



Promoting Sustainable Cities and Communities in Nigeria, Now and Beyond: Challenges, Trend, and Strategy

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The insatiable hunger to conserve the natural resources of the earth and to protect the global ecosystem from the end must be our general responsibility and obligation. The impact of most of the decisions we take are not felt immediately but are later seen wreaking havoc in the future. This is the major essence of environmental sustainability- solving the needs of today without jeopardizing the needs of the upcoming generation. There is no gainsaying that when consumption is unrestricted, it leaves an adverse effect on human welfare. As more and more energy is being consumed, environments are being polluted with very deadly and toxic substances which directly affect the human race gradually but steadily. The constant practice and maintenance of clean renewable energy should be encouraged because this is the fastest way of putting the past behind and uniformly moving forward to a healthy future made up of sustainable cities.

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ABSTRACT

Keywords: *Global Ecosystem; Healthy Future; Renewable Energy; Environmental Sustainability*

1. Introduction

“What is being done to the forests in the world is only but a mirror reflection of what we do to ourselves and our fellow human beings.” – Mahatma Gandhi. The varying explanations of sustainability progressively lead to more questions on the part human beings should play. For instance, as evolving species, how does our lifestyle and human activity on this planet affect the level of sustainability now and for generations to come? There is no doubt that today’s Nigeria is progressively headed for annihilation unless a long-lasting solution as to raising a sustainable community is being provided to secure the future for centuries to come. A community is said to be sustainable when that community is sufficient in providing the basic needs of the people living in it and also ensuring the availability of those resources for the future (Thompson, 2019). This is a strategy that communities seek to develop economically to benefit their environment and improve their standard of living. A community, work, and family conference held in Milan from the 24th to the 27th of May 2017 helps buttress the need for individuals, societies, communities, and the world at large, to seek vehemently for sustainable development (Egidio, 2018). Based on the knowledge of the limits and threats to the society of the very dominant modes of consumption and production, this issue has evolved successfully around the necessity for a paradigm shift. This could prevent global warming by reducing the depletion of the ozone layer, limiting the loss of resources, and reconciling economic growth with healthy living of citizens of the society. In Nigeria, people want the same things: a place to call home, access to potable water supply, a conducive and danger-free environment to raise children, and most importantly, to be involved in making decisions that affect their lives (Wikipedia, 2021) but the struggle for all these levels of comfort has helped in jeopardizing our lives and the lives of our loved ones hereby, making it less sustainable. Therefore, for one to achieve a sustainable community, one has to consistently emphasize the need for sustainable employment and economic demand management (EDM). This can include, the management of natural resources (e.g., forestry), converting fully to reliable energy sources (e.g., solar) (Roche, et al., 2020), increase in community self-reliance, and sensitization and practice of the 3R’s of sustainability (Reduce, Reuse and Recycle). EDM redirects our minds to the need to be self-reliant, especially on our natural resources. Communities and individuals are being encouraged to practice sustainability because clearly, the pros greatly outweigh the cons. Even though it takes a lot of time and money to establish, as it will not bring an immediate result, when mastered, it can turn out to be very beneficial. With the current situation of the country as regards the issue of climate change, we are being compelled to make known to the general public, the challenges facing the Nigerian environment, citing examples of successful environmental sustainability practices that have been very beneficial to other countries in the long run hence inculcating their trends and habits and finally making suggestions on the way forward.

Threats to Building a Sustainable Community

Environmental Threats (Climate Change)

According to the U.S Environmental Protection Agency and a host of other national and international assessments, the number of environmental threats were listed to be 28 but was then finally categorized into 5 broad groups: Indoor air pollution (contaminants of the human environment), Resource losses, Air pollution, land and water pollution and natural disasters (National Research Council, 1999). With about 982,213km² landmass and a population of about 200 million people, Nigeria faces different kinds of pollution daily ranging from urbanization, deforestation to overpopulation and desertification. The everyday struggle for food, clothing, shelter, and infrastructure has ensured a constant change in society. Notwithstanding the benefits of these social amenities, the negative impact it creates on the environment would eventually outweigh whatever positive impact it brings on society. The emission of carbon generated from these daily activities harms the ozone layer, hence causing climate change. Climate change in return displays life-threatening activities such as drought, increased heat, erosion, insect outbreak, etc. Due to the improper use of land and its resources, a Federal Environmental Protection Agency (FEPA) was instituted to control the Nigerian Environment, its resource exploitation, and management (Wikipedia, 2020). This agency was later discovered to be no match to the environmental degradation that had occurred over the years. After much deliberations on the SWOT analysis (Strength, Weaknesses, Opportunities, and Threats) of the agency, it was then known that the solution to the environmental menace would go beyond the objectives of FEPA and its strategies.

