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Climate Change Effects: Implication for Living Shelter and Family Lifestyle in Nigeria

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Abstract

The biggest challenge of humanity is to preserve and protect the world´s climate for conducive living shelter of the society and families individually; otherwise, global climate change has profound implications for human existence as it affects the core of the basic unit of survival. Two major causes of climatic change identified were human activities and natural processes. Human influence and natural processes are major factors altering the composition of global atmosphere. Natural processes include extreme temperature, rainfall, storm, drought, precipitation among others. Climatic change resulting from human influence identified were deforestation, ploughing, bush burning, technological development and fossil burning. The resultant effect of both human and natural causes affects the weather patterns, physical and biological phenomena, and vulnerable human communities. This paper was discussed under human causative activity to climate change, climate change, the living shelters and family lifestyle. It was concluded that climate change is a phenomenon that has come to stay, and families must develop strategies to cope with these environmental and weather condition and changes. collective efforts worldwide can make a whole world of difference by creating spreading awareness, conserving energy and switching over to eco-friendly lifestyle, recommendations were made that Home makers should be actively involved in waste separation and recycling, burning of plastics and cellophanes should be discouraged to avoid emission of carbon into the atmosphere and drainage system should be properly constructed and the existed ones well maintained.

Keywords: climatic change, Living shelter, Family, Lifestyle, Greenhouse effect

Introduction

Climate change has become a global phenomenon for which big and small, rich, poor, powerful and powerless are worried for the future survival of the living organism over the earth surface. Climate change can be long-term changes in average weather conditions, year to year variations of atmospheric conditions around their mean states, such as temperature, rainfall, storm and drought (Bloem, Semba, and Kraemer, 2010) Any change in the climate that is below normal with regard to rainfall, sunshine and drought, would affect the living shelters and family lifestyle at global level.

Intergovernmental panel (2007) defines climate change as a change of climate which is attributable directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. Similarly, climate variability seems to have attracted attention in recent times, not only because of the globally unparalleled persistence in anomalously low rain or high rainfalls but also because of the low capacity of the society and economic systems to cope with its related hazards, especially in sub Saharan Africa.

The biggest challenge of humanity today is to protect the world´s climate. The world´s climate is changing very fast due to higher concentration of carbon dioxide as well as

other greenhouse gases such as methane, nitrous oxide, Sulphur among others in the atmosphere (Singh, 2005). The global average air temperature near the earth´s surface increased by 0.74± 0.180 (1.33±0.320F) during the last 100 years. (Kluger, 2006, Oguntola, 2007, Uko-aviomoh and Oso, 2009) have reported the impending climatic change, that continuous pumping of greenhouse gases into the atmosphere, traps the heat that flows from the sun and thus raises global temperature. Carbon dioxide and other air pollution emitted from industries is collecting in the atmosphere like a thickening blanket, trapping the sun's heat and causing the planet to warm up which is referred to as global warming (Singh, 2015**)**. Furthermore, Singh, (2015) stated that Greenhouse effect is a transparent system for incoming short waves and acts like window glass panes which allow the sunlight to reach the earth surface but prevents the flow of long wave out-going terrestrial radiation from the lower atmosphere.

The long-term effect of the continue release of greenhouse gases into the atmosphere results to global warming. Major sources of greenhouse effect gases include: Transportation system, electricity generation industry, Agriculture, residential and so on. Global warming induced changes in temperature and rainfall which are already evident in many parts of the world and in many parts of Nigeria (Ede, 2010). Consequences of global warming have brought about possibly irreversible attractions to earths geological, biological and economical systems. These changes have led to emergence of large scale environmental hazard to human health, such as extreme weather, ozone depletion, increased danger of wild land fires, and loss of biodiversity, stress to food-producing systems and the global spread of infectious disease (Kenworthy, Clark, Harrison, Stevens, Thore and Turay 1975). Ozone acts as a shield protecting the earth from damaging effects of ultra-violet (UV) radiation from the sun. An increase in ultra-violet radiation can result to sunburn and skin cancer, snow blindness, cataracts, ageing and Wrinkling of skin (Waugh, 2008).

