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Role of Literacy in Ensuring a Clean and Sustainable Environment

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Abstract

The concept of a sustainable environment, environmental education, its implications and the necessity of a clean environment has been discussed in this paper. Ecological Education imparts information about the current circumstance and future possibilities of nature. It instructs individuals to investigate every one of the issues identified with climate and take part in wise methods of saving it. It is also tied with learning the manner in which we ought to live and how we can create practical methodologies to protect the environment. It assists people with building up a comprehension of living and actual climate and how to determine testing physical aspects of the environment influencing nature. As well as considering the actual parts of the environment, it additionally underscores the need to monitor biodiversity and receive a more economical way of life and use assets in a dependable manner. The paper also talks about plastic pollution and ways to tackle it. It focuses on the rudimentary ways of reusing and recycling plastic as well as reducing the use of the same. India and Nigeria are the two countries that have been paid attention to in the paper as the situation in both of these countries is worrisome when it comes to plastic pollution. The study of the environment helps us gain imperative knowledge about the current scenario of the surroundings we live in and how we can make it better.

Keywords: *Sustainable environment, environmental degradation, literacy, plastic pollution, recycling and waste management, UNDP, WASH*

1.0 Introduction

1.1 Defining a clean and sustainable environment

Everyone needs a good knowledge of what the natural environment is, so as to take part in its conservation and protection. The environment constitutes all that surrounds us and the various conditions that influence us. It includes all that we need for survival such as air, water, metals, soil, rock and other living organisms. A clean environment is one that is healthy, free from pollution and its detrimental effects, safe and tidy. A clean environment has clean air, water, safe food supply, land and energy, and has the ability to continually support life on Earth. The present condition of the environment has raised concerns all over the world. As a result of the current environmental issues such as global climate change, pollution (land, water and air pollution), environmental degradation and resource depletion, the environment is in great need of

sustainability and conservation; hence, the need of ensuring a sustainable and clean environment can not be neglected. A sustainable environment can be said to be one in which the natural resources are maintained and global ecosystems are taken care of, so as to support health and well-being (now and in the future) and also to avoid endangering the potentiality for generations to come to meet their own needs.

1.2 Defining environmental literacy

Environmental literacy refers to coordinated efforts to instruct how common habitats work, and especially, how people can oversee conduct and environments to live reasonably. It is a process that permits people to explore environmental issues, take part in critical thinking, and take action to improve the climate. According to Christina Zarcadoolas, an associate clinical professor in the Department of Community and Preventive Medicine at the Mount Sinai School of Medicine, "Environmental literacy seeks to change human behaviour so that humanity can create a sustainable and environmentally friendly quality of life." It is important for people to understand the environment from all perspectives. It is also important for people to know that every action they take has an impact on the environment, whether it is brushing their teeth or going to the grocery store. Environmental literacy advocates are not on a quest to provide a "right" answer in studying environmental issues. Instead, they seek to educate people through self-realization and the possession of problem-solving skills that help them examine different points of view. Environmental literacy initiatives seek to educate rather than propagandize so that it benefits society as a whole.

2.0 Major environmental issues

Environmental Issues faced today are a major concern and would increase if concrete steps are not taken to mitigate them. These issues/problems result from a man taking advantage of his environment (human activities). To name but a few, environmental issues include climate change, plastic pollution, environmental degradation, resource depletion, global warming, etc.

1. Environmental Degradation: Environmental degradation has become a subject of much attention and concern over the past few years, and presently several methods are being

employed to protect the environment. Environmental degradation is referred to as a process through which the natural environment is compromised in some way, reducing biological diversity and the given health of the environment (McMahon, 2021). Any change or disturbance to the environment perceived to be deleterious or undesirable is regarded as environmental degradation (Choudhary et al.,2015). Mbuligwe (2019) stated that it includes physical effects (such as disfigurement of the land surface), aesthetic degradation effects (such as scenic degradation) and ecological effects (such as disruption of biodiversity and deforestation). Resources such as air, water, soil and natural resources (like minerals and oil deposits) are depletable through overuse (McMahon, 2021). Environmental degradation is regarded as a cause of disease and health issues, and leads to loss of biodiversity and ozone layer depletion; its causes include modern urbanization, over-population growth and deforestation, among many others (Chopra, 2016). Although environmental degradation is mostly caused by human activities, natural sources such as natural/unaffected degradation of the ecosystem by itself, and natural disasters like landslides, earthquakes, tsunamis etc (Choudhary et al., 2015). Environmental degradation can be mitigated through recycling, water conservation, waste management, education (environmental literacy) and energy conservation.