Socio-Economic Threats

In Nigeria, the revenue generated for the running of the country cannot be equally divided amongst the citizens, communities, and even social classes. Research has shown that an increase in income imbalance, dearth and crime can create significant social and financial complications, harmfully affect economic development and employment opportunities (Ogujiuba, Ehigiamusoe, & Patrick, 2013). There is a piece of increasing evidence that poor countries are more adversely affected by global warming than wealthy countries either by their lack of proper resources for climate protection or by their warm regions which tends to bring about additional warming that can limit their life expectancy (Yang, Ali, Hashmi, & Shabir, 2020). There has been an increase in carbon emissions due to the activities caused by man such as the burning of fossil fuels, improper waste disposal, deforestation, etc. This continuous emission of carbon dioxide and other toxic substances leaves mankind with mental and physical issues since it has been proven scientifically that individuals who experience these harsh weather conditions like hurricanes, earthquakes, and floods due to climate change can suffer from trauma, depression, grief, etc. (Nwafor, 2019).

Technological Threats

The depletion of natural resources can be a result of the negative impacts of technology. When the consumption of resources is faster than it can be replenished, it can adversely affect those resources that were naturally created, be it renewable or non-renewable. There are various types of resource depletion such as minerals, deforestation, burning of fossil fuels, aquifer depletion, soil erosion, and contamination of resources. These are the most severe and they are water usage, consumption of fossil fuels, and agriculture which have been a result of advancements in technology. Furthermore, the era of the industrial revolution can also be a threat to sustainability. Factories and industries built in urban areas produce a lot of wastes, fossils that can be detrimental to human health. The gases emanating from these wastes fill up the sky thereby causing air pollution and when in large quantity can be harmful.

In addition, deforestation is another major threat to environmental sustainability. A lot of landmasses have been converted to agricultural farms and residential areas due to an increase in population. Not only does the loss of trees discourage photosynthesis and plants and animal growth, but also their natural place of habitat and gradually go extinct.

Trends of Other Countries to Attain Environmental Sustainability

In Oslo, the capital city of Norway, cars are now being banned from entering the governmental center (Sylvia, 2019). The renovation started in 2019 and benches, flower beds, and cycle lanes are being planted. The streets are now left for cyclists, pedestrians, and public transport users. Countries are now beginning to invest in the use of public transportation. It is now one of the ways by traffic congestion can be reduced. Cars are large carbon emitters (Kai, 2018). Carbon helps in the depletion of the ozone layer which protects the universe from the direct rays of the sun. This causes climate change to occur and to be able to fight this climate change, the number of vehicles plying our roads must be reduced. This in return can help promote a clean and sustainable environment for the inhabitants.

Rothy's is another example. An American company based in San Francisco with sustainability in mind. This is a retail shop that produces shoes, bags, and recently face coverings like face masks that are very comfortable and chick by using recycled plastic bottles. This is very profitable and carbon neutral (Cote, 2020). Their unfading commitment towards recycling has brought a partnership with the Envira Amazonia Project to conserve rainforests in the tropics and also offset the discharges of carbon during consignment. Their major raw material which is plastic bottles are readily available and are seen littering everywhere because according to Euromonitor, an institute that deals on international market research, stated that "the worldwide consumption of plastic is still on the increase. In 2016, 480 billion plastic bottles were sold while in 2004, this was still 300 billion. Now, the number of plastic bottles that are sold in a minute yearly will increase to 583.3 billion in the year 2021." (Foundation, 2016). Based on this research, Rothy's has successfully satisfied the demand of EDM as listed in the paragraph above.

Walmart, the American leading company in the fortune 500 lists, diligently plays its part in the quest for environmental sustainability. The goals of Walmart as stated on their website are "creation of zero waste, operating with one hundred percent (100%) renewable energy and at the same time sell goods that can sustain the community. Statistics have also shown that Walmart company is very dedicated to its cause. \$25 million was invested in the food safety project to the Chinese government and in 2017, 78% of global debris was diverted from landfills (Insights, 2019).

Strategies to be Implemented in Promoting Sustainable Societies

World Economic Forum report in 2016 asserted that emissions caused by factories and new buildings are expected to grow geometrically, hence, making the environment very uncondusive for humans (World Economic Report, 2016). Globally, as the temperature rises, the frequency at which natural disasters occur tends to increase, with very devastating impacts and tragic loss of human life and wildlife habitat. For something as crucial as the future of our natural habitat, it is worth the attention and care. With the few points explained in detail below, the life of the environment can be preserved.

Depopulation

In Nigeria, some states suffer from this problem. Lagos state which is popularly known as the “Center of Excellence,” is one of the overpopulated states in the country and it was not designed to carry the number of human settlements and infrastructure as is the case today (Ibrahim, 2014). As the 14th largest area in the world, there arises a need to lessen the burden being carried by this state to create a healthy and sustainable environment. Very outrageous taxes should be imposed on properties owned by citizens to help decongest people living around some areas like Ikeja, Surulere, Oshodi, etc. that have a very high population count. Sophisticated transportation systems with very high transport fares should be enacted to make Lagos state less clogged. With a very high cost of living, Lagos state is bound to regulate its population status.

Agglomeration of Industries and Factories

The location or relocation of firms at the outskirts of town can be arguably disadvantageous due to the proximity, but research carried out in Iran from 1985 to 2015 suggests otherwise. Applying the Spatial Bayes Model that uses hierarchical techniques, the Iranian government discovered a very high productivity area in the north and south districts of Iran (Najkar, Kohansal, & Ghorbani, 2019). Furthermore, spatial clustering of firms may significantly decline the cost of production, generate larger specialization, create a division of labor and provide multiple competing suppliers. When competing industries converge, it can attract more suppliers and consumers, thereby, reducing the cost of products.

