



Advocating Attitudinal Change to Waste Disposal and Environmental Health Promotion through Adult and Non-Formal Education in Nigeria

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Abstract: Waste disposal issues in contemporary society are increasingly becoming global concerns, given the impact they have on the health and wealth of humankind. The corollary of this practice is the deleterious effect on the health and environment of people, which are fundamental to sound and productive citizenry. This study examined why people dispose waste indiscriminately; found out the different aspects of environmental sanitation programme in Ife Central Local Government Area; ascertained if residents were aware of the environmental problems that might emanate from improper waste disposal in Ife Central Local Government Area; and determined how change of attitude to waste disposal could be encouraged among the residents in Ife central Local Government Area, Osun State, Nigeria. Through a case study research design, the study purposively sampled 20 adult men and women from Ife Central Local Government Area. The participants were selected based on their relatively long period of stay in the area (a minimum of 15 years) and In-depth interview was used to elicit information from them. It was discovered that despite the fact that there were various environmental sanitation programmes in Ife-Central Local Government Area residents of the area still dumped refuse indiscriminately. Equally, adequate waste disposal laws were not made, and when made, were not effectively enforced. The study concluded that within the context of adult education, with a view to promoting health among Nigerians, environmental education programmes could be harnessed to foster attitudinal change. Such changes would bring about proper, decent and cost-effective management of waste, and healthy and wealthy environment for all.

Keywords: Adult Education, Attitudinal Change, Environmental Health, Nigeria, Waste Disposal

1. INTRODUCTION

Today, the problem of waste disposal and the implications it has for the health and wellbeing of humans are enormous (Opara, 2009; Selin, 2013; Oyekan & Sulyman, 2015). Even though this is a global concern, researchers, in recent times, have focused more on developing countries, given the development issues of poverty, and rapid population growth and urbanization (Selin, 2013; Butu & Mshelia, 2014), poor education and insufficient awareness programmes. According to Noibi (1992), environmental deterioration has risen to a large extent because people are unaware of the implications of their action.

Besides failure on the part of government in developing countries, the attitudes of citizens to waste disposal have contributed adversely to a perpetuation of indiscriminate disposal of wastes. Adeolu, Enesi and Adeolu (2014), citing Osinowo (2001) and Joseph (2006)

note that one of the greatest problems facing developing countries is the unhealthy disposal of solid wastes which result activities that humans engage in for survival. They also argue that the poor state of waste management in the country is caused by inadequate facilities, poor funding, and poor implementation of policies as well as wrong lifestyle. This argument does not only indict government, but also citizens. Inadequate solid waste disposal facilities and citizens' carefree attitude towards the environment have largely been responsible for poor condition of environment in developing countries.

Adeolu, et al (2014) point out that the problems with waste management have arisen recently in developing countries where there is a little history of environmental awareness/education and where many members of the community are illiterate and unaware of the problem of solid waste accumulation. It therefore behooves on adult and non-formal educators in Nigeria to use the instrumentality of environmental education programmes



to enhance citizens' understanding of the implications of their actions on the environment for their health and influence their attitude towards decent and proper waste disposal.

2. WASTE AND WASTE DISPOSAL/MANAGEMENT IN NIGERIA

Oyekan and Sulyman (2015) put forward that waste management practice in Nigeria is appalling. They report that only about 14% of Nigerian households have access to satisfactory refuse disposal system, and in both rural and urban areas of the country, refuse is buried, burnt or disposed-off haphazardly into rivers, streams, canals, forest, and open spaces. Opara (2009) sees waste management as the act to maintain acceptable environmental quality, sound public health, and creation of aesthetic value. Jatau (2013), citing Uchegbu (2002), defines waste management as a planned system of effectively controlling the production, storage, collection, transportation, processing and disposal or utilization of waste in a sanitary, aesthetically, acceptable and economic manner. The concept of waste management cannot be fully understood without also having a grasp of what 'waste' itself is.

Waste, as it were, is a global phenomenon which can be understood in different contexts. Oyeniyi (2011) posit that it is capable of different interpretations and meanings. He defines it as any material which has been used, and is no longer wanted, for example because the valuable or useful part of it has been taken out. Attah (2013) describes waste as something that is not or no longer useful and is to be thrown away or disposed of. Again, it has been defined as any material lacking direct value to the producer and so must be disposed. Lagos State Environmental Edicts (1985), Section 32, cited in Adewole (2009), defines 'waste' as any substance, which constitutes scrap materials or an effluent, or other unwanted surplus substances arising from the application of any process. Also, Part II of the UK Environmental Protection Act, (1990) defines waste as any substance which constitutes a scrap material or an effluent or other unwanted surplus substance from the application of any process. It also sees waste as any substance or article which requires to be disposed of as being broken, worn out, contaminated or otherwise spoiled.