2. Plastic Pollution: Plastic pollution is the contamination of the environment by plastic objects and particles. Plastic pollution is greatly harmful to humans, other organisms and the entire ecosystem at large, hence, it has attracted much attention and is now a topic of concern among researchers, various governmental and non-governmental organizations, environmentalists and the general public. Organisms can ingest plastic wastes or become entangled in them; hazards related to the ingestion of plastics include endocrine disruption, psychological and neurological effects, and impairment of liver and kidney function (Cook and Halden, 2020). Many types of plastic wastes, such as fishing nets, ropes, plastic bags, are present in the natural environment. It is estimated that 50% of plastic products, including utensils, plastic bags and packages are intended to be disposable (Li et al., 2016). Of all the plastics produced, only nine per cent has been recycled and about 12% incinerated, the others become plastic waste (Parker, 2019). Nearly every piece of plastic begins as a fossil fuel, and greenhouse gases are emitted at

each stage of the plastic lifecycle:

- fossil fuel extraction and transport
- plastic refining and manufacture
- managing plastic waste and
- its ongoing impact on our oceans, waterways and landscape (Plastic & Climate: The Hidden Costs of a Plastic Planet, 2019).

Major ways of combating the present plastic pollution facing man and his environment include education (environmental literacy) and plastic waste recycling.

3.0 Clean and Sustainable Environment: Aims and Objectives

3.1 Recycling and waste management

1. Recycling: Several methods to mitigate pollution and promote environmental protection and sustainability have been employed, one of such methods is recycling. Due to the amount of waste in our environment, waste reduction via recycling is a highly viable option. Williams (2005) defined recycling as the collection, separation, clean-up and processing of waste materials to produce a marketable material or product. Recycling involves turning substances that should be discarded as waste into new and useful products. Recycling and making use of recycled substances helps to decrease dependence on virgin materials, which in turn conserves resources, saves energy and reduces the number of discharges into the environment (air, water and land) during the production/processing of virgin materials. Recycling keeps materials off disposal areas, thereby mitigating greenhouse gas emissions. From an economic viewpoint, recycling minimizes cost and creates job opportunities. Waste materials composed of glass, plastics, metals, paper and board, organic or putrescible materials (made up of garden and food wastes and are suitable for composting) are recyclable (Williams, 2005). According to the United States Protection Agency (n.d.), recycling involves three steps that creates a continuous loop. Such steps include collection and processing of waste materials; manufacturing; purchasing new products made from recycled materials.
2. Waste Management: In order for humankind to ensure the protection and sustainability of the environment, waste management is much needed. Waste can be regarded as any

material which is no more useful or which is unusable for a particular purpose and hence is to be discarded or thrown away. Waste can be solid, liquid or gaseous. Waste management deals with all forms of waste. According to Demirbas (2011), waste management is the collection, transport, processing, recycling or disposal, and monitoring of waste materials. A waste management system involves gathering, conveyance, pre-treatment, conversion and a decrease of residues; it comprises the handling, treating, disposing or recycling of waste substances (Demirbas, 2011). Wastes can be generated from industrial, commercial, domestic and agricultural activities. these sources of wastes: industrial (scrap metals, waste plastics, chemicals, solvents), commercial (cans, food wrappers, plastics, papers), domestic (vegetable peels, cardboard, wood, paper) and agricultural wastes(animal dung, weeds, leaf litter, sawdust), all contribute to the degradation of the environment. Kan (2009) stated that a waste management concept includes the following goals:

- Reduction of the total amount of waste by reduction and recycling of refuse.
- Recycling and re-introduction of suitable groups of substances into production cycles as secondary raw material or energy carrier.
- Re-introduction of biological waste into the natural cycle.
- Best-possible reduction of residual waste quantities, which are to be disposed of on
- "suitable" landfills.
- Flexible concept concerning fluctuations in waste quantities and the composition of domestic waste.
- New developments in the field of waste management must be included in the system.

