**Journal of Community & Communication Research**
**ISSN: 2635-3318**
Volume 4, No. 2 December 2019
Pp. 159-164

# Sustaining Biodiversity in a Technological Planet: from Communication-Extension to Resilient Ecosystem

Accessible at: https://jccr.sccdr.org.ng/index.php/jccr/issue/view/1

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Review Process: Received: 18/11/19 Reviewed: 09/12/19 Accepted: 24/12/19

**ABSTRACT**
*Practically, prior, to the industrial revolution in the 19th century the Biodiversity coexist in an organic Planet Earth for their livelihoods. Communication needs is crucial for resilient ecology and biosafety for increase and sustainable productivity. Though, technological advancements are beneficial, yet, with major challenges based on biodynamics outlook as a result of the climate change globally. These phenomena posed hazard to the bio units. Thus, the study purpose is to identify and describe issues; established on reviewed of relevant literatures. Mixed method was adopted for data collection and randomly utilized. The study describes some of the biodiversity cum technological (biodivertech) implications. Identifies issues such as, pollution (air, sea and land), decline in animals and mass extinction; low yield in plants. The rationale is to reecho the facts and their core effects on sensitivity and resilience of biodiversity. IUCN report that, 41% of amphibians, 25% of mammals, 34% of conifers, 13% of birds, 31% of sharks and rays, 33% of reef-building corals, and 27% of crustaceans are threatened with extinction. Identify Biocontrol and Biopesticides developed by IAR. Fundamentally, these, adverse effects were not communicated and handle appropriately in developing countries, like in developed countries. We thus, submit that, more action must be taking to check the biodiversity activities; develop ecofriendly technologies for healthy functioning of the ecosystem; put in action ideological framework to help identify the root causes and proffers solution globally. In conclusion, help developing countries generate revenues to cover the cost of managing biodiversity for better livelihood.*

***Keywords: Biodiversity, Communication, Organic and Technological***

## INTRODUCTION

Biological diversity (biodiversity) is the occurrence of different types of ecosystems, different species of organisms with the whole range of their variants and genes adapted to different climates, and environments along with their interactions and processes (Environmental Management, 2017). Biodiversity is the diversity of life on the planet earth (land, sea and in the sky). Biodiversity is not only the essential cement that holds together

life, but to the healthy functioning of the Ecosystems. Thus, ecosystems, interdependent connections of living organisms and their physical environment are vital to all life on earth.

Prior to the industrial revolution in the 19th century, our ecosystems provide us with organic resources, clean air, fresh water, food and medicine among other things. Throughout earth's history, 'healthy ecosystems have usually been resilient enough to adapt to gradual environmental change' (Convention on Biodiversity (cbd), 2012). Yet, these technological advances keep us ten years ahead of time, but make our earth degenerate. Encyclopedia Britannica, define Technology as the application of scientific knowledge to the practical aims of human life or the change and manipulation of the human environment.

Since the end of the last ice age, humans have developed tools and machines; and have modified and re-modified the land for agriculture and long-term settlement. As the population has grown and new technologies have spread across cultures and continents, more and more of the planet's resources have been pressed into serving the species. In view of the fact that, scholars believe, 'the process of human activities have disrupted the natural order of the environment by depopulating and eliminating species and adding harmful chemicals to the air, water, and soil activities that are changing the climate and the structure and function of ecosystems, as well as the biological communities they contain' (Barthlott, *et al*, (1999); Global Environment Facility (GEF) 2015). Thus, habitat loss and overexploitation, driven by our rapid population growth, climate change, volcanic activity and other phenomena are the primary causes of species extinction, which is now happening up to a thousand times faster than for millions of years before. World Wide Views on Biodiversity (WWViews) (2012) report put it that, "probably 10 to 30 million different kinds of plants, animals and microorganisms live on the planet on land, in soil, in freshwater and in the sea. Around 2 million plants and animals are known and scientifically described to date. Scientists discover around 15,000 new species every year. Some species are found around the world; others are very rare. Some species are found in only a single place", retrieved from: http://biodiversity.wwviews.org/ on 20th May 2019.

