

## The Impacts of Climate Change on Nigeria's Health Sector and Innovative Solutions for Environmental Sustainability

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### Abstract

Climate change is one of the global issues which we must of necessity tackle with urgency in order to prevent a global warming too unbearable for the survival of mankind. The impacts of climate change such as flooding, air pollution, drought, erosion, etc. is felt profoundly on Nigeria's health sector. The impacts of climate change on the health sector in Nigeria implies that due considerations to health issues as part of climate change mitigation and adaptation efforts has become a pressing issue. Mitigation and adaptation strategies are therefore necessary for effective management of the health sector in Nigeria. This study highlights the impacts of climate change with the mitigation and adaptation strategies on the health sector in Nigeria. It also outlines the strategies for building resilience and reducing vulnerability for environmental sustainability in Nigeria. Through literature and participant observation, it has been discovered that there is an urgent need to educate our communities and institutions about the impacts of climate change on Nigeria's health sector and innovative solutions which includes the therapeutic use of poetry for environmental sustainability in Nigeria. This paper is therefore very significant as it explores new opportunities, practices and policies for mitigation and adaptation to the impacts of climate change on the health sector in Nigeria.

**Keywords:** *Adaptation; Climate Change; Health; Sustainable Development; Nigeria*

### Introduction

Climate change with the resultant warming of environment is caused both by natural and human force multipliers, however, human actions on the environment account for the majority of the impacts. The natural causes of climate change is as a result of variations in earth's orbit, variation in ocean circulation, variation in Albedo of the continents, as well as variation in solar radiation. The human causes are, however, results of deforestation, air pollution, and poor agricultural practices such as bush burning, excess and wrong application of inorganic fertilizer, burning of fossil fuels, urbanization, industrialization, inefficient transport system, among others. Climate change was once a distant concern, but now an existential threat and the greatest challenge facing this generation. It is obviously clear that business as usual is no longer good enough when it comes to issues of climate change and its impact on the health sector in Nigeria.

Responsive, deep and transformative action is needed throughout – not only to reduce emissions and stabilize global temperatures, but to build a safer, healthier and more resilient health sector for the future. Climate change is not only an environmental issue but a serious threat to the health sector in Nigeria since its adverse effects disproportionately affect health centers, leaving patients in hopelessness. Changing rainfall has brought inundation and changed coastal ecosystem which exacerbated existing humanitarian stress and affect distribution of drugs to the inner communities in Nigeria. This is especially true for Nigeria that relies heavily on climate-vulnerable sector agriculture, energy (fossil fuel), water resources and biodiversity to maintain and improve the living condition of her population.

The question that still confronts humanity is how to tackle this excessive release of green house gases in the atmosphere. What should people do? Are there acceptable level that we can keep so as not to reach the point of no return with a runaway climate change? These questions have engaged the imaginations of many and a variety of solutions have been offered. There's no disputing the fact that the upsurge in global temperatures are largely due to the amount of carbon released into the atmosphere. Carbon is a basic building block in every living thing, plant or animal. Our soils are loaded with carbon and so are our air and ocean. We take oxygen and exhale carbon dioxide. Plants do reverse and we coexist happily supplying each other's carbon dioxide and oxygen needs. The problem is that over the last two centuries humans have dramatically increased the amount of carbon dioxide and other greenhouse gases released into the atmosphere which now poses as serious threat to the health sector in Nigeria.

### Methodology

Data used for this study is derived from published works including academic journal articles, conference papers, textbooks and internet materials. The researchers gathered a lot of materials for the research but summarized the characteristics of the papers that centered more on the impacts of climate change on Nigeria's health sector and innovative solutions for environmental sustainability. This enabled the researchers to generate the synthesis of various researchers' views on the impacts of flooding on the Nigeria's health sector.

