

**MANAGING NIGERIA'S NATURAL ENVIRONMENT IN THE 21ST CENTURY
FOR SUSTAINABLE DEVELOPMENT, THROUGH A MULTIDISCIPLINARY
APPROACH**

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ABSTRACT: *This paper is a follow-up to an earlier one in which the challenges of the natural environment of Nigerian nation are highlighted. In this paper, the major themes around which researches can be built, are highlighted. These themes are built on some of the challenges of the natural environment. They include the climate of Nigeria and the climate change phenomenon, the lands and soils of Nigeria, Nigerian vegetation and plant biodiversity, Nigerian wildlife and animal biodiversity, environmental degradation and degradation of valuable lands and soils of Nigeria. Others include wastes and their disposal in Nigeria, natural enemies of plants and animals in Nigeria, environmental pollution in the country, environmental sanitation and hygiene in Nigeria, management of the natural environment, and natural disasters in Nigeria. A number of others on which researches can be built are also listed to include human resources development in issues of the natural environment, environmental laws in Nigeria and their enforcement and environmental education in Nigeria. For each of these themes for the focus of researches on the natural environment of Nigeria, the justification for it is itemized, so also is a list of possible diverse researchers in it compiled. Researchers are expected to build their research topics around these themes, with a view to contributing their quota in salvaging the natural environment of Nigeria and place it on an appropriate pedestal for sustainable development.*

KEYWORDS: Nigeria, Natural Environment, Challenges, Researches, Sustainable Development

INTRODUCTION

In a companion paper to this one on the title “**Nigerian nation, the challenges of its natural environment and the imperative of a prompt action on them,**” the diverse challenges facing the natural environment were outlined. It was deposed in that paper that only an early fixing of these challenges, can enable the natural environment of the country, to contribute appropriately to national development, as suggested by Pius Okigbo (Adelegan, 2009). Fixing these challenges, will enable the country to build a solid foundation on which future management of the country's natural environment can be based. The current paper is advocating a multi-disciplinary approach, to fixing the challenges of the natural environment of Nigeria. It has also gone further to suggest appropriate strategies for achieving this all-important objective.

In academic institutions the world-over, there is the culture of academic freedom, which confers on academicians whether operating as individuals or in groups, the prerogative of selecting topics on which to carry out their researches. However, such researches are usually within the confines of the areas of specialization of individuals, the mandate of the establishments where such individuals are operating and the overall interest of the country. This is the case with the fixing of the challenges of the natural environment of Nigeria, to make it contribute its expected quota to sustainable development of the country.

In this paper, no attempt will be made to select titles of researches for academicians and other researchers, whose purview is within the natural environment. They are however to assist in proffering solutions to the challenges of the natural environment of Nigeria, through their researches on any of the themes that appeal to them, from the wide array of such themes. These themes are highlighted in the body of this paper, though the themes can have others added to them. The natural environments of most communities in Nigeria, have been subjected to diverse forms of abuses over the years. New issues requiring detailed investigations are therefore regularly creeping up. Such issues also require attention of researchers. They may therefore require being incorporated into the list of issues on which attention must be focused, while researching into the natural environment of Nigeria.

The major themes for the focus of researches, their justification and possible involvement of diverse specialist researchers

It must be underscored that though the titles of the themes are for the whole country-Nigeria, the researches are expected to be based in diverse communities that make up our local governments, the states and the whole country. This is where replication of the studies across as many of the diverse communities of Nigeria comes in. It is such replication that will make it possible to obtain a total picture of the findings on these researches, across the geographical zones of the country. It is also such that will bring up the possible variations in the findings. It can be rightly claimed that research activities can be built around the diverse multifarious challenges of the natural environment of Nigeria, which are outlined in the companion paper to this one, on the title “**Nigerian nation, the challenges of its natural environment and the imperative of a prompt action on them.**” However, in this paper, only some of these challenges are constituted into major themes of focus, for the purpose of the write-up in this paper.