Using Energy Saving Bulbs

The use of non-energy-saving bulbs generates greatly, carbon emissions in the world. Slashing carbon dioxide and other toxic substances by 80% would significantly combat the dangers of global warming (Orr, 2015). Making good lighting choices such as using compact fluorescent lamps (CFLs), halogen bulbs and light-emitting diodes (LEDs) to light up schools, offices, hospitals, and residential buildings can be a good investment into the future though it costs more than the traditional lighting bulbs at the initial stage. Laboratories in the U.S. have researched and come up with a solution to decarbonization- the installation and setting up of renewable energy building technologies and the use of electrified building systems that consume GHG (Green House Gas) emissions directly (Steinberg, et al., 2017).

Proper Waste management

The issue of municipal solid waste management cannot be overemphasized since improper care of wastes can contribute greatly to climate change. Solid wastes when broken down by organisms release very toxic gases into the atmosphere like carbon dioxide, methane, and nitrogen. These gases end up depleting the ozone layer and by so doing leaves the earth very vulnerable to various climate changes like earthquakes, direct sun rays, temperature changes, flooding, etc. to avoid these hazards from occurring, measures must be put in place. These measures include:

1. **Reducing and Recycling:** this strategy is mostly used by well-developed countries and has proven to be very effective. Reducing waste at the initial stage can be attained by increasing recycling efforts. These efforts can be in form of re-using egg cartons for arts and crafts projects, bulk buying when possible, using reusable cloths for cleaning, minimizing the consumption of bottled use, etc. Plastics, wraps of biscuits and sweets, wastewater from sewer are being recycled or converted to new products. This conversion can decrease the use of heat or energy to a reasonable extent.

2. Landfills: A very common way of solid waste disposal is by burying the debris in the ground. This is called landfilling. This act takes care of the odors and the toxic substances generated from the waste that might end up contaminating the water sources if left on the land surface.

3. Incineration/Combustion: some solid wastes that are beyond recycling can be burnt or incinerated in an incinerator by increasing the temperature to about 800°C thereby leaving the residue to occupy 20 to 30 percent of the land when it is buried to reduce the stress on the landfills. Scientifically, it has been proven that this waste incineration can be used in generating steam, heat, and gas for power (Akhatov, Obanor, & Ezemonye, 2016).

4. Manuring: when organic wastes like plant remain and kitchen wastes are bio-degraded, they are being converted into food filled with nutrients (manure) for plants. This is mostly practiced in organic farming and the organic materials are left in a place for months for decomposition.

Importation of Electric Cars

The fact that electric vehicles are the future of urban mobility is undebatable (Pahurkar & Metha, 2018). These electric cars or vehicles tend to emit fewer Greenhouse gases than gas-powered vehicles. In our society today, we depend so much on the use of combustible fuels for electricity and transportation and this is harming our ecosystem. To reduce the use of these combustibles, society has to break free from the use of fossil fuels and advance towards the use of a clean, renewable and economical form of energy (Khan, Ali, & Khan, 2020). This can be done by importing more electric cars than petroleum cars. Policies that can increase import duties or levies on petroleum cars can be enacted to reduce the demand for those types of cars. Even though Electric Vehicles (EVs) can be very expensive due to it being a new invention, however, the investment will be worth it.

Deforestation Stoppage

Deforestation, the removal or cutting down of trees from a forest area, can help damage the earth by causing erosion. This type of land degradation can be regarded as a threat to achieving a sustainable community. This is often made worse by the lack of skills and information on land sustainability, management, and conservation. Citizens are not properly sensitized and made aware of the benefits of land restoration and the conservation of natural resources. When trees are planted, it helps rejuvenate the land by making it less porous and helps retain the nutrients in the soil. Tree planting can be very vital and it plays a very crucial role for humans and the ecosystem. Countless researches have shown succinct reviews on how the presence of trees creates room for the mental and social wellbeing of humans by reducing air pollution and it can also create room for tourist attraction which can be very beneficial to the community. (Turner-Skoff & Cavender, 2019). Regrettably, Nigeria is very deficient in the reforestation program. Having a landmass of about 90 million hectares, the government must strategize and put strategies in place to fund this very essential program to create a sustainable community and also conserve our land resources.

Conclusion

Making an investment that would yield a healthy and sustainable environment in our future is the wise thing to do. The population growth in Nigeria is increasing exponentially and advancing more in the industrialization era, the level of energy consumption has tripled leaving our ecosystem defenseless from climate changes caused by ozone layer depletion. We are already experiencing the harsh results of exponential industrial growth and we must act fast to resolve and prevent the impending danger that must surely come if measures are not put in place. Looking at the progress of other countries that are better developed, one would see a trend, pattern, and strategy as to how Nigeria can win this war and remain undefeated. Let us join hands and make Nigeria better by giving it the clean environment it deserves.

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