Singh (2015) identified two major causes of climatic change as; human activities and natural processes. Climatic change resulting from human activities has been identified as deforestation, industrialization and technological development. Natural factors causing climatic change include extreme sunlight, rainfall, cloud and precipitation. Evidence of frequent extreme weather events few years back include super cyclone in 1999, cold wave in 2003, tsunami in 2004, drought and heat wave in 2018. Similarly, the extending monsoon period heat waves in Europe and monsoon lands (Singh, 2015). Covoy (2004), forewarned that extreme climate change over a long period of time leads to global warming. Global warming is a cumulative result of all human development process that has taken place since the industrial revolution and caused by greenhouse effect which has resulted in freakish weather conditions, drought, cyclones, depletion of ozone layer, rising ocean level and glacier. Gupta (2006) observed that global warming is definitely leading to changes in the weather. New records are being broken for surface floods, drought and in which the absence can cause ultraviolet rays of the solar system to reach the surface which in turn causes the earth surface temperature and lower temperature to rise to the extent that whole scenario turn into blast furnace (Singh, 2015).

Rainfall, temperature, flood, drought and sunshine have been identified as having the ability to destabilize and displace family set ups. Waugh (2000) noted that climate change causes displacement of people in several ways; the most obvious and dramatic being through the increased number and severe weather-related disasters which destroy homes, walls and habitats causing people to seek shelter or livelihood elsewhere.

A shelter is a basic architectural structure or building that provides protection from the local environment. Cambridge English Dictionary (1995) defines shelter as a building designed to give protection from bad weather damage. Man created a particular type of topography which

influence climate, a complex pattern of building, street of paved and tarred surfaces, garden and parks. In Nigeria, some building structure were in accordance to the nature of the environment, wooden houses on stilts in riverside area; mud houses with thatch roofs, brick houses with galvanized rooftop, with few/no windows on the outside wall to prevent the heat of the sun penetrating in hottest parts. In other parts of the country, brick houses with combination of cement and stones with corrugated iron sheet or asbestos sheet roofs which may be bungalow or high-rise buildings were found (CESAC, 1980). Nowadays, cases of building collapse resulting from poor site and poor quality of building materials are common, many engage in the construction of building without building engineer's approval, blockage of natural flow of water in which many lives as well as valuable properties are lost as a result of flooding. Large scale tree felling without re-placement, the use of charcoal for domestic purpose, burning of plastic and cellophanes emits large quantity of carbon and other greenhouse gases into the air. It is against this background that the paper focuses on climate change implications on living shelter and family lifestyle.

Human influence and natural processes have been identified as two major factors altering the composition of global atmosphere. Natural processes include extreme temperature, rainfall, storm and drought. Climatic change resulting from human influence identified were deforestation, road construction, ploughing, bush burning, technological development; fossil (Singh, 2015, Intergovernmental panel on climate change, 2007).

Evidence of frequent extreme weather events few years back include super cyclone in 1999, cold wave in 2003, heat wave and tsunami in 2004 and drought in 2018. Similarly, the extending monsoon period heat waves in Europe and monsoon lands are evidence of rising temperatures. This paper was discussed under human causative activity to climate change, climate change, the living shelters and family lifestyle.

Human Causative Activity and Family Lifestyle to Climatic Change

a- carbon dioxide (C02) is an important component in the composition of atmosphere. Carbon dioxide emission into the atmosphere has been reported to cause depletion of ozone layer, making the sun rays to heat the earth´s crust and increasing the earth´s temperature (Kluger, 2006, Goraff, 2007, Kloberdenz, Calabresi, Thompson and Zagorin, 2008).Water vapor causes 36-70% of the greenhouse effect, carbon dioxide (CO2) causes 9-26%, methane (CH4) causes 4-9%, and ozone causes 3-7% and a small fraction of nitrous oxide (N20) (Midori, 2007). The strength of greenhouse effect changes when human activity increases the atmospheric concentration of some greenhouse gases which destroys the ozone layer. Ground level ozone increase during warm sunny anti-cyclonic conditions and can under extreme conditions form petrochemical smog.