Researches on climate of Nigeria and the climate change phenomenon

This theme is expected to cover issues such as the **climatic conditions over the years**, their **seasonal variability** and the **variations over the diverse geographical zones of the country, over the years**. It also covers the climate change issue. Climate is one of the basic issues that are often considered when carrying out some detailed researches into the state of any natural environment. Certain facts can make such priority attention on climate justifiable.

First among such facts, is that climate is a major abiotic factor in any natural environment. It is a factor that influences not on the living things of a place, but also other non-living things such as topography, soils, lands, rocks and even the atmosphere.

Secondly, climate exerts much influence on agricultural activities. It is therefore important that it is regularly monitored, so as to be able to predict accurately, the onset of farming activities at a particular season of the year, in any agricultural zone of the country.

Thirdly, climate is of importance in socio- economic issues, such as incidence of weather-related diseases, movement of people and animals, such as livestock, which are moved from place to place by herdsmen, in search of greener pastures.

Fourthly, with the emergence of the phenomenon of climate change in the world, together with its attendant ecological as well as socio-economic consequences, it has become imperative to regularly monitor climate in all communities, with a view to evolving various strategies to mitigate the effects of climate change and possibly adapt to them in various ways. The climate change phenomenon, is a global phenomenon in which researchers in Nigeria, have demonstrated how effective a multidisciplinary approach can be, in tackling an issue of monumental importance as the climate change. This phenomenon has been dubbed “**the greatest challenge ever faced collectively by humankind**” (Foley, 1991). Researchers in Nigeria have risen up to meet this challenge of climate change by adopting a multidisciplinary approach to it. Such researches include those on health of human beings, human populations, among others.

Because climate issue is of importance to different studies, it is therefore an issue that attracts diverse specialist researchers. Examples of these are those in ecology, environment, agriculture and allied professions such as forestry, horticulture and agro-silviculture. Of course, it will also attract meteorologists as well as climatologists, whose stock-in-trade is climate.

Research activities on lands and soils of Nigeria

This theme is expected to cover the **extent of lands** in this country, **their classification** and **present uses** to which they are put in different parts of the country, **their challenges** in different parts of the country and **management requirements** in different places. The theme is also expected to cover **the soils of the country, their dynamics, their classification** and **their capability**, the **present uses** to which they are being put in different parts of the country, **the challenges** facing them in different parts of the country and **their management requirements** in different places. In both the lands and the soils, the studies can also be made to incorporate **presence of selected heavy metals** in these lands and soils and the **presence of selected toxic substances**. Soils are like climate, part of the major abiotic components of natural environments, particularly, terrestrial environment. Soils exist on lands. They like the lands and the rocks in a place, make up the physiography of a place.

Researching into the soils of a place, can be justified on the following basis:

- i. The soils constitute a major factor in the production of plants in diverse forms, such as agricultural crops, forest trees, horticultural crops, among others.
- ii. The topography of a place that has land as its major component, influences the degree of erosion in a piece of land. This not only has implications on agricultural activities, but also on management needs of the land, to conserve it and its soils, for productive activities.
- iii. Soils fluctuate in their chemical characteristics, with the changes in rainfall over the seasons of the year. It is therefore important that these changes are regularly monitored in soils, to determine their needs for such agricultural inputs as fertilizers.

Soil studies are within the purview of soil specialists, such as pedologists, soil scientists, agronomists, as well as others, such as ecologists and environmentalists, who are interested in finding out the extent of pollutants such as chemicals and heavy metals in soils. Land surveyors are also likely to be interested in surveying lands, with a view to finding out how extensive such lands are. Soil specialists will also help in soil classification for their capability to produce diverse crops.

