



ASSESSMENT OF PLASTIC AS TECHNOLOGICAL EFFECT TO CLIMATE CHANGE

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ABSTRACT

The paper seeks to ascertain Technological Effect of Plastic on Climate Change in Nigeria. It confirms that plastic pollution is everywhere and is negatively impacting our environment. The Assessment confirms that larger plastics items like bottles and bags can physically harm animal and negatively affect their habitat and prevent crop from yielding. The study also revealed that, over 80 billion plastics Bottles are used every year and close to 60 million plastics bags are used daily in Nigeria, while over 4 million tons of plastics waste are thrown away yearly. The researchers also discusses the role of Technology in fight against climate change and recommended that Government should ban illegal dumping of plastic waste and strategies places should be provided in dumping plastic waste. The researchers also suggest recycling as an effective weapon against climate change.

Key words: Assessment, Technological Effect, Climate Change, Plastics, Recycling

INTRODUCTION

Due to large number of plastic waste thrown away on the street, Rives, drainage and ocean in Nigeria yearly, it has become very necessary for the authors to assess the technological effect it has on climate change. Plastic is made from a wide range of organic polymers such as polyethylene, PVC, nylon, etc. that can be mold into shape while soft and then set into a rigid or slightly elastic form. Plastics are a material obtained from crude oil chemicals. Plastics are used to make motorcycle helmets, automobiles air bags and chairs. They are used in the cell phones, computers, televisions, Radios and other electronic equipment that make life easier. They are in walls, roofs, insulation that

make homes and building energy efficient, as well as containers for storing foods. There are organic plastic, which contain carbon, and inorganic plastics, some plastics are hard and shatter resistant (thermosetting Plastics) others are soft and flexible (thermoplastics). Many people don't recognize items made from plastics because of its attractive appearance. Some plastics have additives that make them bacterial or fire-resistant, or make them flexible or fill them with bubbles to make them better insulators, or give them rainbow colours. There are thousands of different kinds of plastics and formulations around the globe.

Plastics offer a variety of environmental benefits, however their production, applications, disposal present many environmental concerns (Andrady 2003). Despite the huge benefits of plastics on our daily life, plastic waste has a negative effect on climate change. Climate change refers to any significant change in measures of climate, such as wind, temperature and precipitation (snow and rainfall). There are many factors that cause these changes which include burning fossil fuels that result in increased air pollution and greenhouse gas emissions, crushing of rocks as well as cutting down of trees. The effect of climate change usually lasts for a longer period. (Biollo 2013) Reviewed that plastic never goes away; he stated some harmful effects caused by plastic which include:

- Plastic affects human health. Toxic chemicals leach out of plastic and are found in the blood and tissue of nearly all of us.
- Plastic spoils our groundwater
- Plastic attracts other pollutants
- Plastic threatens wildlife.

Different human health problems like irritation in the eye, vision failure, breathing difficulties, respiratory problems, liver dysfunction, cancer, skin diseases, lung problems, headache,



dizziness, birth defect, reproductive, cardiovascular, geotoxicity and gastrointestinal causes for using toxic plastics. (Proshad 2018). In Nigeria, up to 80 billion plastic bottles and bags and close to 60 million straws are used yearly and over 40 million tons of plastic waste are thrown away yearly, which can harm animals and prevent crops from yielding.

Effect of Plastic waste on Animals, Soil and Plant

The detrimental effect of plastic waste has captivated global attention. The larger plastic items like bags and bottles can physically harm animals and affect their habitat negatively. Wildlife across the globe can equally die or be injured when they mistakenly eat plastic waste as food. Plastic bags can affect marine life; fish, sea turtles and marine mammals can become entangled in or ingest plastic debris, causing suffocation, drowning and starvation. Plastic waste kills up to a billion seabirds and turtles yearly. Plastic in an animal's gut can prevent food digestion and lead to a very slow and painful death. As plastic bags and bottles can take more than one thousand years to break down, once an animal dies and decays after ingesting plastic, the plastic is then freed back into the marine environment to carry on killing other wildlife.

According to Malorie Mackline (2016) much is made of plastic' impact on our marine environment and rightly so given the massive destruction that plastics can wreak on our oceans. With 80 percent of marine garbage being land-based 90 percent of that is estimated to be plastic. Unlike other material, plastic never truly decomposes; it simply breaks into smaller bits that will remain in the oceans forever as a sort of microscopic plastic becoming a prominent effect on marine wildlife, which leads them to suffer from various forms of entanglements as well as accidental consumption which may be deadly. Plastic can cause

terrible wounds to animals, even resulting in loss of limbs. When plastic containers stuck on animal feet, Plastic can also cause headache in animals head stuck in a plastic container the animals suffer from overheating, suffocation dehydration, starvation and eventual death from these element (Hannah Ritchie and Max Roser 2018)

A plastic stands to cause intestine blockage in an animal that consumes it. Death is the ultimate tragedy for animals that consume plastic both domestic and wild animals, it also impedes ability of bird to fly, if they end up with plastic soda rings round their body or when plastic bag get wrapped around their wings. Plastic can release harmful chemicals into the surrounding soil, which can then seep into ground water sources, and also the ecosystem. This can cause a range of potentially harmful effects to plant and on the species that drink the water. (Roland Geyer 2017) Different human health problems like irritation in the eye, vision failure, breathing difficulties, respiratory problems, liver dysfunction, cancer, skin diseases, lungs problems, headache, dizziness, birth effect, reproductive, cardiovascular, geotaxis and gastrointestinal causes for using toxic plastics. The table below shows some compounds generated during the incineration polyvinylchloride (plastic) and their harmful effects on human and animals.

