CHECKMATING GLOBAL WARMING AS A LEEWAY TO SUSTAINABLE DEVELOPMENT IN NIGERIA

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Abstract
Day-to-day humanactivities in immediate environment have contributed to an increased average global temperature, arising from the release of greenhouse gases into the atmosphere. Thus, there is the need for the control of global warming to reduce future risks.This paper identifiesthe causes, effects and probablecontrol of global warming as a requisite for sustainable development in Nigeria. It posits that the longer unsustainable development, the more frequent and severe its consequences are likely to become. Since sustainable environment enhances sustainable development, the medium of achieving sustainable development always addresses environmental sustainability. Becoming a more responsible citizen is important among the various measures to curb global warming. Other measures include the need to use public transport so as to reduce amount of harmful gases into the air, the need to reduce emissions from deforestation and forest degradation among others. One needs to acknowledge the fact that man is responsible for this menace to a greater extent. Therefore, in order to reduce global warming and make the environment friendly, man should be responsible and government policies should tend towards enhancing sustainable development in Nigeria.

Introduction

Nearly all action themes of the past decades in education for sustainable development have geographical dimension. Prominent mong which are: environment, water, rural development, sustainable consumption, sustainable tourism, intercultural understanding, cultural diversity, climate change, disaster reduction and biodiversity. There is no gainsaying the fact that man's environment is constantly changing. As the environment changes, so does the need to become increasingly aware of the problems that surround it. With a massive influx of natural disasters, warming and cooling periods, different types of weather patterns and much more, people need to be aware of what types of environmental problems the planet is facing. One of the environmental problems is global warming. According to Ayinde, Ajewole, Ogunlade and Adewumi(2010), global warming is a phenomenon that occurs when the world experiences temperatures that are above the normal levels. Such a spiralling of temperatures occurs in every region of the planet, whether it is in the northern or southern hemisphere-Nigeria inclusive.

It has become an undisputable fact about the current livelihoods that the planet is warming up and human beings are definitely part of the problem. However, this is not the only environmental problem necessitating concern others include various types of environmental degradation like

soil, land and air degradation among others. All across the globe, people encounter a wealth of new and challenging environmental problems every day. Some of them are small and only affect a few ecosystems, but others are drastically changing the landscape of what is already known in the planet is poised at the brink of a severe environmental crisis.

Current environmental problems make both the inhabitants and the environment vulnerable to disasters and tragedies, now and in the future. The earth is in a state of planetary emergency, with environmental problems piling up high daily. As such the various issues are addressed prudently and seriously, the whole world is surely doomed for disaster. It should be noted that, these current environmental problems require urgent attention.The study objective thus includesidentifying the major causes of global warming, the effects especially as they hinders the sustainable development of Nigerian environment. It also examines control measures of global warming capable of enhancing sustainable development in Nigeria,since sustainable development have environment sustainability undertone.

Conceptualizing Sustainable Development

Development is to improve the quality of human life and enable people to realize their potentials and lives of dignity and fulfilment. This fits well with the universal goals that people would set for themselves which include a long and healthy life, education, access to the resources needed for a decent standard of living, political freedom, guaranteed human rights and freedom from violence. Development is real only if it makes lives better in all these respects. Sustainable development must therefore balance the needs of society, the economy and the environment. Attesting to this, Ivbijaro (2012) conceives sustainable development as the capacity to improve the quality of human life while living within the carrying capacity of supporting ecosystems.

The Bruntland Commission (1987) defines sustainable development as the development that meets the needs of the present without compromising the ability of the future generation to meet their own needs. In another definition by Munasinghe (2004), sustainable national development is a process of improving the range of opportunities that will enable individuals and communities to achieve their aspirations and full potential over a sustained period of time while maintaining the resilience of economic, social and environmental systems. A general recognition of these aspects of sustainable development arose from extensive global discussions and the use of the concept to comprise three components of economic, environment and social aspects.