Research into the vegetation and plant biodiversity

This theme is to cover issues such as the **diverse types of vegetation** of the country, the **physiognomic characteristics**, their **floristic characteristics**, **their biomass**, their **regeneration**, their **seasonal dynamics** and the **autecology** of important species. Other issues include their **economic status** and the **status of weeds** and **invasives** in them, the **uses to which the diverse species of plants are being put**, the **abuses in them**, that are bringing about immense damage to plant biodiversity and how best to **improve on plant management** in Nigeria. The theme can also be made to include possibility of establishing gene conservation banks of diverse species of plants in different geographical zones of the country. Such conservation banks can include the following: species of economic importance, food-producing plant species, medicinal plants, exotic species, chewing stick-producing species, taxonomic gardens, orchids and lilies, among others. Through such gene conservation banks, “one-stop stations,” would be established around the major geographical zones of the country, where people can visit and see these plants, get plant specimens identified on the spot and specimens can be collected for replication in other places.

The vegetation of a place, is like climate and soils, a major component of the biota of a natural environment of a place. Information on it, is usually required to obtain a complete picture of the ecology of a natural environment. Besides this, researches into the vegetation of a place, can be justified on the basis of the following:

- i. It is necessary to obtain information on the types of plants that constitute the floristic composition of the community of a place.

- ii. It is necessary to obtain information on the physiognomic characteristics of the vegetation of a place. Using a combination of this as well as the floristic composition, the type of vegetation can be established. This will assist in making comparison of this vegetation with those in other places, both within the zone, the nation as well as other distance communities.
- iii. Since the type of vegetation of a place, usually dictates the type of animals in a place, knowing the vegetation of a place, will obviously give researchers some ideas on the types of animals in the place.
- iv. Knowledge of the vegetation of a place, is a good starting point in compiling the plant biodiversity of the place. This plant biodiversity can then be analyzed into such issues as:
 - a) Woody plant biodiversity and non woody plant biodiversity, weed species and invasives;
 - b) The economic importance of the plants, in such things as food production, shelter production and clothing;
 - c) The medicinal importance of the plants;
 - d) The ecological importance of the plants;
 - e) The cultural importance of the plants;
 - f) The spiritual importance of the plants;
 - g) The ethnobotanical profile of the plants in such things as dye production, chewing stick production, et cetera.
- v. Researches of intensive nature into the plant biodiversity of a country, will among other things reveal the types of exotic woody species in the country, their ecology, their economic prospects and the parts of the country where they have been tried and found successful over the years.
- vi. The researches into a nation's plant biodiversity, will also reveal the exotic species of non woody species, such as the weeds and the exotic species of woody invasives.
- vii. The researches into a nation's plant biodiversity will reveal the diverse food and cash crops of the country, their pathogens and pests, at different stages of growth from seedlings, through adult plants and their products such as seeds, fruits and in some cases, leaves, as in the case of tobacco.
- viii. The researches into the vegetation and plant biodiversity of a plant, will afford researchers to produce guidelines on the scientific basis of all possible interventions that can be recommended to manage such vegetation and plant biodiversity, for sustainability.

Researches into vegetation and plant biodiversity, will attract the interest of diverse researches, such as botanists, taxonomists, ecologists and environmentalists. Other researchers that may be attracted towards them, are pasture scientists, plant pathologists, weed scientists and even medical practitioners, among others. This is so with the title "**A Textbook of Medicinal Plants from Nigeria**," edited by Tolu Odugbemi (2008), in which a large number of workers on medicinal plants of Nigeria, contributed diverse articles of interest. There is also a

complementary title to this one, on the title “**Outlines and Pictures of Medicinal Plants from Nigeria,**” edited by the same author of the first title Tolu Odugbemi (2008).

Researches into wildlife and animal biodiversity of the country

This theme is to cover the **diverse species of animals** of the country, **their classification** using different basis, the **autecology** of important species, the **economic status** of the animals, the **abuses** noticeable among them, that are contributing to the damage being done to animal biodiversity and how best to **improve on animal production** in Nigeria. Such studies carried out on this all-important theme, should extend to how to mitigate the effects of climate change on the animal biodiversity of the country and how to make the animals get adapted to them. The studies should also take care of how to provide alternative diets to the animals, particularly the domestic animals (with cattle, sheep, goats and farm animals such as donkeys and camels inclusive and the sports animals like horses). This is to make such diets substitute for pastures and browse plants, that are making these animals exude methane into the atmosphere while feeding on these plants. efforts should also be extended to domesticating more of the wildlife species.

