Managing Attitudinal Constraints towards the Environment: A Panacea for Effective Waste Management in Port Harcourt and Its Environs

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Authors’ contributions

This work was carried out in collaboration between both authors. Author GOCO designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Author TND managed the analyses of the study and managed the literature searches. Both authors read and approved the final manuscript.

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ABSTRACT

The management of people’s attitude towards the environment in today’s world has become an issue of global concern as it has been identified as the only way out to achieving a clean, safe and healthy environment. This study examined the waste situation presently in Port Harcourt as well as the constraints to environmental management in Port Harcourt and it was reported that most people have adopted wrong attitudes that impacts on the environment knowingly or unknowingly and hence these overtime have become a way of life that have overtime crept into the society as a lifestyle not minding its attending consequences and as a result puts a limitation to managing environmental challenges. The study also examined environmental and health implications of poor attitudes to waste management and it was discovered that arising from poor attitudes to the environment, the quality of the environment has deteriorated and that this have helped in increasing the spread of communicable diseases among residents and also flooding and other environmental challenges. The study however stated that poor air quality affect human health through adverse health conditions which affects the gastrointestinal linings, respiratory tract diseases and other ill health. Arising from the study enlightenment campaign for all at schools, churches, communities and Local Government levels, adoption and integration of environmental education.
into the present day school curriculum at all levels and the enforcement of environmental laws on indiscriminate waste disposal will serve as a panacea for effective waste management in Port Harcourt.

Keywords: Attitude; constraints; management; waste; effective; Panacea.

1. INTRODUCTION

The environment from creation was a beautiful sight to behold, looking at the bible declaration in the book of Genesis chapter 1 verse 31. Even God Himself stated that He saw that everything was good, which however implies that the earth was made a perfect place for human existence. After creation God gave man an instruction as recorded in Genesis 1:28. In this passage of the bible God instructed man to have dominion over all He created and subdue but insisted that man must replenish the earth, this man never listen to rather only listened to the instruction of subduing the earth. This however created the present day challenge of ecosystem destruction which is the genesis of climate change, flooding, environmental deterioration and others.

On a global scale the issue of waste generation and management is presently an issue of great concern. The challenge of waste generation and management is a problem created by mankind due to thoughtless act of consumerism and radicalism in waste disposal [1].

World Health Organization [2], defined waste to mean anything that the owner has no more need of at a particular point in time which the owner also sees not to be of any benefit and which market value is worthless and do not have any usefulness. It could be in fluid, vaporous or solid state, which make up can be either biodegradable or non-biodegradable. Waste could be found in the solid state as combustibles and non-combustible materials. The combustible materials include papers, plastics, debris, food waste, wood, textiles, and other organics while non-combustibles include glass, metal, aluminum product and others.

Throughout history, human advancement has been intrinsically linked to the management of solid waste due to its effect on both public and environmental health. Nathanson [3] have it on a good account that solid waste management (SWM) has a long and convoluted history; their roots can be traced all the way back to ancient times. One of the first instances, waste management occurred in the 4th century A.D. with the Ancient Greeks [4].

This although came with multiple challenges of aligning waste removal systems with a growing population, lack of space, and sanitation problems. Waste management practices were very rudimentary with trash just being collected and transported to pits outside the city. It was not until urban populations boomed that garbage was viewed as a threat to human and environmental health. Cities began to grow rapidly to accommodate the growing population and conditions began to worsen for these cramped communities.

The attitude of persons who reside in the city of Port Harcourt, have contributed to ineffective management of waste owing to the fact that the people even though they have access to the use of municipal waste infrastructures, they tend to dispose waste indiscriminately hence exposing them to the effects of indiscriminate waste disposal.

The City of Port Harcourt formally known as Garden City, was a safe haven until recently, where different environmental challenges such as waste generation and evacuation owing to the new systems of food provision and packaging arising from improvement in science and technology have become the order of the day with its associated consequences such as polluted water system, poor air quality due to the activities of waste burning, automobile and home provided generator sets. Although to different people different lifestyle may be accepted, this degenerating lifestyle has crept quietly into every nook and cranny of the city of Port Harcourt anchored by the attitude of the urban dwellers to waste management and environmental sustainability, hence putting the one time save haven in the risk of damage thereby endangering the lives of the general public.