In terms of economic component, an economically sustainable system must be able to provide goods and services on a continuous basis, to maintain manageable levels of government and external debt and to avoid extreme sectorial imbalances which damage agricultural or industrial production. For the environment component, an environmentally sustainable system must maintain a stable resource base, avoiding over-exploitation of renewable resource system or environmental sink functions, and depleting non-renewable resources only to the extent that investment is made in adequate substitutes. This includes maintenance of biodiversity, atmospheric stability and other ecosystem functions not ordinarily classed as economic

resources. On social component, a socially sustainable system must achieve distributional equity, adequate provision of social services including health and education, gender equity, and political accountability and participation (Ivbijaro, 2012).

According to the Department for International Development (2003), sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. The concept of sustainable development can be interpreted in many different ways, but at its core is an approach to development that looks to balance different and often competing needs against an awareness of the environmental, social and economic limitations we face as a society (Harris, 2000).All too often, development is driven by one particular need, without fully considering the wider or future impacts. People are already seeing the damage this kind of approach can cause, from large-scale financial crises caused by irresponsible banking, to changes in global climate resulting from over dependence on fossil fuel-based energy source. The longer people pursue unsustainable development, the more frequent and severe its consequences are likely to become, which is why people need to take action now. Living within an environmental limit is one of the central principles of sustainable development. But an implication of not doing so is climate change.

However, the focus of sustainable development is far broader than just the environment. It is also about ensuring a strong, healthy and just society. This means meeting the diverse needs of all people in existing and future communities, promoting personal wellbeing, social cohesion and inclusion, and creating equal opportunities. Sustainable development is about finding better ways of doing things, both for the future and the present. Man might need to change the way he work and live now, but this does not meanthe quality of life will be reduced (Harris, 2000).The way we approach development affects everyone. The impacts of our decisions as a society have very real consequences for people's lives. Poor planning of communities, for example, reduces the quality of life for the people who live in them. Consequently it behoves on geographers to integrate into geography research and teaching, at all levels of education in all nations of the earth in the right manner, the paradigm of sustainable development. Sustainable development provides an approach to making better decisions on the issues that affect all of human lives. By incorporating health plans into the planning of new communities for instance, we can ensure that residents have easy access to healthcare and leisure facilities (Nyong&Oladipo, 2003).

Sustainable Development Efforts in Nigeria

The inseparable threads that join economic development, poverty alleviation, population growth, human nutrition and health, human rights, security and conversation of the environment are woven through the Agenda 21 principles (Ivbijaro, 2012). None of these themes can be fully resolved unless all are attended to, since each is an integral part of the human, social and economic system. A core requirement of sustainable development is to make humans the centre of development. To manage the earth's resources and other major development challenges such as poverty, nutrition, health and security, segregating

them into compartments fails to recognize their mutual connect. The following efforts are stated by Ivbijaro(2012)as : Achieving Sustainable Development in Nigeria through the Millennium Development Goals (MDGs), Achieving Sustainable Development in Nigeria through the New Partnership for Africa's Development (NEPAD,2004), Sustainable Development in Nigeria through National Economic Empowerment and Development Strategy(NEEDS, 2004).

Causes of Global Warming in Nigeria

Muhammed (2011) opines that environmental activities and day-to-day human activities have contributed to an increase in average global temperatures, arising from the release of greenhouse gases such as carbon dioxide into the atmosphere. He also said that Africa would be in bad state as a result of the effect of climate change. Nigeria, like every other African country, is experiencing unfavourable climatic conditions with negative impacts on the welfare of its citizens. Gas flaring isanother major contributor to global warming. In Nigeria, for instance, about 75 per cent of gas being flared is emitted because there are no technical facilities to make use of it. However, following the Kyoto Protocol, World Bank, in 2007 stated that, Nigeria was listed among the 15 oil-producing countries that have progressively reduced gas flaring. This is probably a long term achievement on climate change, which is opposed to the negative short-term effects for the economic development.