The global challenge of wide-scale loss of biodiversity in all countries of the world, particularly the tropical countries, reputed for being hotspots of biodiversity the world over, has made it imperative for all countries of the world, to beam a searchlight on biodiversity in their individual country. Besides, the following additional justification can be put up for researches into animal biodiversity in Nigeria.

- i. It is important that studies of intensive nature, are carried out into the types of diverse species of wildlife in a country, locations, their abundance, as well as their management needs.
- ii. It is also important that those wildlife species that on the verge of extinction and those that have become endangered, are given priority attention so that they can be salvaged. Examples of these endangered species are the gorillas. Only intensive studies can reveal the nature of such attention these endangered species need.
- iii. Researches of intensive nature, as are presently being carried out into livestock species, farm animals, poultry, fisheries, will not only reveal the best management practices for them, but also guide extension workers on their diseases and pests and the current methods being adopted to take care of these.
- iv. Researches can also be focused on how to go about domesticating some of the wildlife species. This has successfully been done for grasscutter, antelope, snails, among mammals.
- v. Researches into animal production in the country, will produce best practices to make livestock and poultry get adapted to the global climate change, while efforts are being made to mitigate the effects of climate change on them.
- vi. Researches will in future, reveal possible alternatives for feeding livestock and farm animals, so that they do not have to be moved from place to place in search of greener pasture.

Because of the economic, socio-cultural, educational and recreational importance of animals in form of wildlife, livestock and farm animals, among others, researches on them will attract ecologists, wildlife specialists, animal scientists, veterinary doctors and sociologists, among others.

Researches into environmental degradation in the country

Part of this theme, has been taken care of in the theme in II above on Lands and Soils of Nigeria. This theme is devoted to other important issues involved in environmental degradation. Such issues include:

- i. Deforestation of natural vegetation
- ii. Burning and abuse of fire in vegetation
- iii. Oil spillage in oil-producing places.

Researches into environmental degradation, will focus on those forms of degradation that affect the vegetation and wildlife of a place. Justification for such researches include the following:

- i. Burning and abuse of fire, have adverse effects on the vegetation. They not only wipe off the fire-sensitive species, they reduce the growth of the fire-tolerant ones, thereby reducing their structure.
- ii. Oil spillage not only kills the plants and animals of a place, it makes the water of such a place unavailable for use.
- iii. Researches are also needed into such other issues as deforestation and overgrazing in a place.

Researches into diverse forms of environmental degradation involving vegetation and wildlife, are usually of interest to ecologists, wildlife managers, agriculturists, foresters and environmentalists.

Researches into degradation of valuable lands and soils in Nigeria

This is a theme carved out of the main theme of Environmental degradation in Nigeria in 5 above. This is to further underscore the importance of degradation of lands and soils in Nigeria. This theme is devoted to issues such as places **where land and soil degradation is occurring in Nigeria**, the **extent of such degradation**, the **damage done so far** by them, **current management efforts on them**, **other possible management efforts** on them.

Researches into land and soil degradation in Nigeria will obviously address issues such as wasteful mining of solid minerals, bush encroachment, soil depletion, soil compaction and issues such as deforestation and over grazing, earlier on referred to in 5 above.

Such researches can be justified in the sense that they will reveal the natural of the degradation, the cause and the management techniques to check mate such degradation and forestall future occurrences elsewhere.

Researches into degradation of valuable lands and soils of the country, will expectedly attract ecologists, environmentalists, geologists and mining engineers and specialists researchers, such as those interested in oil pollution and oil spillage.

Researches into wastes and their disposal in Nigeria

This theme is expected to cover issues relating to **diverse nature of wastes** in Nigeria, their **sources, abundance** of each group, their **present methods of disposal** and the **possible ways for better disposing them and managing them for development** purposes.

Because of the ever-increasing human population in Nigeria coupled with a lot of socio-economic activities, a lot of wastes are being generated in Nigeria. Such wastes include domestic wastes, commercial wastes, industrial wastes, agricultural wastes and some other wastes. These other wastes include radio active wastes and medical wastes.