2. WASTE SITUATION IN PORT HARCOURT

Port Harcourt, the capital of Rivers State is located at the southern part of Nigeria in the Niger Delta region of Nigeria, with an estimated population of about 5,198,716 while the population of Port Harcourt is thought to be about 1,356,000 [5]. The city which was named after
the then British Secretary of State for Colonies, Lewis Harcourt, is characterized by two seasons; the wet/rainy season and the dry seasons. The wet season is characterized by heavy rainfall and occasional flooding in some coastal communities and urban centers.

The issue of waste management is more like a household name in every city in Nigeria; this is so because virtually on every street in every Nigeria city are found heaps of waste defacing the aesthetics of the cities. Waste related challenge is on the increase after several years and periods of non attention, and this has degenerated to waste accumulation in response to increase in city population accompanied by poor and indiscriminate waste disposal attitude.

In the light of the above, Port Harcourt which presently is the State capital houses all the commercial activities in Rivers State, been a one city state and therefore experiences a hike in population as well as waste generated and hence the associated consequences.

In a study conducted by Ikebude [6] in Port Harcourt it was clearly stated that “the menace of solid waste is common to all markets, commercial centre’s and most street in Port Harcourt and in the last few decade solid wastes have appeared to be most prominent problem among a score of many problems existing in the metropolis. The magnitude of the solid waste problem is hard to comprehend but can be linked to the increase in population [7].

Population surges as reported by Ikebude [6] have given rise to heavily built up environment wherein houses are most closely built than before, which has then resulted in the dumping of more refuse on the streets and the median of major roads. This is mostly because the waste receptacles located along the highways seems not to be enough. Thousands of lives are lost every year to environmental related diseases. The health implication of improper waste disposal is enormous and cannot be ignored. Ikebude [6] in the study concluded that the conventional method of waste management is adopted in Port Harcourt Metropolis, which focuses on waste collection, treatment (composting and incineration) and disposal (landfills). The landfill methods of waste disposal are not efficient and are below standard.

In another study by Timiebi and Enwin [8] on the State of Solid Waste Management in Port Harcourt City; they stated that waste management in Port Harcourt is far from the above definition as there are no proper techniques in place to ensure the orderly executions of the basic principles of waste management. Hence, garbage often litters the streets in some suburbs of the city. In the study it was found that, wastes are often burned or disposed of on landfills, open dumps and water bodies without prior treatment and this practice are not in line with global practice as they have the tendencies of affecting the environment and human health.

The study carried out by Stanley and Owhor [9] on Assessment of Solid Waste Management Practice in Port Harcourt Metropolis identified that most residents dump their refuse by the road side, at common communal storage or via collection vehicles daily or at most once in two weeks. Waste management agency and contractors operate in the city but open dumping and dumping in water ways still persist. The grading of waste disposal system was considered very bad and unsafe. This study identified poor implementation, enforcement and lack of awareness of the waste management policy as the major problems confronting waste management in Port Harcourt. The study submitted that to attain a desired level of waste management in Port Harcourt, the right steps must be taken to create environmental awareness and implement waste management policies.

In the light of the above studies reviewed, it is pertinent to outline their submissions which will serve as a guide in our further discuss. One finding common to all the studies is the fact that residents have a wrong attitude towards the environment which is evident in the indiscriminate waste disposal practice common to all and the alarming consequences arising from this ugly trend. However if this issue of waste management must be tackled a close attempt and consideration needs to be given to correcting wrong attitudes to the environment.

3. ATTITUDINAL CONSTRAINTS TO WASTE MANAGEMENT AND THE ENVIRONMENT

First, since this is the interest of this discuss, it will be important that some terms are defined for clarity and understanding of all.

The word attitudinal is derived from attitude and it is related to one's feeling, mood or manner of acting.
Constraint means a limitation or restriction.

Attitudinal constraints to waste management and the environment are simply those inherent human attitudes that create limitations or have negative impact on the management of waste and the environment at large. It is worthy of note that in today's globalized world, variety of waste management methods exist, although these various methods are all tailored to helping put control and check on the growing challenge of waste management which have affected many cities within Nigeria and beyond. All have been targeted at waste recycling, waste re-use, waste reduce, composting, incineration, land filling amongst many others, but their adoption and consequent use have become a challenge due to wrong attitude. Atienza [10] has it on a good account that population growth and its continuous increase which is followed by industrial development have helped to aggravate improper waste disposal practice globally.