The rationale is to reecho the facts and their core effects on sensitivity and resilience of biodiversity. Though, biodiversity activities are significance to the earth, while, technological development is essential to human life too. For instance, some of the cutting-edge of technologies create global connectivity, mobile phoning, save time, money, do things faster at supersonic speed and at done ease, among others. The critical issues herein are maintaining the benefits of the biodiversity of holding together life on the planet earth, viz-a-viz. On the other hand, solving the environmental and other problems created by the biodiversity activities and the loss. Perhaps, the technological advances and the challenges posed to our planet earth in the 21st century is the greatest curse. Turn our planet earth into what is known as *'Technological Planet'*.

For more than three decades, many articles are written on technological advancements and transfer in Nigeria, without given neither consideration on the aftermath of these alien technologies nor the biodiversity implications cutting-edge agriculture practices and the ecological community.

In this technological planet, as a matter of fact, technology developments have given the rise to the new media via the internet, therefore, shifts attention to how communication can be used to aid any process and influences positively or negatively. No future can be

developed without knowing the past and the present. However, scientific discovery brought about this digital age. When the ice ages and other natural changes were first suspected and the natural greenhouse effect first identified. Other gases collect in the atmosphere affect the insulate Earth, these created more curiosity than concern on communications between the biodiversity.

Globally, communication link individuals within ecological communities in a participatory and shared decision-making knowingly or unknowingly. These groups of communities need specific linkages and the requisite capacities to utilise these innovations, as well the management and protection of the technological planet. Thus, the need becomes paramount to the global communities, such as Nigeria with farming family communities to check this menace.

In response to these incessant changes on the technological planet, the habitats evolve dynamically without the collapse of the ecosystem. If, the environment changes and some biodiversity can no longer thrive, others can take their place, develop resistance and fulfill essential functions. Thus, biodiversity active implications on the planet earth, the range and variation of life in an ecosystem, is a major dynamic in its resilience. For example, insects play an essential role in pollinating flowering plants; one third of the food we eat depends on animal pollinators. If something goes wrong, these plants and animals, which currently live on the technological earth and have continued to evolve over the 65 million years there may experience mass extinction. WWF's latest Living Planet report estimates that, 'we have lost more than half of all vertebrate wildlife populations since 1970'. A German study also found that, flying insect populations (including pollinators) have crashed by three-quarters, since 1989, and likely reflecting similar trends around the world. WWViews on Biodiversity (2012) report shows the decline in birds, mammals, corals, and amphibians from 1980 to 2010.