Reduction in crude oil production, which is seen as the mainstay of our economy, may have drastic effect on the economic development of the country as a result of the Kyoto Protocol, which tends to reduce the income of Oil Producing and Exploration Countries (OPEC) like Nigeria. This would be a blockage to the Nigeria development plan. In order to mitigate the effect of global warming, Nigeria must reduce further emissions and adapt to renewable energy to protect its environment and humanity inhabiting the space.

Global warming is primarily a problem of too much carbon dioxide (CO_2) in the atmosphere-which acts as a blanket, trapping heat and warming the planet. As we burn fossil fuels like coal, oil and natural gas for energy or cut down and burn forests to create pastures and plantations, carbon accumulates and overloads our atmosphere. Certain waste management and agricultural practices aggravate the problem by releasing other potent global warming gases, such as methane and nitrous oxide.As at the year 2005, Nigeria has the highest rate of deforestation in the world, according to the Food and Agriculture Organization of the United Nations (Odjugo, 2010).

Between 2000 and 2005 the country lost 55.7% of its primary forests, and the rate of forest change increased by 31.2% to 3.12% per annum. Forest has been cleared for logging, timber export, subsistence agriculture and notably the collection of wood for fuel which remains problematic in western Africa. In 2005 12.2%, the equivalent of 11,089,000 hectares (27,400,000 acres) had been forested in Nigeria. Between 1990 and 2000, Nigeria lost an average of 409,700 hectares of forest every year equal to an average annual deforestation rate of 2.38%. Between 1990 and 2005, in total Nigeria lost 35.7% of its forest cover, or around 6,145,000 hectares (Odjugo, 2010).

Deforestation is a process where vegetation is cut down without any simultaneous replanting for economic or

social reasons. Deforestation has negative implications on the environment in terms of soil erosion, loss of biodiversity ecosystems, loss of wildlife and increased desertification among many other reasons. Deforestation also has impacts on social aspects of the country, specifically regarding economic issues, agriculture, conflict and most importantly, quality of life. According to data taken over 2000 to 2005 Nigeria, located in the western region of Africa, has the largest deforestation rates in the world, having lost 55.7% of their primary forests. The annual rate of deforestation in Nigeria is 3.5%, approximately 350,000-400,000 hectares per year.

The Food and Agriculture Organization of the United Nations lists the requirements of sustainable forest management as: extent of forest resources, biological diversity, forest health and vitality, productive functions of forest resources, protective functions of forest resources, socio-economic functions and a legal, policy and institutional framework. Many aspects of the outline are currently not being met and will continue to have detrimental effects if not quickly addressed. A lot of damage has been done to Nigeria's land through the processes of deforestation, notably contributing to the overwhelming trend of desertification. Desertification is the encroachment of the desert on land what was once fertile (Omofunmwan, 2008).

A study conducted from 1901 to 2005 gathered that there was a temperature increase in Nigeria of 1.1 °C, while the global mean temperature increase was only 0.74 °C. The same study also found in the same period of time that the amount of rainfall in the country decreased by 81mm. It was noticed that both of these trends simultaneously had sharp changes in the 1970s.From 1990 to 2010 Nigeria nearly halved their amount of forest cover, moving from 17,234 to 9041 hectares. The combination of extremely high deforestation rates, increased temperatures and decreasing rainfall are all contributing to the desertification of the country. The carbon emissions from deforestation is also said to account for 87% of the total carbon emissions of the country (Odjugo, 2010).

Effects of Global Warming in Nigeria

Negative impacts of global warming such as temperature rise, erratic rainfall, sand storms, desertification, low agricultural yield; drying up of water bodies and flooding are real in the desert prone eleven front line states of Nigeria(Bauchi, Borno, Gombe, Jigawa, Kaduna, Kano, Kebbi, Sokoto, Katsina, Zamfara and Yobe). Environmental degradation for instance desertification is a major threat to the livelihood of the inhabitants of the frontline states of Nigeria. Climate change is really of great concern to the nation.