Compound	Health
Acetaldehyde	It damages the nervous system, causing lesions.
Acetone	Irritates the eyes, the respiratory tract.
Bezadyde	Irritates the eye, skin, respiratory system, limits brain function.
Benzole	Carcinogenic, adversely affects the bone marrow, the liver, the immune system.
Formaldehyde	Serious eye damage carcinogenic may causes pulmonary.



Pholgene	Gas used on the WWL corrosive to the eyes, skin and respiratory organs
Polychlorinated dibenzo-dioxin	Carcinogenic, irritates the skin eyes and respiratory system. It damages the circulatory, digestive and nervous system, liver, bone marrow.
Hydrochloric acid	Corrosive to the eyes; the skin and the respiration tract.
Salicy-aldehyde	Irritates the eyes; it can also affect the central nervous system; reduces the level of consciousness and impairs learning ability
Toluene	Irritates the eyes and the respiratory tract, can cause depressions
Propylchloride	Damages the central nervous system by lowering consciousness
Vinylchloride	Carcinogenic; irritating to eyes; skin and respiratory system. Effect on the central nervous system, liver, spleen, blood-forming organs.

Source; Nagy and kuti (2018)

Recycling as a Technological Weapon against Climate change.

The oxford English Advanced Learner's Dictionary has defined Recycling as treating of things that have already been used so that they can be used again. Recycling eliminates the need for new raw materials to make new products, recycling also reduces energy consumption, the process of extracting new materials would not only result in greenhouse gas emissions but also consume more energy compared to processing recycling has emerged as one of the most important weapons in the fight against the effect of plastic wastes on global warming and climate change. Reprocessing of recovered plastic scraps or wastes into usable products is refers to as plastic recycling. There can be increase in percentage of plastics with the possibility of full recycling instead of large quality generated as waste, package good manufactures reduce their mixing of packaging materials and eliminate contaminants. (Okunola, 2019).

SUMMARY

The Assessment confirms the threats posed by plastic pollution crisis alongside the application of climate change. And review that large plastic item like bags and bottles can physically harm animals and affect their habitat negatively and suggest recycling as the best weapon in fight against climate change.

CONCLUSION

Buy improving how we manage plastic waste and investing in innovative solutions, we can reduce million tons of carbon pollution in the country and this can save the life of human, animals, prevent damage to soil and plants. The strategy of plastic waste reduction and recycling will curb the problem of global change. Innovative packaging and Plastic wastes recycling are the best alternative to drastically reduce the emission gases and vapors that would have had damaging effects on the environment.

RECOMMENDATION

- i Government should ban harmful single use plastic bags
- ii Government should provide waste bin in all towns in Nigeria for collection of plastic waste.
- iii. Awareness should be created on the harmful effect of plastic waste
- iv Communities, offices and homes should makes decisions about their lifestyle habits and products they buy. By stopping destructive habits and adopting green practices.
- V Instead of tossing plastic product away, the plastic industries, homes and workplace should considered recycling as the best method of plastic waste disposal.

REFERENCES

Andrady AL (2003) in plastics and the environment. John Wiley and sons, west Sussex, England.



- Biollo D (2013) Are biodegradable plastics doing more harm than good? Scientific American.
- Brydson JA (1999) Plastic materials (7th edn), Butterworth-Heinemann, Oxford USA.
- Derraik JA(2002) The pollution of marine environment by plastic debris:Areview.Mar pollut Bull 44:842-852
- Hannah Ritchie and Max Roser (2018) plastic pollution .Scotland
- Malorie Macklin(2016) 5 ways plastic pollution impact animals on land. nanaimo science
- Nagy A and Kuti Rajmund (2018) The Environment Impact of plastics waste. Oxford University press.
- Okechukwu O,Fatima K,Bidemi I,philiyas Y (2018) Active Basic Science and Technology for junior secondary School book 1.University press PLC.
- Okunola Alabi etal (2019) public and environmental health effects of plastics waste disposal.Areview.Journal of toxicology and risk assessment.
- Proshad, Islam MS,Kormoker T, Haque MA,mahfuzur, Rahman MD,etal (2018) Toxic effects of plastic on human health and environment. A consequences of health risk assessment in Bangladesh. International journal of health 6:1-5.
- Roland Geyer, jambeck J R,Law K L (2017) production, uses and fate of all plastics ever made. Journal of science Advances. Industrial ecologist. University of California www.planetproducts.com.Children's Books About plastic pollution.
- Thompson RC (2015) Micro plastics in the marine environment. sources, consequences and solutions in Bergmann M,Gutow L,Klages M,Mar Anthro Litt, Springer Heidelberg,185-200