These definitions have one common denominator, and that is the fact that anything that is termed 'waste' is a product of human action (directly or indirectly), but ceases to be useful and therefore, must be disposed. National Environmental Health Association (2011) puts forward that solid waste is an unavoidable by-product of human activities. Waste itself or waste generation in itself, is not a problem. The problem, however, is the disposal and management of waste that threatens the health and wealth of society. Attah (2013) notes that the

volume of waste does not actually constitute the problem but the ability or inability of governments, individuals and waste disposal firms to keep up with the task of managing waste and the environment. It is the inability or attitude to properly dispose of what has been termed 'waste' that has made waste a global concern.

Wastes come in different forms and whatever the form, it poses serious threat to the wellbeing of humans. Butu and Mshelia (2014) classify waste into domestic/residential, commercial and industrial. According to them, domestic or residential wastes are those that are collected from dwelling places on a regular basis, such waste include organic matter resulting from preparation and consummation of food, rags, nylon and ashes are the remains after various cooking and heating processes. The commercial wastes are those that arise from shops, supermarkets, market and others; they include paper carton, polythene bags and nylons. The industrial wastes are those waste materials that arise from industries; these could be solid, liquid, sludge or emotive title attached to them like toxic, hazardous and special waste. The industrial waste includes metals, scraps, chips and grits from machine, shops, sawdust, paper pieces and glass.

Adewole (2009) points out that waste management, collection and disposal have always been a universal problem. Mbalisi and Offor (2012) argue that the management of solid wastes has become increasingly a difficult task locally and globally with increase in population and high consumption patterns among urban dwellers in Nigeria. Waste management is as much the task of individuals as it is of government. Sadly, Nigeria (and Nigerians) portray lukewarm attitude towards it (Jatau, 2013). The practice of disposing solid waste indiscriminately has a price to pay in terms of collection, transport and disposal costs and loss of valuable raw materials (recyclables, reusable and repairable) and the impact on the environment due to air, water and soil pollutions, and associated health risks that ultimately impact the economic sustainability (Butu & Mshelia, 2014). Key findings from the study carried out by Jerie (2016) reveal that solid waste management practices are dominated by manual handling tasks hence the higher incidents of muscular-skeletal disorders and health hazards associated with waste management in the informal enterprises of Gweru in northern Nigeria include incidents of diarrhea, viral hepatitis, and higher incidents of obstructive and restrictive disorders. Of all the impacts that waste generation and disposal constitute, that which it has on health of citizens is gravest.

3. HEALTH IMPLICATIONS OF INDISCRIMINATE WASTE DISPOSAL

Health and environment are unquestionably interrelated and poor air quality, contaminated water, exposure to



chemicals and some vector-borne diseases affect the ecosystem as well as human health (Opara, 2009). Nabegu (2010) reviews from World Bank reports (2002, 2003) that proper management of solid waste is critical to the health and well-being of urban residents and that it is an important part of the urban infrastructure that ensures the protection of environment and human. Wastes disposed improperly and indecently pose serious health challenges for residents of affected areas. In the same vein, Muhammad, Shamsuddin, Yahaya and Nuhu (2019) conclude that inappropriately disposed polyethylene waste poses various threats to public health, for example, one of which is that, the polyethylene is capable of holding rain for days, weeks and months forming small pools of water which are usually breeding ground for mosquitoes, thereby increasing the incidence of malaria in Zamfara State, and Nigeria in general.

Adewole (2009) points out the following as some of the health implications of indiscriminate waste disposal: flies which carry germs on their bodies go round contaminating food items; mosquitoes breed in stagnant water, in blocked drains, in favorable locations, in cans, tyres etc.; rats spread typhus, salmonella, leptospirosis and other diseases, and they cause injuries by biting and spoiling millions of tons of food; refuse workers also face some hazards which include: parasite infection and infected cuts resulting from skin contact with refuse, injuries from glass, razor blades, syringes, tissue damage or infection through respiration, ingestion or skin contact. The result of the study on community participation in waste disposal and its management carried out by, Ogundele, Opeagbe & Amusat (2018) showed that improper handling of waste and poor environmental hygiene or sanitation can influence the likelihood of developing illnesses like acute respiratory illness and acute gastrointestinal illness such as sore-throat, nausea, typhoid, watery stool, acute abdominal pains, etc. These, according to their study, constitute high risk factor to public health.