Nigeria is experiencing adverse climate conditions with negative impacts on the welfare of millions of people. Persistent droughts and flooding, off season rains and dry spells have sent growing seasons out of orbit, in a country that dependent on a rain fed agriculture. Alarm bells are ringing with lakes drying up and a reduction in river flow in the arid and semi-arid region. The result is fewer water supplies for use in agriculture, hydro power generation and other users. The main suspect for all this havoc is Climate Change. Scientific studies show snows are disappearing rapidly. Climate Change has been confirmed following release of the 4th IPCC Assessment report. Africa will be worst hit by the effects of Climate Change which Nigeria is part of it (Sokona& Denton, 2001).

Agriculture is one of the contributors to the nation's Gross Domestic Product (GDP) but many of the farmers are based in the rural area. The effects of activities of oil companies in the industrialised cities are felt in the rural agricultural areas, which compound the rural climatic condition and increase socio-economic challenges. This is the case in Niger Delta region where oil exploration has caused irreversible environmental degradation. The fertile farmland has turned arid, while fishes have migrated away from the sea due to oil spillage (Ayinde, Ajewole, Ogunlade&Adewumi, 2010).

The agricultural sector contributes some percentage of the Nigerian Gross National Product and majority of the rural populace are employed in this sector. The dominant role of agriculture makes it obvious that even minor climate deteriorations can cause devastating socioeconomic consequences. Policies to curb the climate change by reducing the consumption of fossil fuels like oil, gas or carbon, have significant economic impacts on the producers or rather the suppliers of these fuels. Nigeria is the eighth largest oil supplier in the world and the ninth largest deposits of gas. The Nigerian national economy would be massively affected by a sustainable reduction of fossil energy consumption. Nigeria is practically a monoculture: about 80% of the government income, 90-95% of the export earnings and more than 90% of the foreign exchange revenues evolve from the oil sector. However, by 2014 the government of Nigeria tried to diversify. Special attention is nowadays paid to gas which emerges in the joint-production of oil. So far, the gas has mainly been flared (75%), simply due to the lack of technical facilities to make use of it (Ayinde,et al, 2010).

The impact of the change will be difficult to handle and it will be potentially very long lasting. The scientific evidence on global warming is strengthening daily, and there are risks over and above those that are usually considered. The disproportionate impact on Nigeria will be for a combination of reasons. Global warming will be greater over land than over sea because land retains heat more than water. There is also increasing evidence that it will be particularly hit by the effect of vertical rises and falls in air currents. Global warming often appears very esoteric, but in Nigeria, it is real. Nigeria has an increasing incidence of disease, declining agricultural productivity, and a rising number of heat waves.

There is glaring evidence that climate change is not only happening but it is changing human life style. Declining rainfall in already desert-prone areas in northern Nigeria is causing increasing desertification, the food basket of Nigeria is now empty, and people in the coastal areas who used to depend on fishing have seen their livelihood destroyed by the rising waters. Adapting to climate variability and mitigating its impact is something that we do in our everyday lives, but we have to understand what climate change is, that we contribute to it, and how we can adapt and reduce our vulnerabilities (Jalloh, Nelson, Thomas, Zoigmore&Roy-Macauley, 2013).

Global warming, a recent warming of the Earth's surface and lower atmosphere, is believed to be the result of a strengthening of the greenhouse effect mostly due to human-produced increases in atmospheric greenhouse gases. Over the last century, global average temperature has increased by more than 1°F (0.7°C). The 2001-2010 decade is the warmest since 1880—the earliest year for which comprehensive

global temperature records were available (Davies, 2014). In fact, nine of the warmest years on record have occurred in just the last 10 years. This warming has been accompanied by a decrease in very cold days and nights and an increase in extremely hot days and warm nights. The record shows that some parts of the world are warming faster than others; the long-term global upward trend is unambiguous. Of course, land and ocean temperature is only one way to measure the effects of climate change. A warming world also has the potential to change rainfall and snow patterns, increase droughts and severe storms, reduce lake ice cover, melt glaciers, increase sea levels, and change plant and animal behaviour (Al Gore, 2009).