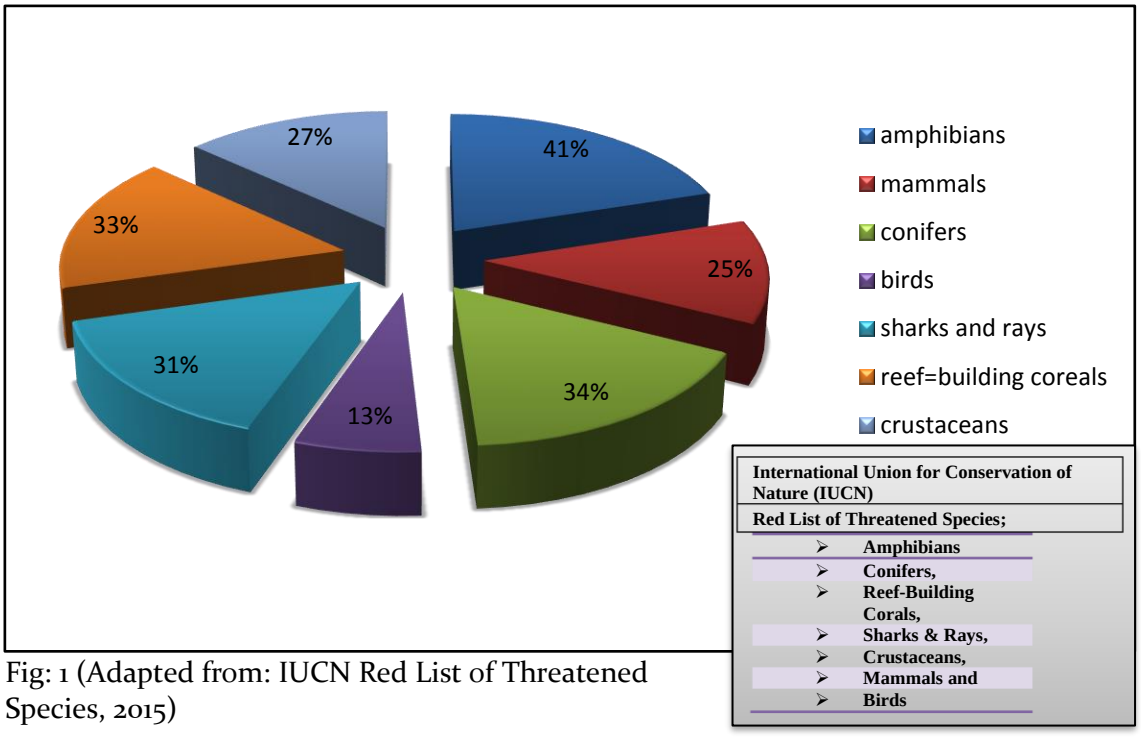



Fig: 1 (Adapted from: IUCN Red List of Threatened Species, 2015)

According to the International Union for Conservation of Nature (IUCN) Red List of Threatened Species in 2015, 41% of amphibians, 25% of mammals, 34% of conifers, 13% of birds, 31% of sharks and rays, 33% of reef-building corals, and 27% of crustaceans are threatened with extinction. The 2016 State of Nature report also have it that, the United Kingdom was one of the most nature-depleted countries in the world. Though, some countries may be worse off than others. More so, the Ellen MacArthur Foundation estimates that by 2050, there will be more plastic than fish in the sea (IUCN, 2015).

In this vein, biodiversity loss is attributable to several factors as earlier mentioned above, but this paper is premise on some of the major factors as classified herein. However, emphatically, all these factors are driven by rapid human population growth and development, our unsustainable consumption and quest for food secure planet through agriculture.

***Major Biodiversity activities and their Technological Implications***

***i.*** *Agricultural Practices and Transformation*

In order to meet food security, the unsustainable consumption patterns of the globally and feed the numbers of people living on the technological earth today. Humanity has developed agricultural systems which rely on monocultures, artificial fertilizers and pesticides than organic fiber. Monocultures are increasingly susceptible to disease whilst widespread pesticide use destroys insect populations indiscriminately.

In addition, the growing pressure on food supplies means an increasing proportion of agricultural land is farmed intensively, with fewer off seasons or fallow years in which to recover. Currently, livestock farming contributes to more climate emissions than the entire transport sector and is the biggest cause of deforestation. Runoff from farms pollutes water bodies and causes harmful algal blooms and the collapse of fish stocks. Forthrightly, our oceans are becoming choked with chemical, plastic waste and creating pollution which is killing millions of animals, from sea turtles to whales.

Convention on Biological Diversity (2011) put it that, 'our planet is on the verge of a climate crisis due to our endless production of greenhouse gases including carbon dioxide and methane. Every half a degree of warming has a huge knock-on effect on ecosystems, with mobile species running out of areas to migrate to and temperature-sensitive organisms like corals undergoing massive die-offs'

***ii.*** *Industrial Development and Intensification*

Human activity continues to encroach on natural environments, thereby destroying the habitats of countless species. As our numbers rise, cities and industrial areas are growing and merging into each other, fragmenting the remaining habitat and leaving isolated "islands" of natural populations of plants and animals too small to survive.

Due to humankind's relentless consumption of resources such as timber, oil and minerals is continuing to destroy natural habitats around the globe. Wildlife poaching and trafficking still present a huge threat to many species, including elephant's rhinos, tigers and others. As populations increase, the disposal of industrial waste viz a viz, becomes hazardous an increasingly serious issue. As well as affecting the lives of humans are noise, light and chemical pollution can disrupt wildlife behaviour. Light from human activities makes it harder for predator species to catch their prey. Noise pollution interrupts both hunting and mating signals in many species, disturb natural behaviour.

Human travel across the world at supersonic speed, these have very large emissions footprint, but it has also allowed the spread of invasive species, both accidental and intentional. As a consequence of the introduction of non-native species to some areas, such as rats in Nigeria, rabbits and cats, in Australia, goats on St. Helena, and American mink in Great Britain, we have put many vulnerable ecosystems at risk, threatening native species and diminishing biodiversity.