b- Green House Effect: Greenhouse gases are also known to contribute to global warming. CO2 and some other gases absorbs the rays of the sun, maintaining required temperature of the atmosphere called Green House Effect: Heat trapping gases are called Green House effect gas because green house is heat trapping in the scene that resists to transform the radiant heat of the outer surface of the land into space. Greenhouse gases include those gases emitted from transport, electricity generation industry, Agriculture, residential and so on (Singh, 2015).

c- Deforestation: The exploitation of forests has a major role in climate change. Trees help to regulate climate change by absorbing dioxide from the atmosphere. When they are cut down, this positive effect is lost, and the carbon stored in the trees is released into the atmosphere.

Deforestation is the second principal cause of atmospheric carbon dioxide emission into the atmosphere after human causes uncontrollable felling of trees in Nigeria is rampant. The government frowns seriously at illegal tree felling and encourages tree planting (Midori, 2007; Uko-Aviomoh and Oso 2006).

d - Nitrous oxide: Nitrous oxide is another greenhouse gas naturally produced by oceans and rainforest. It is produced during nitric oxide, nylon production, use of fertilizers in agricultural production, and burning of organic matter. This gas has also been implicated in global warming. Fossil Fuel; coal, mineral oil, wood, natural gases and dung cakes are the prime source of carbon dioxide. The use of chemical fertilizers in agriculture particularly the Urea also decomposes and liberates in atmosphere emitting nitrous oxide through the process of carbon dioxide cycle; the most important greenhouse gas in the atmosphere. In the United States, the burning of fossil fuels to make electricity is the largest source of heat trapping pollution, producing about two billion ton of carbon dioxide every year (Singh, 2015). There is a prevalence use of fossil fuel generators for electric power supply to buildings in Nigeria. Health and social hazards are major concerns for both users and neighbors. (www.researchgate.net ,2015). The report ranked almost 1600 cities in 91 countries for quality of their air, in the case of Nigeria, we cannot truly understand the negative impacts of carbon pollutants in our major cities like Lagos, Port Harcourt and Abuja, due to lack of data (www.energymixreport.com. 2020)

e. Waste Management Method: Waste disposal is still a problem in Nigeria. This is because in the urban Centre, the industrial/ commercial waste is collected and disposed of through public facilities at low lying private or public grounds. A large number of garbage heaps are dumped by some households besides the road for several days where breeze, rodents and animals spread it everywhere. Landfills should have been a better option, but government could not provide central collection area across the country. Incinerations emits toxic gases including methane that are released into atmosphere, soil and waterways, thereby contributing to the increase of greenhouse effect and environmental pollution (https: www.nrdc.org, 2020).

Through the ages, human-being have lived in different types of houses which are peculiar to their geographical environment and socio-economic status. Having a place of shelter is commonly considered a fundamental physiological human need, the foundation from which to develop higher human motivation. The materials used for building a house such as grass, corrugated iron sheet etc are always related to the nature and topographic environment of man.

Bartlet, (2008) noted that climate change can poses a serious threat to adequacy and security of living shelters. Climate change can reduce durability of shelter (building materials) deteriorating indoor climate of building such as heat from high temperature (global warming) (https; // en. Klimati pasning. Dk.sectors, 2020).

Melting of glaciers due to high temperature from global warming poses increasing risk of flood and also turning mountain slopes into dessert thus increase heat (temperature) on building and rooftops. Corrugated iron rooftops, dark-colored roof, concrete or brick walls and tarmac roads all have a high thermal capacity which means that they are capable of storing heat during the night. Not all modern building has insulation. It is common experience to find it oppressive staying indoors in the early evening when a building retains afternoon heat, although the temperature has dropped to comfortable levels outside (Waugh, 2008).