In the same vein, Selin (2013) identifies the following health effects of indiscriminate waste disposal: skin disorders – fungal infection, allergic dermatitis, pruritis and skin cancer; respiratory abnormalities – bacterial upper respiratory tract infections (pharyngitis, laryngitis and rhinitis), chronic bronchitis and asthma; abdominal and intestinal problems – bacterial enteritis, helminthiasis, amoebiasis, liver cancer, kidney and renal failure; dental disorders – dental carries and dental pain; ear infections – otitis media and bacterial infections; skeletal muscular systems – back pain; central nervous system – impairment of neurological development, peripheral nerve damage and headaches; eye infections – allergic conjunctivitis, bacterial eye infections; blood disorders – Iron deficiency anemia; others – malaria,

chicken pox, septic wounds and congenital abnormalities, cardiovascular diseases and lung cancer.

Moreover, Fazzo¹, Minichilli, Santoro, Ceccarini, Della, Bianchi, Comba¹ and Martuzzi⁴ (2017) confirm that hazardous waste, if not suitably managed, might cause adverse health effects on populations living near the sites where they are dumped or processed. The contamination of different environmental matrices, including food, water, soil and air, represents a health risk for these populations. Manzo¹ and Sharma (2019), in their article which reviews the impact of biomedical waste on water, soil, air quality, the environment, and human health, reveal that hospitals and nursing homes generate increasing amount of biomedical waste which, due to poor waste management practices by these institutions, cause not only exposure to health hazards and actual environmental problems but is also linked to risks for people who are directly and indirectly associated with this profession. Opara (2009) observes that waste generated in households, hospitals, industries, and commercial centres contribute immensely to environmental obscenity, pollution and nuisance which are hazardous to human existence. Improper handling of waste, – both liquid and solid, especially from the ranks of waste collectors and scavengers, increases the risk to human health. This current study has been able to establish a scientific proof that environmental characteristics and poor hygiene are statistically associated with environmentally related illness. The deleterious effects of indiscriminate waste disposal on the wellbeing of humans have further implications for the health and economic sectors of a nation's government. The effects overstretch government's ability to deal with health challenges both in the context of human, material, and financial resources. This continues to have ripple effects and continues to create a vicious circle. Prevention, they say, is better than cure. A solution to the problem of rippling the effect of waste disposal problem in Nigeria would be to adopt preventive strategies. One effective strategy would be to engage in massive environmental adult education programmes through adult and non-formal education.

4. CITIZENS' ATTITUDE TO WASTE DISPOSAL AND THE ROLE OF ADULT AND NON-FORMAL EDUCATION

Adult education is often referred to as education that helps to induce desirable change in the society. Adult Education has many forms and many components. It includes formal, non-formal and informal learning orientations. Its components may include community education (which could involve environmental adult education), vocational technical education, entrepreneurship education, family life education, adult civic education, agricultural extension education, etc.



Environmental education is of importance to this paper because it is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work towards their solution (Environmental Education and Training Partnership, 1997, cited in Mbalisi & Offor, 2012).

Environmental adult education is important platform for learning that is capable of changing the attitude of different categories of people towards waste disposal. Jatau (2013) citing Falomi (1995) identifies two broad categories of Nigerian urban populace on the basis of their waste management attitude: 1.) the unconcerned elite who have an out-of-sight, out of mind attitude towards pile of waste, which they drive by on streets enroute their offices, and 2.) the ignorant poor who have an attitude of helpless resignation to living with the filth. The action or inaction of any of these categories of people affects the environmental condition of where they live.

Knowledge of how to take care of the environment is important for achieving a healthy and disease-free society. According to Jatau (2013), sufficient knowledge of the impact of waste management on health may help people to protect themselves from diarrhea, typhoid fever, cholera, hepatitis, malaria and other infections. He also noted that adequate knowledge of the negative impact of poor refuse disposal may encourage people to adopt positive waste management practices and positive waste management practices may also promote personal hygiene and the health of the environs.