4.0 Comparative analysis between India and Nigeria

4.1 Cleanliness and Hygiene

India:

Cleanliness and hygiene are not only good for our own bodies but for the surroundings and environment we live in. Just like the rest of the world, India has been trying its best to achieve a

clean and sustainable environment. The government of India launched the 'Swacch Bharat Abhiyan' or the 'Clean India Mission' in 2014 which focuses on the eradication of open defecation all over the country and efforts have been made to make it successful. According to statistics published by the Government of India on the mission, more than 10 crore toilets have been built during the mission across the country. 36 Indian states have been declared defecation free and hence the mission has largely improved the lifestyle of a common Indian man. Our administration is doing every bit to ensure that our nation becomes cleaner and more sterile by each passing day, and as capable residents, it is our commitment to ensure that we do our best to assist with this mission. The tidiness of our environmental factors is our commitment, with regards to our homes as well as with regards to public spots like parks, vacation destinations, and public toilets. The cleanliness in public places not only improves the standard of living of the residents but likewise it gives a positive picture about India to the people that visit us from far off nations. Similar to the Clean India Mission, the prime minister of India launched the Green Skill Development Programme in June 2017. It was a programme to preserve and restore the environment and create a sustainable future and also focuses on developing skills among the youth in the environment and forest sector.

Nigeria:

Nigeria is a country with an estimated population of 191 million as of 2018. Located in Sub-Saharan Africa, it is a large country with colossal natural and human resources. However, Nigeria faces a critical challenge in its Water, Sanitation and Hygiene (WASH) sector. In November 2018, the Nigerian President declared a state of emergency in the Water, Sanitation, and Hygiene (WASH) sector, exhibiting political will at the highest level of government and launched a national campaign tagged 'Clean Nigeria: Use the Toilet' to jump-start the country's journey towards becoming Open Defecation Free (ODF) by 2025. The ambitious aim of the hygiene behaviour change "Clean Nigeria: Use the Toilet" campaign is to get 47 million Nigerians to use the toilet and stop open defecation. Poor access to improved water and sanitation in Nigeria remains a high contributing factor to high distress and death rates among children under five. The utilization of tainted drinking water and poor sterile conditions bring about expanded weakness to water-borne infections. Achieving Sustainable Development Goal 6

by 2030 requires exceptional efforts. Based on World Bank estimates, Nigeria will need to triple its budget or at least devote 1.7 per cent of the current GDP to WASH. The intention is highest for rural sanitation where the breach for improved services is 64.1 per cent. Funding for the sub-sector is weak, and notable household contribution is needed to eradicate open defecation despite low family incomes.

4.2 Plastic and waste management

India:

India generates 15 million tonnes of plastic waste every year but just a single fourth of this is reused because of the absence of a working strong waste administration framework. This prompts a burden on the landfills and poor financial states of the rag pickers, for the most part, women. United Nations Development Programme (UNDP) India, partnered with Hindustan Coca-Cola Beverages Private Limited (HCCBPL), Hindustan Unilever Limited (HUL), and HDFC Bank & Coca Cola India Foundation (CCIF) is building on existing systems to reduce the influence of plastic waste on the environment in India. The partnership promotes segregation, collection and recycling of all kinds of plastics to move towards a circular economy. This project aims at creating a socio-technical model for taking plastic waste management from informal to the formal economy and at setting up Material Recovery Centers for sustained practices in waste management. It also aims at inaugurating *Swachhta Kendras* within the framework of the government. It strives to evolve technology-supported knowledge management and Promote cloud-based traceability, accountability and digital governance along the waste value chain. The project is currently operational in 36 cities, with 22 Material Recovery Centers (Swachhta Kendras) established for sustainable waste management practices.