***iii.*** *The facts, figures and sustainability*

Our population has become so large that the Earth is struggling to cope. Right now, we add more than 80 million people a year, which will sky rocket our demand rate. We have only one Earth. Today, about 7.7bn people on it are using less of its arable resources than it ought to provide. Due to lack of knowledge, information and the right links.

What will happen in the next 50 years will be determine and describe, largely by the nature of biodiversity activities, that is, the scale of population increase, the future quality of human life and the prospects for survival of the species on the ecosystem in Nigeria and the World at large.

Nigeria is home to a rich and diverse animal, plant, and marine biodiversity that provide critical services, driving the country's economy and the ecosystem changes. However, the country is experiencing a dramatic loss of biodiversity, especially from agricultural expansion, for instance, ATA/GES/NAERLS 2012 intervention and supplementary agricultural programmes. This loss of biodiversity affects livelihoods, water supply, and food security and lessens resilience to extreme events, particularly for people living in rural areas who are often the poorest. Thus, we must consume, conserve, utilize judiciously and sustainably for the sake of future generations.

## METHODOLOGY

This study was conducted and developed on review of relevant literatures. Mixed method was adopted for the data collection and used purposefully.

## RESULTS AND DISCUSSION

The study discovered that, the World Bank with support from the GEF 2015, have been among the largest financiers of biodiversity conservation in Africa. Biodiversity work, amounting to about $360 million, is included in around 50 projects currently being implemented in the Africa region, in countries like Mozambique, Gabon, Tanzania, South Africa, among others.

It was revealed that, Institute for Agricultural Research (IAR) has developed *Biocontrol* and *Biopesticides* to check insect-pest which are ecofriendly. It was also remarked that, there is an effort to improve forest governance and prevent wildlife crime as a way to protect the value of nature-based tourism which in turn affects the resilience of people living around protected areas globally. This World Bank program also helped to create sustainable job opportunities for the community. Essentially, community herein is referred to as the ecosystem that host the biological and divers groups of living organism, land, water and the air in an environment. It is obvious that, communication creates community, links, liberates, develops and supports biodiversity irrespective of the geographical location.

Unarguably, in the course of this study, we realised that information needs on biodiversity benefits and loss, discoveries are not well communicated or handled. The ecosystem is facing tremendous challenges that needed urgent attention, due to technological advancement and human encroachments on other organisms, land, sea and the air. We also discovered that no development work can take place without impact. More so, no well-developed communication policies on biodiversity as it is on climate change. While, biodiversity implications on the planet earth are the root cause of climate change and other irreversible and undesirable changes.

## CONCLUSION

In conclusion, a key methodology is to help countries find ways to generate revenues from biodiversity (particularly developing countries) is through tourism or payments for better environmental services among others. That can cover the cost of managing biodiversity and improving local economies. Though, this is will be very challenging in Africa. Why because, the issues of biodiversity have no border, it is not related only to the issues of justice and fairness but to economy and development. Although, the World Bank Group is working with countries to better conserve and sustainably manage biodiversity. The investments in watershed management, integrated coastal zone management and protected areas, as countries strive to achieve their development goals and poverty reduction plans. Forming Pan Continental Alliance (PANCA) and Equal provision of information and local organizational strategy remains the key driver. Without the above structural transformations, it will take a long time for information to be extended to the countryside, where the bulk of the rural population lives. Yet, the effort to fight climate change is fading. As a result; work needed to be done to check the biodiversity implications, mostly by the developed worlds. Justify, all efforts fighting the excessive and undesirable human activities, either strategically tackled or limit the irreversible changes on earth. Thus; we suggest that, **I.** more efforts must be taking to develop ideological framework on awareness creation; intensify the dissemination process and bridge information gap, in specific; the human active implications on the earth. **II.** Create financial supportive stream and wider availability and accessibility project on biodiversity globally. **III**. Impose string sanctions on the developers of technologies that are not ecofriendly. **IV**. Develop policy framework on technological use to limit the impacts of those technologies on the biodiversity. **V**. More so, utilize communications platform that will provide equal information needs among the users and manufacturers of these technologies, for check and balance.

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