Anijah-Obi (2001), cited in Mbalisi & Offor (2012), describes environmental education as a field of study which seeks to promote among citizens, not just awareness and understanding of the environment, but man's relationship to it and responsible actions necessary to ensure his survival while improving the quality of life. Environmental education programmes inculcates in adults' practical knowledge, information, and necessary skills and competences for solid waste management. Dana (2006), cited in Mbalisi & Offor (2012), opines that awareness and education are effective in altering perceptions and attitudes towards waste segregation. If awareness and education are important strategies in influencing behavioral change, it is therefore important to entrench massive environmental adult education in different communities through different means such as radio, television, bill boards, each-one-reach-one, and other non-formal means.

In view of the foregoing paragraphs, the study raised some research questions to find out:

- i. why do residents of Ife Central Local Government Area dispose waste indiscriminately?
- ii. what are the different aspects of environmental sanitation programme in Ife Central Local Government Area?

iii. are residents aware of the environmental problems that can emanate from indiscriminate waste disposal?

iv. how can change of attitude to waste disposal be encouraged among the residents in Ife central Local Government Area?

The objectives of the study were to:

- i. examine why people dispose waste indiscriminately;
- ii. find out the different aspects of environmental sanitation programme in Ife Central Local Government Area;
- iii. ascertain if residents are aware of the environmental problems that may emanate from improper waste disposal in Ife Central Local Government Area; and
- iv. determine how change of attitude to waste disposal can be encouraged among the residents in Ife central Local Government Area, Osun State, Nigeria.

5. RESEARCH METHOD

The study adopted a case study research design to assess issues around indiscriminate waste disposal and environmental education programmes in the study area. Purposive sampling technique was used to select 20 adult members of the local government area. The participants were selected based on their relatively long period of stay in the area (a minimum of 15 years). The participants comprised 4 traders, 4 lecturers, 4 community health workers, 4 artisans, and 4 sanitation officers. The participants were coded as R1-R20. The instrument used to collect data from the participants was an in-depth interview guide which elicited information regarding the waste disposal and environmental education programmes. The interviews which lasted for an average of 9 minutes were done in English and Yoruba languages and were tape-recorded and afterwards, transcribed. The data were analysed using qualitative content analysis.

6. DATA AND DATA ANALYSIS

In this section, the authors discuss answers provided by the respondents to the questions raised in line with the objectives of the study regarding waste disposal

A. Research Question One: Why do residents of Ife Central Local Government Area dispose waste indiscriminately?

Participants in the study expressed different views of why they dispose waste indiscriminately. The different views are categorized into themes.

I) Government should be blamed

A majority of the views of the participants indicted the government for being responsible for the indiscriminate



disposal of waste because it is the duty of government to provide waste materials and facilities. For instance, Participant R1 said *“the government did not provide the needed materials for the environmental sanitation officers to discharge their duties as expected.”* As far as this participant is concerned, an inadequate provision of waste disposal facilities by government is the reason residents in the area dispose refuse indiscriminately. Participant R7 buttresses the view by noting that:

Government on its part has not been living up to its responsibility in the area of waste disposal. Refuse receptacles are not available in most areas and even the available ones are not emptied as at when due.

It is the view of Participant R7 that besides lack of adequate provision of facilities by government, there is also delay on the part of government in evacuating or emptying refuse receptacles that are full. From the views of these two participants, it appears that there is some sort of reliance on government both for provision of waste facilities and for the evacuation of wastes.

II) Lackadaisical attitude of sanitation officers

Some of the participants in the study avowed that the nonchalant attitude of the sanitation officers is the reason for indiscriminate disposal of waste in the local government area. Participant R2 said:

The sanitation officers do not stand up to their duties and carry them out as expected and the citizens do not cooperate with both the government and sanitation officers to make the environment a safer and healthier place to live for all.

Besides blaming disposal of wastes on sanitation officers, Participant R2 also indicts residents for not being willing to cooperate with the government and sanitation officers in ensuring safer environment. Another participant in the research (R4) was of the view that sanitation officers do not come regularly to inspect the environment and also empty the receptacles as at when due. This view suggests that a lack of regular inspection of the environment by sanitation officers results in the negative attitude of the residents towards waste disposal in the local government area.

III) Poor legislation and sanctions

Two participants averred that lack of legislation and inadequate enforcement and punishment for offenders is the cause for indiscriminate refusal disposal. One of the participants (R7) opined that *“environmental sanitation laws were not made, and if made, were not effectively enforced in the state.”* The other participant (R5) also

noted that *“there are no effective sanctions put in place for anyone who violates environmental sanitation laws”* These views suggest that there are no effective environmental or sanitation laws and sanction mechanisms in the local government area or in the state that deter perpetrators of indiscriminate refuse disposal in the local government area, and this has made the menace a continued phenomenon.