### Result and Discussion

#### Impacts of climate change on Nigeria's health sector

Climate change has been described as an existential threat to human well-being. Globally, it affects the social and environmental determinants of health: clean air, safe drinking water, sufficient food and secure shelter. The effects of climate change are far-reaching and include heat waves and severe weather, deteriorated air quality, displacement and migration of vectors resulting in increase of a range of diseases related to water and ecological factors. Increasing incidences of mental health issues are being recorded and identified as a consequence of environmental change (Lu, 2016; PAHO, 2013). According to Dr. Margaret Chan, the World Health Organization (WHO) Director-General on the World Health Day 2008", Climate change is one of the greatest challenges of our time. Climate change will affect, in profoundly adverse ways, some of the most fundamental determinants of health: food, air, water. In the face of this challenge, we need champions throughout the world who will work to put protecting human health at the centre of the climate change agenda [1]". Among other considered most prevalent climate risk, flooding has devastated and ravaged Nigeria's health sector in a profound way. Though some scholars posited that health sector's vulnerability to climate is generally due to combination of climate impacts and socio-economic or geographical circumstances, for example concentration of health facilities and activities in high-risk areas. In Nigeria, flooding is one of the major impacts of climate change which also affects environmental sustainability. Environmental sustainability is concerned with whether environmental resources will be protected and maintained for future generations.

In Nigeria, flooding has become dangerous to human health in most urban and rural areas because of overcrowded slums, where drainage is poor or does not exist at all [2]. Floods are major disasters affecting many countries of the world including Nigeria. Following the year 2012, floods disaster in many Nigerian states christened as unprecedented in the history of Nigeria in the past 40 years, the loss of many lives and properties worth millions of naira were recorded [3]. Apart from the health of Nigerians affected by the recent floods that affected 12 states out of the 36 states according to National Emergency Management Agency (NEMA, 2013) 176,300 people has been displaced, 150,000 hectares of farmland and 17,800 houses submerged and 321 roads and bridges destroyed as a result. Flooding has far reaching impacts on people's health and its consequences includes crisis of not having good drinking water along with sanitation problems which spread deadly communicable disease like cholera, malaria, diarrhea, skin and soft-tissue infections with other air-borne infections. Similarly, when health facilities are submerged by heavy flooding, access to healthcare and drugs becomes an issue of concern to the victims of flooding and the government. Floods apparently are known with water borne diseases. Thus, many wells and boreholes are contaminated by continuing overflowing sewage and refuse dumps. Again, public water supplies are disrupted by floods which destroy electricity supply and affects water pipes. All these collectively considerably have profound impacts on people's health.

Thus, there is a great need for proper climate change education in Nigeria to create awareness in communities and institutions on the impacts of climate change on Nigeria's health sector and the solutions for environmental sustainability.

### Case Study

#### Poetry as a valuable tool in climate change education

Poetry has been discovered as a valuable tool which has immense health and therapeutic benefits and can be used in climate change education for sustainable development locally, nationally and globally. Below is one of the climate change adaptation poems advanced by the Benji Poetry and Music Global Concepts which can be used to educate communities and institutions on the impacts of climate change on Nigeria's health sector and the solutions for environmental sustainability:

#### POEM: KEEP CLEAN, STAY COOL

Keep clean, Stay cool

Be disciplined and dutiful

Think positive, Think creative

Be passionate and innovative

Keep clean, Stay cool

Make the earth bright and beautiful

Help make the earth a better place

Earth's pollution we must efface

Keep clean, Stay cool

Be diligent, Be careful

Pick the trash and keep clean

Throw the trash into the waste bin

Keep clean, Stay cool

With poetry as a tool

Go green, Keep clean

With a formidable team

Keep clean, Stay cool

With a heart so grateful

Enjoy the beauty of nature

Help create a sustainable future

Keep clean, Stay cool

Drink freely from wisdom's pool

Feel the gentle whispering breeze  
Enjoy the sweet fragrance of peace

Keep clean, Stay cool  
Be disciplined and dutiful  
Help make the world a better place  
Put a smile on someone's face.