Researches into these wastes can be justified based on the following:

- i. There is the need to establish their natural, their sources, abundance and their possible risks.
- ii. There is also the need to work on the best methods of disposing them.
- iii. Wastes of certain categories can be managed effectively to enhance development in what ever way this is possible.
- iv. Wastes of whatever type, constitute a major eye-sore to people.
- v. Wastes could diminish the beauty of a place, if not properly managed
- vi. Wastes could constitute sources of diverse water-borne, soil-borne and air-borne diseases of human being.

Wastes and their disposal have become global issues that are attracting attention of diverse researchers all over the world. Such researchers include environmentalists, waste management engineers and specialist researchers such as those involved in radiation and toxic wastes.

Researches into natural enemies of plants and animals in Nigeria

This theme has to do with the **diverse groups of natural enemies** of economic plants and animals of the country (with pathogens, parasites and pests inclusive), their **prevalence and effects on these economic plants and animals**. Other issues in the theme include **the weeds and invasives** among our diverse vegetation types, their types, classification and importance.

Even though reference has been made to pathogens and pests of plant animal biodiversity of Nigeria in sections 3 and 4 above, the pathogens, pests and parasites that constitute the natural enemies of plants and animals in Nigeria, are highlighted in this section, to further underscore their importance. This is because these natural enemies constitute a major source of concern on which agriculturists spend a lot of money in Nigeria. Researches into these natural enemies, are usually part of the management programmes of individual species of plants and animals of economic importance in the country. Such researches can be justified based on the following:

- i. Researches will reveal the diverse diseases and pests of each crop and animal, their nature, their prevalence, their time and mode of attack on such plants and animals, their symptoms, their control measures.
- ii. Researches will also establish the best practices to controlling these diseases and pests, particularly based on the preference of biological control over chemical control.
- iii. Researches will also establish the cultural practices that can be adopted to check mate incidence of these diseases and their spread among the species of plants and animals concerned.

Researchers that will most likely feature in the identification and control of natural enemies of plants and animals include plant pathologists, veterinary pathologists, pest control experts, weed scientists and ecologists in the case of invasives among plants.

Researches into environmental pollution in the country

This theme is expected to incorporate issues such as major types of pollution (with air, water, land and soil inclusive), their sources, effects, present management techniques and ways of improving on these techniques and control measures. The theme is also to beam searchlight on oil spillage and gas flaring in Nigeria, with emphasis on their causes, effects and control and management measures for them. The searchlight should also extend to other forms of pollution such as noise and radiation.

Environmental pollution has become a global issue that all countries of the world, has to contend with. Researches into it, can therefore be justified based on the following:

- i. Such researches will go a long way in portraying the country in good light, in the sense that she is not taking this all-important issue with levity;
- ii. Environmental pollution in some forms, has implications on the health of the people, their economic activities, their agricultural activities among others, in diverse ways, outlined extensively by Fatubarin, (2003). The adverse effects help to further underscore the importance of attending to it in any country.

Environmental pollution being global in nature, affords the people of a country the opportunity of buying into the best practices in tackling different aspects of environmental pollution. However, certain aspects of this phenomenon, that are still peculiar to developing countries, still have to be looked into by each country's researchers. This is so with the environment-borne diseases. This is where researchers in medicine, zoology and specialist environmentalists come in, as relevant researchers on environmental pollution in Nigeria.

Researches into environmental sanitation and hygiene in Nigeria

This theme is expected to focus on issues such as sanitation of the immediate environment, hygienic state of foods, hygiene and safe conditions of water and other consumable materials.

It is also to cover mode of defecation in diverse communities, the systems of faeces disposal, availability of clear and germ-free air and the state of living apartments. The state of the living apartment covers such things as aeration, illumination, absence of noise, bad odour and annoying and disease germ-carrying insects, such as flies, cockroaches, fleas, among others.

