had just prepared an articulated policy to ensure that the youth involved in the efforts directed at combating the negative impact of climate change on Nigeria, appears to have acknowledged that much is yet to be done in terms of developing a comprehensive policy with regard to climate change. This disclosure was made while visiting the displaced residents of some communities in Sokoto and Kebbi states in North West of Nigeria where flooding was unusual and most unlikely because of climatic vagaries. The same comment was made in a visit to Ogun and Lagos states who shared a similar fate in South West, Nigeria and Lokoja in the Middle Belt Region of Nigeria. It can be boldly expressed that the FRN is yet to begin concrete activities that will assist in the combat of climate change.

The fact that available social evidence shown below indicates that Nigeria had implemented two policy options on climate change points to the need for a comprehensive policy formulation on climate change in Nigeria which should include curriculum on the study of climate change in Nigeria.

The under-listed are the only known policy measure by the government of Nigeria on climate change so far which of course are far between:

1. the creation of the Federal Ministry of Environment whose mandate is to take stock of environmental degradation in Nigeria and proffer solution and State Ministries of Environment,
2. The establishment of Federal Environmental Protection Agency (FEPA).

The impact of these two agencies has not been well felt in Nigeria as a result of our non proactive planning culture. To lend credence to the forgoing statement, the 9 O' Clock NTA

network news on August 17, 2010, which reported that floods swept away 240 communities in Lagos and Ogun state of Nigeria attributable to climate change, a situation that could have been avoided, if measures of combating climate change was in place, it could have been a proactive one.

The Challenges of Climate Change in Nigeria

Nigeria is faced with various challenges in combating the adverse effects of climate change due to its lack of articulate policy to manage and control the change. The following have been identified as some the challenges, they include high level of illiteracy in Nigeria. (FRN, 2004) makes information dissemination through the mass media difficult and ineffective as many new concepts are not easily grasped by the populace. Moreover the illiterate populace who will be adversely affected by climate change are peasant farmers and traders who use the products of climate as by products- rainfall, temperature, humidity etc.

FRN (2004) estimated the number of Nigerians living below the poverty line to be well over 70%. WDR (2007) corroborates this fact, stating that the poverty rate is still very high. This rate of poverty makes it is impossible for these categories of persons to assist in the fight against climate change as they ought to because they live below subsistence level and are unable to purchase equipment and understand the skills for combating climate change.

Another problem facing Nigeria in the combat of the effect of climate change is the absence of comprehensive town planning designs. In some major cities in Nigeria, sewages and drainage systems are often destroyed or blocked completely through unauthorized building and poor maintenance. This development often results in death traps. With the pending climate change, it is expected that government would have put in place agencies for dealing with disasters and educated the populace on the changing pattern as well as further expectations as is being revealed by scientists to enable the people prepare for such occurrences. This is yet to see the light of day in Nigeria unlike countries as Copenhagen where children and youth have formed clubs to fight the menace of climate change (<http://www.emu.dk.org>)

Nigeria is yet to acquire the requisite manpower resources in all areas especially in education and social life to combat the effects of climate change. There is need for proactive planning as is being pioneered by the United Nations (UN), United States of America (USA), United Kingdom (UK) and several other countries. Before the manifestation of climate change, it is expected that Nigerian Engineers ought to have foreseen and taken proactive steps towards the environmental disasters being currently experienced that have left in its wake the displacement of over 240 communities in South western Nigeria and created unprecedented gully erosion in the Southeast and the submergence of coastal cities in the South-South of Nigeria. There has been no preparation for the revision of curriculum in teacher training institutions to show the effects of global climate change.

The fragile nature of the economies of the countries of Sub-Saharan Africa to which Nigeria belongs makes it almost impossible to have sufficient funds to fight natural and ecological problems. Most African nations and Nigeria depends heavily on grants and aids from the developed world to combat such issues. It is observed that where such funds are available, the number of macroeconomic variables needing attention outweigh votes and in some cases, corruption leads to diversion of funds. These pose serious challenges to the battle against climate change.

A Proposal for Climate Change Management Studies in Nigeria

In the light of the enumerated above, it becomes imperative to find a way by which the most affected and indeed, all the populace can be educated on and be prepared for holistic combat of the adverse effect of climate change in Nigeria as it is being done in other climes of the world. Anyanwu and Mbakwenu (2004) described curriculum as a track for learning. The curriculum defines all that the learner will experience throughout a period or course of learning.

There are several types of curricula. Fadare and Olojede (2004) explain that there is subject and content curriculum. Reviewing the Tyler’s model on curriculum, Fadare and Olojede (2004) identified some fundamentals of curriculum such as the purpose for the school, learning experiences envisaged, organization of learning experiences and effectiveness of learning experiences when evaluated. Furthermore, Fadare and Olojede (2004:14) cited educationist Wheeler (1980). Wheeler’s curriculum model which is categorised into: Diagnosis, aims, goals and objectives, selection of learning experiences, selection of content, organization and integration of learning experiences and content and finally evaluation. All curricula are directed towards the development of the knowledge, attitudes and skills

Nigeria is yet to develop in her education system a curriculum on climate change that will address emergence issues in climate change as it affects man, his socio-economic activities the environment and weather conditions. In view of the above, it is here proposed that studies on climate change at all levels of education be included in the curriculum with content of a societal social curriculum on climate change irrespective of age and level of education as indicated Table one. The proposed curriculum should influence educational, natural, health, political, social and economic areas of life.