The location of a building may provide for free flow of fresh air from sea especially those buildings located at low coaster areas and yet create difficulties when it rains as over flown river can cause flood and make the living shelter inaccessible (Waugh, 2008). Climate change may increase the risk of river and coastal flooding whose immediate effect include drowning and physical trauma (shock), cleaning up/ relocating. Long term effects include increase in communicable disease such as those caused by ingestion of contaminated water such as cholera and hepatitis A (Uko-Aviomah and Oso, 2006). Rise in sea level also leads to forced population migration, health burden due to over-coming depression, feeling of isolation and psychological stress (Ayoade, 2014). Increase in respiratory and diarrhea diseases due to overcrowding of flood survivors and limited access to portable water. Physical injury from stampede during flooding/panic among displaced populations are some of the living experience of families.

Climate change such as swamp reclamation and deforestation influence the growth, propagation and spread of some disease organism or their carriers (Vectors). For example, Malaria and Yellow fever are tropical diseases that only thrive in tropical climates (Olofin and Yakubu, 2014). Climate change induced by increased incidence of heat waves. These could lead to more cases of cerebrospinal meningitis (CSM), which today is found to collate with the extremely high temperature in northern Nigeria (Onu, Okwori and Adamu, 2013). Elevated quantities of carbon dioxide/ carbon mono oxide into the air pollutes the atmosphere, leads to asthma attacks, watery of the eyes and even causes catarrh. Positive climate condition can lead to human body warding off diseases, promoting good health and recovering from illness. Fresh air and sunlight help the body to recover from rickets, tuberculosis and some skin disease do respond sunshine (Olofin et al, 2014).

Precipitation or extreme cold tend to affect our mode of dressing. The type of clothing varies from culture to during harmattan period; people wear multi layered dress so as to keep them warm. Extreme temperature (excess heat) can cause stress and dehydration; blood pressure which is major cause of heart disease.

On one hand, deforestation can lead to loss of mineral in soils, erosion and building collapse; accelerated sea level rise in the low coastal area can cause population migration displacement. Extreme high temperature leads to drier and hotter air blowing, causing discomfort on the living shelter and family lifestyle leading to evaporation of water in the body cells and drier skin.

Climate is perhaps the most important component of natural environment that affects human comfort and welfare. The major essentials for mankind namely air, water, food and shelter are climatic dependent, (www.nrdc.org, 2020). Global effect such as extreme heat waves have caused tens of thousands of deaths around the world in recent years. The effect of climatic change on human society can be overwhelmingly negative or positive (Inter-governmental panel on climate change, 2007). These changes are likely to have significant impacts on the fundamental determinants of human health, most notably on the ecosystems and these impacts will be added to existing health burdens. Inter-governmental panel on climate change categorize three health risk of climatic change on family as:

(i) Direct-acting effects due to heat waves, amplified air pollution and physical weather disasters.
(ii) Climate related changes in ecological systems and relationships such as crop yields, mosquito ecology, and marine productivity.
(iii) Indirect consequences relating to impoverishment, displacement, resource conflicts, for example, water and post- disaster, mental health problems).

Climate change-related impacts on the ecosystems are likely to affect population by creating

favorable conditions for disease vectors or disease pathogens as well as placing the communities in a risk of malnutrition,

diarrhea diseases and other environmental health effects attributable to climate change (Ebi, Woodruff, Hildebrand, and Corvalan, 2007). There is important evidence to show that climate change affects the occurrence and distribution of human diseases and malnutrition. Changes in the frequency and spread of infectious diseases are some of the most widely documented potential effects of climate change and could have significant consequences for human health as well as economic and societal impacts (Chan, Ebi, Smith, Wilson and Smith, 1999). Based on this fact, In May 2008, the World Health Assembly (WHA) passed a resolution calling for a stronger commitment of Member States and the World Health Organization (WHO) to protect health from climate change (www.who.int/globalchange/climate/EB_CChealth_resolution/en/index.html, 2020). In response to the WHA resolution, WHO convened a global consultation of public health researchers, practitioners, representatives of UN and other stakeholders, to respond to this request. The WHA resolved that climate change and health is within the overall context of improving global health, and health equity; that improved risk assessment is necessary to inform decision makers on health impacts from climate change locally as well as globally.