The world effects of global warming include Sea level is rising, arctic sea ice is melting, glaciers and permafrost are melting, sea-surface temperatures are warming and the temperatures of large lakes are warming. Othersinclude:Heavier rainfall cause flooding in many regions, extreme drought is increasing, crops are withering, ecosystems are changing, more frequent heat waves, warmer temperatures affect human health, and seawater is becoming more acidic (Nicholls& Mimura, 1999; Davis, 2014).

Conclusion

The countries of the world, from the most to the least developed, vary dramatically in their contributions to the problem of climate change and in their responsibilities and capacities to confront and combat it. A successful global compact on climate change must include financial assistance from richer countries to poorer countries to help make the transition to low-carbon development pathways and to help adapt to the impact of climate change. The impact of a warming world is already being felt by people around the globe. If climate change continues unchecked, impact is almost certain to get worse. From sea level rise to heat waves, from extreme weather to disease outbreaks, each unique challenge requires locally-suitable solutions to prepare for and respond to the impact of global warming. Unfortunately, those who will be hit hardest and first by the impact of a changing climate are likely to be the poor and vulnerable, especially those in the least developed countries like Nigeria. Developed countries must take a leadership role in providing financial and technical help for adaptation.

Recommendations

An urgent attention needs to be given to global warming. First, there is a need to have a mechanism for tackling climate change and global warming, the idea of using Carbon Sinks to soak up carbon dioxide. For instance, reforestation or planting of new forest is a popular strategy for the logging industry and nations with large forests like Nigeria. Climate change is a global phenomenon, and is evident in Nigeria. Government should improve their financial status towards the solution of findings on this issue of global warming. Inadequate funds hamper progress in achieving Nigeria's objectives on climate change.

Nigerian governments and all the stakeholders involved in the global phenomenon needs to increase public awareness, promote research and establish a commission or an agency that will handle issues related to global warming. The Federal, State and Local governments, International agencies and other development partners are required to fund climate change projects in Nigeria for

sustainable solution. The first thing is definitely gasses that come from home cooling, electricity and heating appliances, if you pay a little attention in their usage, people will be playing a big role in reducing global warming. We need to control global warming to reduce the future risk.

The transportation sector's emissions have increased at a faster rate than any other energy-using sector over the past decades. A variety of solutions are at hand, including improving efficiency (miles per gallon) in all modes of transport, switching to low-carbon fuels, and reducing vehicle miles travelled through smart growth and more efficient mass transportation systems. Public transportation, public transit or mass transit comprises all transport systems in which the passengers do not travel in their own vehicles. While it is generally taken to include rail and bus services, wider definitions would include scheduled airline services, ferries, taxicab services and any system that transports members of the general public. A further restriction that is sometimes applied is that it should take place in shared vehicles, which would exclude taxis that are not shared-ride taxis. Vehicles release many harmful gases in the air. Hence driving those cars which run on gas or electricity, minimizing the use of personal vehicle and traveling by public transport will also control the problem of pollution.

Methane is a much more powerful greenhouse gas than carbon dioxide. Burning one molecule of methane generates one molecule of carbon dioxide. Accordingly, burning methane which would otherwise be released into the atmosphere (such as at landfills, coal mines, waste treatment plants) provide a net greenhouse gas emissions benefit.

The use of smart cooler, heater and air conditioner: About half the energy we use in our homes goes to heating and cooling. Changing air filters annually, having your system checked annually and using a programmable thermostat are all easy things you can do. Just by using a programmable thermostat, you can save about 1,800 pounds of carbon dioxide a year. Use of fans more than air conditioners use less energy since hot air releases from air conditioner is one of the major factors behind global warming.

