

CLIMATE CHANGE IMPACTS: NEED FOR CURRICULUM REVIEW AT THE SECONDARY EDUCATION LEVEL IN NIGERIA

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ABSTRACT: *Climate change causes and impacts on the existence of man, animals, plants and their environment has become an issue of concern to various nations. This has led nations the world over including Nigeria to put some measures in place, as a way to proffer solution to this deadly problem. Areas of concern are climate change causes, climate change impacts and climate change mitigation. The paper concludes that the impacts of climate change are enormous and should be tackled properly. It recommends that climate change education should form part of school curriculum and be made compulsory for all students at all levels. And there should be various means of mass enlightenment by different groups including schools, communities, public and private sectors as to address this problem squarely.*

KEYWORDS: Climate Change, Curriculum, Secondary Education

INTRODUCTION

The concern of environmental experts all over the world in the recent times is the fear of the changing temperature of the earth and its consequent effect on man, animals, plants and their environment. This requires urgent intervention from all quarters with education playing a major role. This challenge led Federal Government of Nigeria in 1992 to enact an environment legislation of international standard, asking the upstream oil companies to minimize gas flaring by May 1996 and to convert the gas to other possible uses for household and industries (Ubong 2005).

A major role the education sector can play in addressing this problem is by reviewing the curriculum to address this need. This is the reason for which nation's world over review their curriculum to address changing situations and solve societal problems. In this regard Omieibi-Davids(2006), said curriculum can be reviewed for the following reasons: unsuitable curriculum, changing socio-economic conditions, change in the type of learners, change in instructional materials, change in education thinking, crisis etc as well as research findings. The issue of

climate change impacts is a crises affecting man, animals, plants and their environment and so requires curriculum change to address this problem.

In recognition of this key role played by education, the Federal Republic of Nigeria (FRN), states in her National Policy on Education (2004, p. 8), that

Education shall continue to be highly rated in the national development plans because education is the most important instrument of change; any fundamental change in the intellectual and social outlook of any society has to be preceded by an educational revolution.

Meaning that with education as a powerful instrument to effect any desired change, climate change impacts in Nigeria can be tackled.

The impacts of the change in climate have led nations to meet and agree on how to mitigate these impacts. In June 1992, 154 nations met under the name of United Nations Framework Convention on Climate Change (UNFCCC). Also in Kyoto Japan, 160 nations met on 11th December, 1997 to proffer ways of reducing human activities that led to enhanced greenhouse gases that impact on the temperature of the climate and all the living things that exist in it. Nigeria on 24th February, 2005 joined other nations by ratifying the Kyoto protocol. By this act, Nigeria is subject to any sanctions associated with the agreement. Furthermore, in attempt to fight the impacts of climate change, the Federal Environment Protection Agency (FEPA), was set up by the government through decree 58 of 1998. Also, the Federal Ministry of Environment (FMENV), was established on 12th October, 1997 and the states followed by setting up State Ministry of Environment (SME). All these measures were taken to check human activities that constitute impacts on the climate. Since human activities are said to be the highest contributory factor to climate change.

In other to overcome these, there is the need for curriculum review. In that, for any major change to be made by nations, such change is challenged through the education sector. This means that education sector can never be left out in the fight against climate change impacts, because it is through the education system that any desired change in human behaviour can be achieved. Therefore, curriculum change is required since scientist predict that Nigeria will be badly affected by climate change impact due to her population size and oil exploration activities. Although some measures have been taken such as introduction of compact fluorescent light bulbs, improved kerosene stoves for households etc, curriculum review is still very necessary.

CLIMATE CHANGE CAUSES

Naturally, the planet earth has a particular temperature level which constitutes a support system that maintains and nourishes every living thing on it. But today, certain human activities and natural occurrences threatens to damage this vital life support system to man, animals, plants and their environment. Teme (2005, p. 24), said that the causes of climate change are “factors ranging from solar wind from the sun to greenhouse gases on the earth, latitude or distance of north or south of the equator, attitude or height above the sea level”. Meaning that a near by mountain range or its orientation can remarkably influence the climate of the region. These natural causes can be by processes of “volcanic eruptions, variation in the sun intensity or slow change in ocean circulation or land surfaces which occur a time decades, centuries or longer”

(climate change fact sheet, N.D, p.1). National Weather Service (2007), affirm that, climate change naturally as a result of interaction between the atmosphere, ocean and land and change in the amount of solar reaching the earth. “The rate at which energy is received from the sun and the rate it is lost to the space, solar radiation, earths orbits, mountain building and continental drift and changes in greenhouse gas concentration” (Mayinoluwa 2013, p.22).

Human activities are major contributory factor to climate change. “scientist have predicted that Nigeria may be seriously hit by the greenhouse effect as a result of large amount of greenhouse gases emitted into the atmosphere through bush burning and gas flaring” (Gobo 2005, p. 70). Teme (2005, p.34), adds that bush fire from pastures, change of land use, deforestation for pasture establishment, use of fire to maintain pasture, promotion and subsidies on mechanization, motorization and replacing draught animal power (climate change fact sheet N.D.) are also human activities that has great impact on the environment. National Weather Service (2007) and Moyinoluwa (2013, p.22) also opine that human causes of climate change are releasing of greenhouse gases and aerosols into the atmosphere, changing of land surface, depleting the stratospheric ozone layer, water vapour (H₂O), carbon dioxide (CO₂), burning of fossil fuels like oil, coal and natural gas.