The researches can be justified based on the following:

- i. Environmental sanitation and hygiene have to do with the health of the people as well as their welfare;
- ii. They have to do with factors that contribute to the beauty of the environment;
- iii. They also contribute to those things that add up to making people imbibe environmental ethics and values;
- iv. Environmental sanitation and hygiene are also indicative of the level of development of communities.

Researches on them will expectedly involve researchers in medicine, sociologists and environmentalists.

Researches into the management of the natural environment

This theme is to focus on how the numerous natural resources in Nigeria are being managed to assure their sustainability. The resources include organic natural resources of plants, animals, water biological resources, such as fishes, prawns, lobsters and crabs (among animal resources of water bodies) and edible marine algae (among the plant resources of water bodies). The inorganic resources include air, water and its inorganic resources of salt and iodine, rocks, granites and stones, solid minerals, gem stones and valuable metals. The partly organic and partly inorganic materials include soils, fossil fuels and sedimentary rocks. The issues to be built around the theme are the types, sources, abundance in each place, quality, present management and best management techniques to assure their sustainability.

Researches into the management of the natural environment actually involve the scientific management of the natural resources within this environment. A justification of such researches is based on the following:

- i. Only sound management based on widely acclaimed scientific principles, is befitting for any country of the world, that is in alignment with the expectations of the 21st century in the management of natural resources. The management principles include these outlined by Fatubarin (2009), to include:
 - a) Investigating the natural resources;
 - b) Protecting the natural resources;
 - c) Repairing the natural resources;
 - d) Maximizing the use of the natural resources;
 - e) Upgrading the natural resources.

- ii. It is through researches based on these principles, that appropriate values can be gotten from the resources.
- iii. It is through adopting these principles, that the sustainability of the resources, which the researches are geared towards, can be guaranteed.
- iv. Through researches on such natural resources as soil and water bodies, the presence of heavy metals that are detrimental to health of living organisms including human beings, can be detected and their level of concentration ascertained.

Researching into the management of the natural resources, of an environment, is expected to involve the use of modern techniques involving appropriate technology. It will therefore attract a large number of researchers, cooperating on each natural resource, with a view to managing it for sustainability. These researchers will differ with the type of the natural resource and the depth of information needed in the researches, to achieve the objective of managing such a natural resource for sustainability.

Researches into natural disasters noticeable in Nigeria

The theme is to be built around issues such as the types of natural disasters, places implicated in each of them, magnitude in such places, involvement of mismanagement in them. Other issues include their effects, present management techniques being adopted in tackling them and recommendations on scientific approaches to their management.

Researches into natural disasters of a country, should not be limited to those well known natural disasters, that have been recorded in Nigeria, in the forms of floods, erosion, drought and desertification. It should extend to a number of others such as wild fires and emission from volcanoes, noticeable in other countries of the world, to which Nigeria can equally be susceptible. This is so with the emission of carbon dioxide from Lake Nyos in the Cameroon, that shares its boundaries with a number of States of Nigeria. Ojah (2012), wrote extensively on the issue of Lake Nyos in the Cameroon in an article titled “**Guarding against possible collapse of Lake Nyos,**” in The Punch of Thursday, November 29, 2012.

These researches can be justified on the basis of the following:

- i. Natural disasters can be highly destructive, in the sense that they are density independent occurrences. As such, their impact will not depend on how scanty or large the human and other populations of the affected places are.
- ii. Natural disasters require making adequate forecasting and preparations on them. Appropriate researches are therefore required to make such forecasts and preparations.
- iii. Because natural disasters of diverse communities differ with the geographical locations of such communities in Nigeria, researches are needed to document the nature of the natural disasters of the numerous communities of Nigeria.

Because of diverse natural of natural disasters of Nigeria, it may not be easy to make a list of the researchers that will fit into any one disaster. However, for most of the natural disasters,

geographers, appropriate engineers, sociologists and medical practitioners are likely to be involved.

Researches into human resources development in issues of the natural environment of Nigeria

The theme is to be built on the human resources needs of the natural environment in Nigeria. The studies will beam appropriate searchlight on the human resources presently in place, the projected needs, how to fast-forward meeting these needs. This is particularly so in those areas of our national needs, where the human resources available are grossly inadequate. Such areas include oil and gas, renewable energy sources, solid mineral development, among others.