Table 1: Proposed Curriculum for education on combating effects of climate change in Nigeria.

S/N	Type	Curriculum Content	Equipment	Agents	Remarks
1.	Educational	Agriculture Geography/social studies Engineering Meteorology	Print and Electronic Mass Media. Teacher Training Schools	Mass Media Incorporating climate change into teacher education syllabus and curriculum	Will be effective if well funded
2.	Natural	Environmental/Regional studies	Social clubs, youth clubs and schools	Mass Media, Local council and community chiefs involvement will facilitate action	Will aid farmers in adapting to the vagaries of climate change
3.	Health	Changing diets Changes in temperatures New diseases may emerge	Training teachers in schools on ICT especially in social studies and elementary science, geography etc	Information communication technology (ICT) equipment that will monitor the influence of climate change.	Requires much funding
4.	Political	Evolving a national climate change policy Incorporating climate change policy into corporate social responsibility (CSR) for firms, companies and multinational organizations operating within the Nigerian climatic zone	Advocacy visits to the national legislature in Nigeria, State Houses of Assemblies and Local Government Houses of Assemblies to enact laws and edicts that will facilitate the implementation of climate change policies.	Recruitment of volunteers to implement this phase in the programme	Requires men and women with Mission, vision and passion for the cause of climate change. It requires funding from all tiers of government
5.	Social	Social education of what climate change is, how to manage disasters, citizenship education on the need for adherence to good environmental principles, teaching environment	Formation of school clubs, Education through pamphlets and handbills Radio and TV jingles	Bill Boards, Posters, Handbills, TV, Radio and News	

S/N	Type	Curriculum Content	Equipment	Agents	Remarks
		friendly issues especially planting of trees and conservation of the eco system		papers.	
6.	Economic	Loss of properties Adjustments after each disaster - need for disaster management studies	Insurance of schools, lives and properties Development and strengthening of key government Parastatals	Education on insurance policies for life and properties to mitigate the effects of economic losses arising from disasters Strengthening Red Cross, St John's Ambulance Brigade, Boys' scout to be effective in the event of any disaster associated with the impact of climate change	Mass education required in that area. Providing equipment and training for potential volunteers
7	Managing climate change in other places	Primary Secondary Tertiary levels	Drawing and paintings showing evidences of climate change Introduction to the production of Biofuel in laboratory experiments Use of Global Positioning System (GPS) equipment to track climate change Satellite capture of data to check climate change	Governments Schools Corporate organizations Multinationals etc	These are preliminary management process of climate change

Source: Researcher Designed

The Table above shows a specimen curriculum that can be used for the study of climate change in Nigeria and this can be improved upon by curriculum developers especially Nigeria Educational Research and Development Council (NERDC). It further reveals several areas in the lives of Nigerians which climate change is likely to affect. An examination of these areas will give a casual estimate of the level of funding that will be expected to combat the different aspects of climate change but presently, Nigeria does not have a significant policy on the revision of climate change. The necessary agencies to complete the budgeting and implementation of funding for climate change are not adequate as earlier mentioned. In addition to the proposed curriculum the following suggestions are hereby made:

Mass Social Education

The Government at all levels should immediately embark on mass social education to educate the populace on the existence, and effects of climate change as well as how these effect can be effectively manage as it relates to different categories of people. This could be done through public enlightening programmes, sponsored seminars and workshops

Curriculum Review

In view of the proposed curriculum it is being suggested that there should be a national curriculum review which will inculcate the studies of climate change and this must be religiously implemented so as to enable the populace to effectively manage the adverse effect of climate change.

Planning

The important of effective planning in the management of climate change in Nigeria can not be over emphasized as this will be use to select objectives, policies, programs and procedures as this will enable policy makers to look ahead and prepare for future emerging issues in climate change.

Funding

Effective management of climate change require adequate funding as Nigeria is already far behind other countries in the mitigation of climate change effects. Appropriate funding of the projects should be put in place especially, developing ICT personnel to sound timely alarm on pending disasters and the purchase of ICT equipment to monitor such disasters waiting to happen.

Relevant Policy and Legislation

The National assembly should enact relevant laws that will compel government at all levels to develop a proactive approach to the management of climate change ..The executives should also introduce new national policies on stemming global warming while adhering to previous ones as the international cabotage policy introduced by the UN in the Kyoto convention to which Nigeria is a signatory. Government seriousness on this issue will be known when laws are enacted and sanctions enforce

Establishment of Climate Change Commission

In view of the urgent need to effectively control and manage climate change in Nigeria, it is being suggested that a climate change commission should be establish both at the federal and state levels. The commission should formulate policy and put proactive and combative measures in place to address issues in climate change and to educate the populace on how to manage effects of climate change.

Conclusion

This paper looked into the possibilities of introducing the study of climate change into Nigeria's educational system. The paper examined the meaning, types and effects of climate change and its effects in developing countries especially Nigeria. The paper was able to trace the growth of global warming, the Green House Gas effects and the possible challenges of climate change to Nigeria which includes non sensitivity of the citizenry to the effects of climate change as a result of their level of illiteracy. To this end the paper proposed curriculum content for climate change irrespective of age and level of education. It is envisaged that it will in turn influence education, environment, health, politics, social and economic areas of life. Finally the paper suggested pro active measures in combating the effects of climate change, immediate implementation by key policies especially those on environmental planning. These suggestions include mass social education, curriculum reviews, appropriate planning cum funding, introduction of new policies and promulgation of relevant legislations.

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