As much as 3.3 million metric tonnes of plastic waste was generated in India in 2018-19, according to the Central Pollution Control Board (CPCB) report 2018-19. This roughly translated to 9,200 tonnes a day (TPD) (Sidharth ghanshyam singh, 2021). The total municipal solid waste generation is 55-65 million tonnes; plastic waste is approximately 5-6 per cent of the total solid waste generated in the country (Singh, S. G. S. (2021, March 15). The draft Plastic Waste Management Rules, 2021, issued by the Union Ministry of Environment, Forests and Climate Change (MoEFCC) on March 11, has entailed a few changes in the country's handling of its

plastic waste. Unmistakably, we don't know about the measure of plastic we create as a country, as the increment in abundance and opulence adds to a higher generation of plastic waste. Managing plastic waste requires constructive knowledge, not only among those who manufacture the plastic but also among those who handle it. We should identify the avenues where the use of plastic can be curtailed. And as consumers, we should make sure that all plastic waste leaving our homes is separated and is not contaminated with food waste.

Nigeria:

One of Nigeria's biggest challenges is waste management. These wastes are in the form of polymers and plastics which according to research are difficult to manage. One major factor that leads to poor waste management in Nigeria is the high population density. It is a typical practice to see countless waste plastic items not gathered in dustbins for additional handling, recovery and standard removal through reusing focuses, landfills; rather, they are imprudently debauched or disposed of into locales that are unavailable for waste collection. In an effort to improve plastic waste recycling in this case, the Nigerian Ministry of Environment has already built plastic recycling plants throughout the country. Nigeria’s plastic waste law is also expected to cushion financial institutions that already support many recycling projects in the country. This is the case of the International Finance Corporation (IFC) which granted (in September 2020) a loan of US$39 million to Engee PET Manufacturing Company Nigeria for the construction of a continuous polymerization PET resin plant in Ogun State, in south-western Nigeria (Magoum, 2020). Plastic wastes are hazardous not just to land animals but also to aquatic life as well and therefore a global challenge, therefore, plastic waste is an environmental disaster already occupying the earth, thus a need for acute adoption of plastic management techniques is needed.

5.0 Appropriate approaches

5.1 Promoting environmental literacy

Education forms the basis of everything in this day and age including climate. Ecological Education grants information about the current circumstance and future possibilities of nature. It trains individuals to investigate every one of the issues identified with climate, and participate in ingenious methods of safeguarding it. According to Ms. Campbell, California’s Superintendent

of San Mateo County Schools "Environmental education provides important opportunities for students to become engaged in real-world issues that transcend classroom walls. They can see the relevance of their classroom studies to the complex environmental issues confronting our planet and they can acquire the skills they'll need to be creative problem solvers and powerful advocates."

Environmental literacy is important because of the following reasons:

- Upgrades imaginative and basic reasoning
- Gives students abilities to apply in reality
- Prompts activities to improve and support the climate
- Educates about environmental issues, yet additionally political, social, and financial ones
- Sparkles the creative mind
- Supports a better way of life
- Fortifies a local area
- Reduces nature shortage issues
- Supports and advances resistance between societies

5.2 Solutions to avoid plastic pollution

In accordance with the Solar Impulse Foundation (n.d), practical solutions to plastic pollution include:

- Reduce: Without a doubt, plastics have been very useful to mankind, hence, their usage has increased significantly in the last few decades. The annual production has increased from 1.5 million tonnes in 2013 (Li et al, 2016). Plastic usage can practically be reduced, products that are made from plastics can be produced alternative materials such as cardboard, beeswax-coated fabric, natural fibres, wood, bamboo, paper etc (Eartheasy, n.d).
- Reuse: Instead of discarding plastics when used for the first time, reusing them serves as a better option for the sake of the environment. Usage of single-use plastics such as plastic bottles and some plastic bags should be significantly reduced, buying reusable plastics should be preferred.