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Below is a second climate change adaptation poem advanced by the Benjy Poetry And Music Global Concepts which can also be used to educate communities and institutions on the impacts of flooding on Nigeria's health sector and the solutions for sustainable development:

**POEM: THINK BEYOND, LIVE WITHIN**

Think beyond the demise and debris  
Think beyond the plight and blight  
Live within the joy of a promise  
The joy of a sustainable future bright.

Think beyond the doom and gloom  
Think beyond the thirst and waste  
Create in your mind a beautiful room  
Live within the quest for the best.

Think beyond the pollution and degradation  
Think beyond and see limitless possibilities  
Live within climate adaptation and mitigation  
Using waste recycling and renewable energy.

Think beyond the erosion and deforestation  
Think beyond the hurricane and floods  
Create a sustainable environment with afforestation  
Live within a greener and cleaner world.

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Understanding of the impacts of climate change and variability on human health in Nigeria has increased considerably in recent years. However, several basic issues complicate this task:

1. Climatic influences on health are often modulated by interactions with other ecological processes, social conditions, and adaptive policies. In seeking explanations, a balance must be sought between complexity and simplicity.

2. Climate change is one of several concurrent global environmental changes that simultaneously affect human health – often interactively. A good example is the transmission of vector-borne infectious diseases, which is jointly affected by climatic conditions, population movement, forest clearance and land-use patterns, biodiversity losses (e.g. natural predators of mosquitoes), freshwater surface configurations, and human population density.

### Recommendations

We can adapt and mitigate the impacts of climate change on the health sector in Nigeria through the following ways:

1. Government policy on urbanization in Nigeria should be revisited to discontinue the construction of houses, roads, bridges haphazardly.
2. Construction of roads culvert and drainages should be expansive to accommodate the flow of water.
3. Indiscriminate dumping of refuse, faeces in culvert and drainages should be stopped because, infectious diseases are contacted and transmitted to people from one state to the other.
4. Early warning signs and information about flooding and other climate change issues should be communicated to Nigerians through radio, television, internet and numerous social media platforms in order to avoid casualties in the future.
5. Indiscriminate falling of trees should be avoided and planting of trees should be encouraged both by the government, communities, institutions and individuals.
6. Keep drainages free of debris to enhance free flow of water of run-off water.
7. In the event of flooding, the government and other donor agencies should come up with emergency relief measures and materials including adequate medical care to alleviate the suffering of families affected by flooding.
8. Poetry with its therapeutic benefits should be used as a valuable tool to educate communities and institutions in Nigeria on the impact of climate change on Nigeria's health sector and ways to adapt and mitigate for global sustainability [6-33].

### Conclusion

The 2018 IPCC report concluded that, with high confidence, that climate change would cause increased heat-related mortality and morbidity, decreased cold-related mortality in temperate countries, greater frequency of infectious disease epidemics following floods and storms, and substantial health effects following population displacement from sea level rise and increased flooding. Integrated approach to capacity-building at the national level can help foster greater awareness of the importance of addressing climate change and elevate implementation of climate action in our local communities. Our understanding of the links between climate, climate change and human health has increased considerably over the last ten years. However, there are still many gaps in knowledge about likely future patterns of exposure to climatic-environmental changes, and about the vulnerability and adaptability of physical, ecological and social systems to such climate change. The recent cases of incessant flooding in various states in Nigeria demand proper education in communities and institutions for sustainability of Nigeria's health sector. Furthermore, urgent intervention from the Federal Government and other relevant NGOs and multilateral organizations will be needed to stop impending economic gloom and doom in various states in Nigeria. Proper education from qualified health professionals and relevant agencies will go a long way to stop the spread of diseases, and loss of lives and properties associated with climate change thus helping communities to adapt and mitigate the impacts of climate change on Nigeria's health sector.

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