CLIMATE CHANGE IMPACTS

The effect of the changing climate temperature is enormous. It has severe impacts on man, animals, plants and their environment, making life unbearable and difficult. Litus (2012, p.1) and Moyinoluwa (2013, p.12) stress that the resultant effect of climate change are

Rising temperature, droughts and desertification, heavy precipitation, flooding, rising sea level, extreme health event such as cyclones, floods and drought. This situation can cause diminishing waste resources leading to malnutrition, waterborne diseases as diarrhea and vector bone diseases such as malaria, drowning as a result of increase in sea level and flood, severe mental and physical trauma for people living in areas where flood occur, injuries, melting glaciers, and stronger storms.

These impacts on man, animals, plants and their environment require urgent intervention by man. This is because, if no plans are made on how to address these problems, there is impending danger in the existence of man and other living things.

National Weather Service (2007) also says that, the change in the climatic temperature will result in the following:

- Changes in many aspects of weather such as wind patterns, the amount and type of precipitation and the type and frequency of severe health events;
- Global sea level rise due to melting of ice and glaciers, damage to coastal regions through flooding and erosion;
- Conditions that can make it difficult for some plants and animal to adjust;
- Severe heat waves and drought;
- Respiratory problems as asthma; and
- Air pollution problems

These impacts are dangerous and require urgent attention by the government, private sector and individuals, as there is no exemption in the effects. To comply with the various agreements and possible reduction strategies is important. This is the reason for which Nyanayo (2005, p. 30) stress that ...the adverse effect of non compliance with the Kyoto protocol will be incidences of skin cancer, depletion or total loss of forest resources, food crop damage leading to hunger and wiping away of human race. Others are incidences of cataract in humans and associated illnesses. Drought leading to poor crop yields which will impact on the economy and available food supply, increase in the risk of forest fire as a result of dry conditions damaging the ecosystems and releasing more greenhouse gases into the air, air pollution mostly in urban cities leading to death and illness from respiratory diseases such as asthma, increase in the spread of infectious diseases and high breeding of insects, erosions and flood in coastal cities as a result of rising sea level and severe weather events as thunderstorms, heavy rains, hurricanes, cyclones, hail and tornadoes (Teme 2005, p.33).

CLIMATE CHANGE MITIGATION

Climate change mitigation are ways or measures that are put in place by government to reduce human activities that produces gases that result in temperature change and depletion of the ozone layers which impacts on man, animals, plants and their environment. It means what ever man does as a way to reduce the effect of climate change and its impact on all living things is said to be mitigation measure. These mitigation measures were the purpose of the June 1992 UNFCCC and December 1997 meetings by different nations, which also led to Nigerian's February 2005 adoption of the outcome of these meetings. According to Dede (2005, p.62), the mitigation measures adopted by Nigeria are:

- reduction of gas flaring into the atmosphere by oil companies,
- introduction of independent power plants,
- introduction of compact florescent light (CFL) bulbs,
- improved kerosene stoves for households,
- fuel-oil to natural gas fuel as a substitute in the cement industry,
- introduction of effect motor in the industry,
- improved electrical appliances and
- reduction in the use of wood stoves.

Other measures are tree planting and greening of the environment and the education of man on how to manage her environment and to be environment friendly which is the crux of this presentation.

CONCLUSION

The environment of every living thing is important for the survival and existence of that living thing. This makes it imperative for the issue of climate change and its resultant effect on all living things to be urgently addressed using both short and long term strategies. This must involve the government, schools, companies, families, individuals etc if positive result must be achieved. This is necessary because, the impact of this change in the temperature of the climate will affect every body irrespective of class, race and age. Therefore, it calls for urgent and permanent solution by everybody with the education sector playing a key role in achieving this.

WAY FORWARD

Though several suggestions has been proffered as mentioned early in this paper, education as a way of meeting this life threatening challenge is yet to be given its due consideration as an important tool for meeting this need. This is because; education has to do with the re-orientation of the mind which will also lead to change of attitude. Without attitudinal change, response to enacted laws concerning the environment will not be effective, just as it is observed. Therefore the authors see tackling this challenge through the education sector as the bases for lasting solution. Hence, the need for curriculum review. Based on this understanding, the authors make the following recommendations:

1. **Climate change education should be made part of school curriculum at all levels but more especially at the secondary school level.** Education is a very good vehicle for solving societal problems, which climate change impact is one. Making climate change education a compulsory course or subject of study in the education system is important. It will help educate people on climate change impacts and how to mitigate it. This is because, when teachers and students have proper information of this problem and the solutions, they can help educate others around them and even their families.
2. **Environment friendly club should be formed in schools.** Schools at all levels should form environment friendly clubs. The members of this club should be educated on this issue and be encouraged to carry out campaign in their environment and be vanguard groups to guide the environment against activities that destroy it.
3. **National Youth Service Corp environment vanguard.** The NYSC Orientation camps can be used to educate and form environment vanguard groups that can carry the message to their various areas of primary assignment. As well as serve as watch dogs and rightly instruct people on how to be environment friendly.
4. **Enlightenment campaign:** Enlightenment campaigns should be organized by government agencies like National Orientation Agency (NAOA) in government offices, industries, markets, cities, towns and communities on the causes and impact of weather change and how to mitigate it.
5. **Organize workshop for teachers.** Teachers should be enlightened on this issue and be educated on what role(s) they can play in educating the children and other people on this issue.

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