Extreme weather events can cause significant health impacts, even in affluent countries. The European heat wave of 2003 caused tens of thousands of deaths (Schar and Jendritzky 2003). United States environmental protection Agency discovered that Vehicle exhaust systems emits dangerous quantities of ozone close to the earth surface, causing damage to plant tissues and affecting the health of people and animals (Waugh, 2008). Carley, (2000) forecast that the increase surface temperature would cause melting of continental mountain glaciers and polar ice caps. The resultant melt water would raise the sea level cause flooding of coastal areas. Settlements will have to relocate farther inland from their original sites in response to sea incursion over decades. Too frequent adjusted weather conditions due to such displacements impact negatively on living shelters and family lifestyle. The stress of locating, relocation and cleaning up can affect family health (UNDP, 2005, ICPCC, 2007 in Onu et al 2015). Extreme climatic changes conditions such as high wind, heavy rainfall, heat and cold can result in wide-ranging scenarios, tropical storms, floods, drought, landslides, and earthquakes. In many parts of the State, roads have been built without complementary drainage and where drainage system exists; it is often not properly constructed and maintained.

The lack of functional solid-waste collection methods compounds the problem as wastes block the drainage system. In addition, many low-income buildings are erected in ways that block storm-water routes thereby heightening the risk of flooding. Severity of hazards like floods, droughts, cyclones and others aggravated by climate change are on the increase in Nigeria than ever before, the National Emergency Management Agency (NEMA) (2010.) reported that over 250,000 Nigerians were displaced by flood disasters that ravaged many communities across the country. In bid to tackle the problem of climate change in Nigeria, the government in the year 2012 adopted its Climate Change Policy Response and Strategy (CCPRS) as some of drastic measures to ensure an effective national response to the multi-facetted impacts of climate change in the country. The fundamental goals of CCPRS include the implementation of mitigation measures that promotes low carbon as well as sustainable and high economic growth. Enhancement of national capacity to adapt to climate change; raising climate change related science, technology and research and development to a new level that will enable the country to better participate in international scientific and technological cooperation on climate change. Enhancement of national capacity to adapt to climate change; raising climate change related science, technology and research and development to a new level that will enable the country to better participate in international scientific and technological cooperation on climate change among

others. (Ogbuabor and Egwuchukwu, 2017).

Conclusion and Recommendations

Climate change deals with the shift experienced in the climate or weather condition in a particular geographical area. These changes result in increased temperature, storms, rainfall, swamp reclamation and deforestation, which are likely to have significant implications on the fundamental determinants of human health, most notably on the ecosystems and existing health burdens. Extreme climate conditions such as high wind, heavy rainfall, tropical storms, floods, drought, landslides, earthquakes, heat and cold can result in wide-ranging scenarios. Frequent adjusted weather conditions due to such displacements impact negatively on living shelters and family lifestyle but collective efforts by creating awareness, conserving energy and switching over to eco-friendly lifestyle can contribute positively in alleviating climate change challenges.

The following recommendations are made:

1. Home makers should be actively involved in waste separation and recycling as this saves energy and reduce waste. Burning of plastics and cellophanes should be discouraged. Also, heat and cold waves should be managed wisely. During extreme cold periods, windows should be closed to avoid extreme cold air from blowing into the house, fans/air conditioners should be switch off. The use of material that is environmentally friendly should be encouraged.

2. Causative aspect of drought should be controlled by forestation. Trees should be planted around living shelters to enhance shading and evaporative cooling. Forestation and plantations help carbon dioxide gas liberated from human body as well as industrialization to be absorbed by trees and plants for prevention of flood and thereby remarkable rise in temperature can be controlled. Construction of canals and drainages should be done to prevent flood.

3. More fruits should be provided for family members, as it improves body immunity, good health and quick recovering from illness. Modern living shelters should be constructed with insulated high thermal mass and external shutters to prevent radiation onto floors.