A survey on attitude of residents towards environmental deterioration in Nigeria and factors influencing their willingness to participate in reducing the trend carried out by Ohakwe et al. [11], the study revealed that the factors affecting willingness to participate in curbing the rate of environmental deterioration are age, sex, income level, awareness and concern about the deteriorating environment and the quality of the local environment.

Another study carried out by Nshimirimana, [12] on the Attitudes and Behaviour of Low-income Households towards the Management of Domestic Solid Waste in Tafelsig, South Africa. The study revealed open spaces and green areas, intended for recreation, parks and gardens are dumping areas for domestic waste. This study shows that socioeconomic factors have contributed to the poor attitude of residents to waste management. The study further stated that Government, local authorities and other stakeholders in environmental issues should jointly organize an aggressive campaign and environmental education for the community in low-income areas as a way out to correcting their attitude and enhancing environmental concern consciousness.

Ayotamuno and Gobo [13] in a study opined that municipal solid waste heap is found in several parts of Port Harcourt. This indiscriminate dumping of waste however have become an issue of concern in Port Harcourt as waste presently are found blocking drainages, some left along the roads to decay thereby producing environmental nuisance. It is an obvious fact that residents of Port Harcourt dump waste with the mindset that there are no implications, as observation have shown that people throw waste out of their homes to the road indiscriminately without recourse to its impact. In some cases waste are dumped in the median of roads or by road sides, drainages, River banks and wetlands as well as in public spaces. Sometimes these wastes are left to decay and this produces foul odor that constitutes nuisance to the environment and health of the residents of the city.

Eneji et al. [14] also stated in their study that most urban residents do not consider living in a clean environment as essential aspect of human existence; hence, they cannot keep a clean environment. They play passive role in sanitation activities and refuse to co-operate with others in cleaning up residential surroundings because of their negative attitude.

According to Afangideh [15], in a study on the attitude of urban dwellers to waste disposal and management, the study discovered that family size has a great influence on waste disposal and generation and that environmental enlightenment has changed people's attitude towards waste generation and management in the area, hence the study concluded that effective environmental enlightenment would help avert the wrong attitude of urban dwellers to waste disposal and management.

Arising from poor attitude to waste management, Joseph [16] suggested in his study that the enactment of certain policies relevant to improving environmental sanitation and community-perception on waste management is a matter of national urgency to minimize imminent outbreaks of diseases and adverse impacts on the economy due to loss of workdays, treatment cost, and clean-up activities.

Bruce, (2007) as cited in Eneji et al. [14] discovered that most people have very negative and non-chalant attitude towards waste management and disposal, the author further observed that this kind of persons could be perceived as people who litter the environment without regard or respect for the environment. He further stated that people don’t consider the need to appraise or talk to neighbors about changing
their negative attitude toward waste management and disposal.

Studies conducted with respect to attitudes have identified that most people have adopted wrong attitudes that impacts on the environment knowingly or unknowingly and hence these overtime have become a way of life that have overtime crept into the society as a lifestyle not minding its attending consequences and as a result puts a limitation to managing environmental challenges as it is found to be in a continuum. From the above review, it is clear that some of the attitudes that constrains environmental management includes;

1. Waste disposal in unauthorized locations such as drainages, roadsides, river channels, wetlands and public spaces,
2. Poor packaging of waste before disposal
3. Non involvement of the people in waste related matters
4. Indiscriminate waste disposal such as littering especially from moving vehicles
5. Disposal of waste water on major roads
6. Connection of used water sewage system into public drains and spaces
7. Non adherence to use and cleaning of public space policies
8. The demand of large volume of packaging at every single purchase irrespective of size of item, hence increasing waste volumes at homes.
9. Non Involvement in the mandatory monthly sanitation exercise
10. Waste burning

**4. ENVIRONMENTAL AND HEALTH IMPLICATIONS OF POOR ATTITUDES TO WASTE MANAGEMENT**

There is an interrelatedness of human health and environment, hence the activities that are carried out where people live influences how they live and the kind of life they live as well as the health of the people. Therefore health is the outcome of the interaction between humans and the waste deposited on the environment and how these tend to influence their wellbeing [14]. The results of different studies have shown that a direct connection exist between human health and waste disposal practices adopted by residents in any location. It is evident that most community ailments and diseases are attributed to the quality of the environment. Disease conditions like malaria, diarrhea, dysentery, typhoid, cholera among others are seen as being caused by the environmental conditions where man finds himself [17,18] as cited in Eneji et al. [14].