One of the leading causes of pollution is vehicles which dumps a great amount of carbon dioxide in the atmosphere. If people stop using vehicles we can cut down great amount of pollution. If you cannot resist vehicles, you can opt for efficient driving tips, such as turning the engine off at red lights and driving at moderate speeds, and contribute in curbing global warming. Ideally though, you should opt for public transport or other environment friendly modes of transportation such as cycling. Unscientific maintenance of vehicle leads to environment pollution. Vehicles, regardless of category, are increasing day by day all over the world. The smoke released by these vehicles damage ozone layer. But it is impossible to stop the arrival of new vehicles. What can be done to the maximum is, to maintain the vehicles properly. Adopting scientific method to maintain people's loved cars and bikes will play predominant role in controlling global warming.

Cleaning the air inside the house is most important thing because it will automatically contribute to global warm control. Use proper vacuum cleaner for the purpose. Clean regularly and continuously. Put dust avoiding curtains and use houseplants. Do not keep the dustbin

unchecked. Also, donot mess the surroundings of houses. Even take maximum care while dispatching waste materials. Try to grow as much flowers inside a compound as possible.

Reduce electricity usage to the maximum by switching off unwanted electric equipment immediately or do not use them if not necessary. Often we find shining tube, running fan, running television. One may be sound enough to pay the electricity bill at the end of the month, but what about the energy that has been wasted? Also, improve the efficiency of home appliances. If not possible, go for an energy saving appliances. Similarly, keeping electronic appliances on standby also contributes to loss of energy and global warming, and therefore is best avoided. One may feel that keeping a single computer on standby would not make a big difference, but when millions of people think in this manner it does make a drastic difference. Every household which uses incandescent bulbs contributes to global warming on a large scale. On the whole, these bulbs add 300 lbs of carbon dioxide to the atmosphere every year. Replacing incandescent bulbs with energy saving compact fluorescent light bulbs (CFLs) can help in reducing carbon dioxide generation and help you to save 60 per cent of energy. You should immediately change incandescent light bulbs and use fluorescent light bulbs, because these fluorescent bulbs consume only 25 % energy compared with bulbs.

Preferring reusable products instead of disposables will help in reducing the waste. When people buy a product, they should make sure that the packing is quite reasonable one. In other words, packing should not exceed the size of the product. Always try to recycle household wastes. By recycling the household wastes, one can save 2,400 pounds of carbon dioxide annually. Here both the entrepreneurs and public should join hands together for a cause.

People should try to get Liquid Crystal Display (LCD) instead of a monitor, because LCD takes about 56 per cent energy than your monitor. Computer screen status should be kept off when not working.

The refrigerator's door should not be left open for a long time. People should put things inside refrigerator quickly, because if left open for a minute, its motor will remain operative for more than a half hour.

One of the most talked about global warming solution is to switch to alternative energy sources such as solar power and wind power. One can easily harness these sources of nature to generate power, and replace fossil fuels with it. Doing away with fossil fuels alone will help in reducing the huge amount of carbon dioxide in the atmosphere every day. Peopleshould convert heating system to the solar energy. In this way you can save electricity, money and your environment from global warming. For less amount of carbon emission, we can also use renewable energy like wind power which generates negligible amount of harmful gases. Most forms of renewable energy generate no appreciable amounts of greenhouse gases except for biofuels derived from biomass.

However taken together, tropical deforestation and emissions from agriculture represent nearly 30 percent of the world's heat-trapping emissions. People can fight global warming by reducing emissions from deforestation and forest degradation and by making food production practices more sustainable. If people place at the front or back side of your home, trees shading, can make your home cold during summer. Plant maximum number of trees as they releases oxygen and absorbs CO_2present in atmosphere. In this way a tree balances the temperature of air and reduces the amount of CO_2present in air.

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