Editorial Note

Climate Change has become highly pronounced all over the world especially in the last two decades or so. The incidence is considered to be a major threat to sustainable growth and development in Africa. The impacts on our environment and society are already being felt in a wide range of sectors such as in ecosystems, human health and economies of nations.

Several projections by the Intergovernmental Panel on Climate Change (IPCC) of the United Nations Framework Convention on Climate Change (UNFCCC) point towards increased adverse conditions resulting from climate change that would stretch the resilience and adaptive capacities of the least developed countries, most of which are found in Africa.

The IPCC prescriptions articulated in the Kyoto Protocol are seen by many as the best concerted effort so far made towards the management of the climate situation. These prescriptions are also considered by some as capable of having severe consequences for the emerging economies of Africa. In spite of all these obvious and remote implications of climate change, the voice from the African continent is surprisingly low.

This special issue of the journal, "Advances in Science and Technology" is aimed articulating perspectives on climate change from Africa. The articles received are of multidisciplinary nature as requested in the advertorial to this issue. They have addressed issues of the climate system, impacts of climatic changes, human dimensions to the climate problem and various aspects of climate science amongst others.

In the first article, Nwofor, *et al*. examined the issues of climate change and global warming and the expected response from Africa's most populous country, Nigeria. They discussed Nigeria's vulnerability and potential culpability in future climatic changes. Their article underlines the need for the country to step up her research capacity towards building independent perspectives of the climate problem.

Ibeawuchi and others considered the response of sub-saharan Africa to climate change in terms of political reactions, public awareness and educational measures taken. Ibeawuchi and co-authors observed that governments of sub-saharan Africa were faced with severe limitations in enforcing climate change prescriptions since they are still grappling with problems of poverty, illiteracy and low awareness regarding the entire climate change issue. They recommend intensification of environmental campaigns and improvements in the overall standard of the educational system.

Ohiaegbu addressed the ecological footprints of weak sustainable economic development and Africa's ecocatastrophes in the 21st century. The paper touched on the very important issue of sustainable development and policy frameworks for Africa's development within a climate change regime.

The article by Opara and Agbaraji discussed the climate and ecology of the African continent. It reviewed the natural and possible anthropogenic causes of climate change and underlines human activities as possible causes of the acceleration in warming observed in recent decades. The immediate and potential impacts on humans, animals and plants in Africa are considered.

The role of basic science especially physics in providing solutions to the continents climate challenges cannot be over-emphasized. Efurimibe and Onuu considered some issues in environmental physics; ranging from the basic science of climate changes to modeling of environments pollution effects.

The key policy areas and action points on climate change have recently focused on adaptation. Chidiebere-Mark considered Agricultural adaptation to climate from a Nigerian perspective. The author presented a wide range of socio-economic consideration that must be made in mainstreaming adaptation for addressing

the various climate change impacts and vulnerability in Nigeria.

Changes in climate can be expected to have significant impacts on farm yields and product quality. The article by Anaeto, *et al*. focused on this issue and recommends an agricultural policy that is anchored on efficient and effective extension system – Njoku looked at climate change with particular reference to forests in South Eastern Nigeria. Using satellite data and computed Normalized Difference Vegetative Index (NDVI) the author presents results that suggest increasing stress on forest cover and largely attributable to increasing warming conditions. Such realities of global warming according to the author demand the development of counter measures aimed at stabilizing the forest in the region.

With over 1000km of coastline, Nigeria is considered highly vulnerable to climate change-induced sea level rise and possible flooding of coastal settlements. Badru, Odiunuga, and Amaeshi, used remote sensing and Global Information System (GIS,) technology to assess the Coastal Vulnerability Index (CVI) using the parameters of morphology, slope, shoreline change, and mean spring tide range and housing type. Using these parameters high CVI values were computed for this coastline.

Nwofor, Njokuobi and Dozie, looked at the possible impacts of climate change on the epidemiology of some microbial diseases with emphasis on water-borne and vector-borne diseases. They noted that increased incidence of most of these diseases would be encountered in a severe climate change regime.

Africa generates perhaps the largest fraction of global dust aerosol loading. In a review of over 50 published articles, Sa'id discussed the importance of dust aerosols in the global climate system. The author discussed among other things the direct, indirect and semi-direct aerosol radiative effects. The need to step up research into dust aerosol optical properties in order to narrow the uncertainty attributable to the aerosol effect is highlighted. Dike, Nwofor and Chineke presented satellite images that capture the black carbon aerosol emissions in Nigeria. This is considered by the authors as a good step towards downscaling and quantifying this very important aerosol type in Nigeria and other parts of West Africa.

As we look towards the future, it is apparent that deliberate modifications of the weather system holds strong potentials in mitigating some ugly impacts of climate changes in Africa. Onyeuwaoma *et al*. presented the concept of weather modification by cloud over-seeding. They showed by laboratory analysis that some leaves samples used by the traditional African "Rain Maker" are rich in potassium and calcium which by their chemistry might be good scavengers of water vapor and therefore capable of inhibiting droplet formation and rainfall. The last paper by Nwanya, Odo and Oparaku discussed the the impact of Climate Change on renewable energy resources and production systems with particular reference to Nigeria

The articles presented in this special issue cannot be said to have addressed all the relevant concerns about climate change as it relates to Africa. It is however note worthy that the submissions are quite representative of the myriad of subject areas required to address such concerns objectively.

We thank all the authors from whose articles we have made this compilation. We also thank many others who submitted papers that could not be published either as a result of the review and editorial decisions on them or due to fact that such submissions did not meet the deadline. We encourage these authors to continue to patronize the journal as an outlet for their research work.

All authors and organizations who are working in the area of climate change especially those whose works were consulted in the various articles presented in this issue are highly acknowledged.

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