- Recycle: Plastic waste materials can be collected, cleaned, sorted and processed into new products. Plastic waste materials can be used in the manufacture of new materials such as plastic-based composites.
- Education: Educating the general public on the dangers of plastic pollution is an effective solution to mitigate and avoid further plastic pollution. Through environmental literacy programs, the public can gain knowledge on how to protect the environment and in turn ensure sustainability.

5.3 Ways to achieve a Sustainable and Clean Environment

Achieving a sustainable and clean environment can be somewhat challenging, but it is viable and there are practical ways to do so. Some of the practical methods to achieve a sustainable environment include:

1. Recycling of waste materials and products: Several waste materials such as those composed of plastics, metals, glass etc., can be recycled. Rather than disposing waste materials on landfills and leaving them to pollute the environment, they can be collected, cleaned and used in the production of new products, thereby ensuring environmental sustainability.
2. Reuse: Single-use products such as some plastics should be significantly decreased for the sake of protecting the environment. One can go for reusable products such as those made of ceramic or other materials instead of single-use plastics. For instance, one can get a reusable water bottle, which is a less expensive way to protect the environment. Using a product as much as possible before disposal should be encouraged.
3. Use of renewable energy: There should be a significant reduction in the use of fossil fuels such as coal, petrol etc., which are not renewable and their usage emit a great number of greenhouse gases into the atmosphere. Renewable energies such as solar energy, wind energy, etc., should be preferred, and further research in the field of renewable energies should be encouraged by governmental funding and other means.
4. Green technology should be encouraged: Use of scientific/technological/manufacturing processes that are not harmful to the environment to produce items/services that are also eco-friendly should be encouraged.

5. Reduction in energy consumption: Decreasing one's energy usage/ consumption helps protect the environment and also has personal benefits. Using less electricity reduces the amount of carbon (IV) oxide generated and puts less demand on the energy grid (5 easy tips to help clean the environment, n.d). One can reduce energy consumption by using energy-efficient products such as energy-saving light bulbs.
6. Reduction in usage of household cleaning chemicals and pesticides: Many household cleaning chemicals and pesticides have harmful effects on the environment. Cutting down on the usage of such chemicals or using alternatives that are eco-friendly should be encouraged.
7. Local/individual food production: Local or individual production of food should be encouraged. One can possibly have a garden or an area to plant food crops. This helps to reduce transportation of food items, hence, in a way reducing carbon (IV) oxide emission. It also reduces the requirement of pesticides and preservatives to preserve them.
8. Promoting environmental literacy: Educating people more on the environment, what harms it, how further pollution can be avoided and how it can be protected should be encouraged. This can be done through environmental literacy programs.
9. Planting trees: Growing trees and gardens should be encouraged as trees absorb carbon (IV) oxide in the atmosphere and in turn helps clean the environment. Deforestation should be greatly discouraged, and this can be done by enlightening the public on its dangers and enacting laws against it.

6.0 Conclusion

The environment is important to humans and other living organisms, and for man to ensure his continued existence and survival on Earth, the environment must be protected and its resources conserved. Natural resources such as air, water, land, trees and mineral resources are being contaminated, polluted and depleted on a daily basis as a result of man's activities in the environment. Countries all over the world are facing environmental issues such as pollution (from waste plastics and other contaminants), environmental degradation, resource depletion, global climate change, etc., and the case of Nigeria and India has been well highlighted in this

research paper since they both have a high rate of pollution. These environmental issues will continue if decisive and concrete actions are not taken to mitigate and avoid further destruction of our environment by our activities.

To ensure the protection of the environment, it has been shown that it is necessary to undertake critical steps such as:

1) Proper enlightening of the public (through environmental literacy programs) on the adverse effects of waste plastics and other pollutants, and on how to effectively keep the environment clean and protected.

2) Waste management - which entails proper disposal and processing of all forms of waste.

3) Recycling of waste materials

4) Increase in green technology

Detailed information on the environment, what harms it and practical steps to protect it have been provided in this research paper. If these methods are effectively undertaken by the majority of humanity, the challenge of the century--- ensuring a clean and sustainable environment can actually be overcome.

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