4. The use of solar energy in hot temperate region where sunlight is available in maximum months of the year should be encouraged. The traditional source of energy like wood, charcoal should be discouraged, and solar energy should be the renewable source of energy.

References

Bartlet, S. (2008). Climatic Change and Urban children: Impact Implications for adaptation in Low-middle income Countries. International Institute for Environment & Development, (TIED) London. https://en.klimatipasning.dk.sectors

Carley, J (2000) ´´Sea change in the Atlantic Ocean" Business week, USA, Issue P.64

CESAC, (1980) Comparative Education Study and Adaptation Centre, Home Economics for Nigeria Secondary Schools Students text, Lagos Macmillan Nigeria publishers Ltd.

Chan, N.Y., Ebi, K. L., Smith, F and., Wilson, T.F and Smith, A.E.(1999).An integrated assessment framework for climatic change and infectious diseases.EnvironmentalHealth perspectives 107,329-337.

Ebi, K., Woodruff, R., Hildebrand, A and Corvalan, C. (2007). Climate change related health impacts in the Hidu Kush-Himalayas. *Eco Health* 4, no; 264-270

Ede, A.N. (2010) "Building Collapse in Nigeria: the Trend of Casualties in the Last Decade (2000-2010)". International Journal of Civil & Environmental Engineering, 10(6), 2010,32-42.

Goraff, J. (2007). Who owns the Attic? As global warming shrinks the ice to record lows, the global battle for resources beats up. Time Magazine

Gupta, V.J. (2006) Global warming and Environment, S.S publication New Delhi PP 110

www.researchgate.net ,2015). Nov, 16th 2020: 48pm.

https://www.energymixreport.com 2020. Nigeria's obsession for fossil fuel and its health impact

https://www.epa.gov/ozone/science/science.html. The US Environmental protection Agency´s Ozone: Science Information:

https://www.nrdc.org. Impact of global warning. Downloaded on the march, 19 2020: 48pm.

https; // en. klimati pasning. Dk. sectors, 2020.

Intergovernmental panel on climate change (2007). Impacts, Adaptation and Vulnerability Contribution of Working Group II to the fourth assessment report of the intergovernmental panel on climate change Cambridge: Cambridge University Press.

Kenworthy, D.H., Clarke, J.I; Harrison, R.J.,Stevens, J.H;Thore, M.B,&Turay,H. (1975). An Advanced Geography of Africa. Great Britain. Hulton Educational Publications pp. 172.

Kloberdenz, M. Calabresi, M. Thompson, M, & Zagorin, A. (2008). Why Green is the red white and blue so far, the US has set out the fight against climate change.

Kluger, J. (2006). Be worried, very worried: Special report on global warning. Times Magazine, April13, 2006. pp32-42

Midori, M. (2007). Global warning, https// www.jana.com.

National Emergency Management Agency. (NEMA)

Ogbuabor, J.E & Egwuchuku, E.I (2017). The Impact of Climatic Change on Nigeria Economy.International Journal on Nigeria Economy and Policy 7(2) 217-223.

Oguntola, S. (2007). How Climate Changes Evolution, genetic patterns. https// www.jana.com.

Olofin, E.A & Yakubu, I.B. (2014). Lecture series in Schools Geography Vol. (1) p.13

Onu, R., Okwori, E & Adamu, E.E.(2013). The Impact of Climate Change on Food & Nutrition. *Journal of Home Economics Teachers Association of Nigeria* Edition (42) p.43.

Schar, C., & Jendritzky, G., (2003). Hot news from summer Nature, 2004; 432:559-560.

Singh, L. (2015). Environmental Geography. New Delhi APH Publishing Corporation, pp.25, 109 &446.

Uko-Aviomoh, E. E. & Oso, O.O. (2009). Reducing the Effects of Global Warming: What Households Can Do. *Journal of Home Economics Research vol*. 10. pp.65-74.

Waugh, D. (2008). 2000 Geography: An Integrated Approach Third Edition.