Researches into this all-important issue can be justified based on the following:

- i. Such researches will guide the planners on the areas to focus on when training people in the management of the natural environment of Nigeria.
- ii. Such researches will also enable the nation to benefit from the experience of other nations of the world, in producing experts in the areas of focus in the management of the natural environment of Nigeria.

Since the human resources needs will differ with the resources to be managed, it is expected diverse researchers appropriate for each natural resource will be involved. Such researchers will of necessity, include resource-based experts, such as scientists, technologists and technicians and others concerned with record keeping, such as the statisticians.

Researches into appropriate laws on the environment in Nigeria

This theme is built around issues such as the local, state and national and international laws on environment in Nigeria. The theme will beam searchlight on their adequacy and those other needs of these laws. It will also beam such light in the enforcement of these laws. It will look into the challenges of implementing the laws, the possible limitations and how to rectify these.

These researches can be justified based on the following:

- i. There is the need to examine the existing laws on issues of the environment in Nigeria. Examining such laws will enable researchers to know the extent of adequacy of these laws and the extent of compliance in them.
- ii. The researches will enable researchers to identify problems militating against these laws in Nigeria and what can be done to enforce the laws.
- iii. The researchers will bring to the fore, the harm non-compliance on these laws has done to the environment in Nigeria.
- iv. The researches will assist in bringing to light those international laws on the environment, yet to be implemented in Nigeria and what can be done on these.

The researchers will of necessity include lawyers and teachers of law in our universities and law institutions such as the Law School in Nigeria, interested in environmental issues. Such researchers will need to collaborate with the Committees on Environment in the nation's House

of Representatives and the Senate. A number of environment-based NGOs may also be interested in such laws, so also will some Houses of Assembly in the States, have their committees on environment, interested in such laws.

Such legislative arms of government at the State and national houses, need to be carried along, to see to an easy passage of such laws, when they are ready for such legislative endorsement, to make them effective documents that can be put into use in the country.

Researches into Environmental Education in Nigeria

This theme is to be built around issues relating to how to inculcate in the generality of the people of Nigeria, the much-needed environmental ethics and value, the best methods to use for these. The theme also includes such thing as the involvement of print and electronic media, the issues to focus upon, the appropriate languages, the involvement of pupils and students, the religious and traditional institutions. Others that can be included in the theme, are the governmental and non governmental organizations (NGOs), the authors, environmentalists and environmental activists, who may want to educate, enlighten and create awareness among the people, about the burning issues on the environment.

The researches will expectedly include academicians working on issues of the environment, on which much education, enlightenment and creation awareness, are necessary to make such issues make meaningful impact in the country. It is also expected that researchers on the natural resources of the country in the diverse institutes created by the Federal Government on such natural resources, will also be interested. Similarly, establishments that are handling these natural resources in all State and Federal Ministries, will want to play some in such researches, from which they stand to benefit, when their results are out.

Besides the fifteen major themes discussed in this paper, as major themes around which researches can be based, are a large number of other topical issues on the natural environment of Nigeria. These other issues include the following:

- i. Agricultural practices at the traditional and modern agriculture levels;
- ii. Food security;
- iii. Transhumance;
- iv. Effective management of natural environmental landscape and scenery;
- v. Exploration and utilization of renewable energy resources of Nigeria;
- vi. Heavy metal pollution and hazardous substances in the environment;
- vii. The Lake Nyos issue;
- viii. The Lake Chad issue;
- ix. The issue of environment-related non-governmental organizations (NGOs);
- x. Administration and management of natural resources.

All the above are besides other themes (possibly peculiar to diverse communities), that may be added by the researchers.

In conclusion, it must be mentioned that managing the natural environment of Nigeria for sustainability, in the 21st century – the “knowledge century,” requires that appropriate knowledge must be deployed. Such appropriate knowledge can best be deployed, if a multidisciplinary approach is adopted. This precisely is what this paper has advocated.

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