According to World Health Organization (WHO), since the attainment of a complete state of health in full must be strived towards, the adoption of a hygienic method of waste disposal becomes imminent in addressing physical, biological, chemical and socio-cultural factors in the environment that may adversely impact on the health status of residents of a place.

In the city of Port Harcourt, it is no longer a story that wastes are being dump indiscriminately by the roadside, any available, open drain, litters in open space, papers and polythene bags etc are indiscriminately dumped in any available open space. Waste in the market and residential points and auto-scrap are dumped anywhere, anyhow and these apparently affects the aesthetic value of the environment, creating environmental disaster. Waste disposal in open dump or burning cause’s air and water pollution with underground water source also polluted. The dumpsite serve as breeding grounds for disease bearing organism like rats, flies, cockroaches etc [19,20,21] as cited in Eneji et al. [14].

Poor management of waste generated in urban areas is fast becoming a major challenge confronting urban centre’s with little or no attention given to waste management practices as it is common to see heaps of waste in the major cities littering the streets, dumped indiscriminately in drainages, vacant plots and open space especially in the developing cities with Port Harcourt not been an exception. This attitude have helped in increasing the spread of communicable diseases among residents and it has also lead to flooding and other environmental challenges [22,23,24].

It is worrisome to note that Nigeria generates more than 32 million tons of solid waste annually, out of which only 20–30% is collected and disposed properly [25]. Indiscriminate disposal of solid waste has led to blockage of sewers and drainage networks, and choking of water bodies. Most of the wastes are generated by households and in some cases, by local industries, artisans and traders which litter the immediate surroundings.

According to Danbuzu [26] and Imam et al. [27] it is now a common practice to dump waste into the drainages that block the free flow of runoff water, this however gives rise to flooding and the communities are adversely affected, some
people dump their waste on the road side, thereby reducing the width of the road and aesthetics of the cities especially in Nigeria. This is evident as one walk across the nook and the crannies of urban centres in Nigeria.

Although several studies have reported the effects of waste exposure to health, two main health outcomes have been found to be statistically associated with waste exposure: cancer and congenital malformations. Hazardous waste has been shown to influence the likelihood of developing lung, brain cancer, bladder and lung cancer [28].

Conclusively, the World Health Organization (WHO) (1999) as cited in Eneji et al defined environmental health as those aspects of the human health and disease that are determined by factors in the environment. It concern is on all aspects of the natural and built environment that may affect human health. It also refers to the theory and practice of maintaining an environment that can potentially affect human health and wellbeing. Bihon, [29] concluded that environmental health concern includes: Air quality: including both ambient outdoor air and indoor air quality, which also comprises concerns about environmental infractions like tobacco smoke, climate change and its effect on health, disaster preparedness and response, food safety, including agriculture, transportation, food processing, wholesale and retail distribution and sale. More so the study stated that environmental air quality affect human health through adverse health conditions affecting the gastrointestinal linings, respiratory tract diseases and other ill health.

5. CONCLUSION

It is crystal clear that there are attitudinal constraints to managing waste, but the way out of this situation becomes paramount as it will aid in charting a new course for the environment aesthetically and health wise.

Having carefully examined the issues of interest to the study, it is pertinent to note that for a healthy life, a clean environment must be targeted to ensure a safe and healthy life. Although the achievement of this can only be achieved through a deliberate and concerted effort geared towards managing luxuriant lifestyles that are inimical to the environment and striving towards achieving a safe and healthy environment for all.

The achievement of this goal must be driven with the passion to work in synergy with all stakeholders, policy makers, Communities and Government at all levels. With this in mind, there is a need that attitudinal change towards the environment should be pursued at all levels and this should include;

1. Enlightenment campaign for all at Schools, Churches, Communities and Local Government levels etc.
2. Adoption and integration of environmental education into the present day school curriculum at all levels,
3. Enforcement of environmental laws in accordance with NESREA 2009 Act part 2 section 3 which states that no occupant or passenger of any vehicle is permitted to throw or drop any litter on the road/streets.
4. Prohibition of use of public spaces without appropriate sanctions.
5. Health talks on the beauty and benefits of a clean, healthy and safe environment
6. Effective monitoring of the monthly sanitation exercise/provision of evacuation trucks after every sanitation exercise.
7. Enforcement of urban renewal laws.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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