IV) Location of waste facilities

It should be recalled that some participants had mentioned that government has not done much in providing waste facilities such as receptacles in the area for evacuation of refuse. Some other participants in the research noted that this inadequate provision of facilities accounts for dispersed placement of available receptacles. One participant, R3 said that *“refuse receptacles are not strategically positioned within the reach of the citizens.”* It can be deduced from this view that the fact that receptacles are placed widely apart from one location to another makes it difficult for residents to reach and properly dispose their waste. Participant R6 buttressed this view by noting that:

Refuse receptacles are also not enough to serve people, so the few available are widely spaced and when people cannot walk such distance to dispose their refuse, they result to indiscriminate disposal.

The views of these participants show that cooperation from residents of the local government area with respect to refuse disposal largely depends on the actions and/or inactions of government and sanitation officers in the local government area.

B. Research Question Two: What are the different aspects of environmental sanitation programme in Ife Central Local Government Area?

The sanitation officers who were participants in the research identified five major environmental sanitation programmes that they carry out for residents in Ife Central Local Government Area. The identified programmes include O'YES, Operation O-Clean and Gbalumo introduced on the 17th day of December, 2010, “Wole-Wole” Public Health Act of 1917, , WAI (War Against Indiscipline) launched on August 27, 1984, which are environmental sanitation programmes organized by the Government to clear refuse, clean private and public environment, Analysis of data suggests that the different names of the environmental sanitation programme in existence in the Local Government Area shows that over time, there have been changes in governmental administration and these changes have



influenced a change in name of the programmes. However, the aims and objectives of the programmes remain the same. Alongside educating the public on healthy waste disposal, residents in the local government area shared some of tasks that sanitation officers undertake. Participant R1, for instance, said *"they inspect houses and check houses that do not have toilet."* Other participants agreed that sanitation officers inspect the environment to be sure it is clean, and also check how neat food items are when displayed for sale.

When the question of their roles was checked with the sanitation officers, they gave insights into some of the duties they are saddled with in the local government. Participant R8 mentioned that:

We do what we call house-to-house sanitary inspection. We do go out to inspect various premises ranging from normal premises to residential premises, garage, hotel, pure-water factories. We do inspect them sanitarily.

The description of the tasks of sanitary officers of R8 can be likened to be a form of needs assessment process which normally precedes the setting of objectives in a teaching learning interaction. It is during the process of house-to-house inspection, as well as inspection of other locations cited by the participant that sanitation officers possibly identify the areas where residents need training and enlightenment regarding safeguarding against diseases arising from unclean environment. Another sanitation officer (Participant R9) averred that they are concerned with the health of the people it is their duty to ensure that the environment is clean, and that people are in sound health. Participant R10 also added that:

The nature of our job is clearing of refuse, clearing of surrounding and how we can keep the environment clean, and how the people display their goods in order not to cause accident. Actually, we are after health; to collect refuse, you still have to avoid spreading of diseases. You know in refuse, we have flies and the rest, and flies cause communicable diseases like cholera and typhoid.

The data presented gave insights into the job description of the sanitation officers which range from inspection to ensuring a clean environment, keeping the environment clean, and educating traders on how to display their goods. The views of the participants highlight the specific areas in which sanitation officers focus on in sensitizing members of the public on securing

their environments against the spread of disease. All the participants emphasize that that their job is about how to keep the environment clean. It can be deduced from their views that these processes or tasks are laced with educational processes because the task of keeping the environment clean can only be done through the process of environmental education.

C. Research Question Three: Are residents aware of the environmental problems that can emanate from indiscriminate waste disposal?

Participants in the study gave different but connected views about the problems that may arise as a result of indiscriminate waste disposal. The participants all agreed indiscriminate waste disposal results in sickness. For instance, R2, a tailor, said wastes, when not properly disposed can breed mosquitoes and that this could bring about sickness. Another participant, R4, a welder, said *"everybody knows that dirtiness is not good for the body. It causes sickness and it wouldn't make one to be healthy"*. A market woman (R3) opined that indiscriminate disposal of refuse causes sicknesses like diarrhea, vomiting, stomach pain, etc.

Another participant, R1, a mechanic added that *"we all know that we are writing letter to sickness."* The views of these four participants, who may be described as persons without formal education indicates that they have been exposed to some form of adult non-formal environmental education. This is evident in the way and manner they avowed their views of the negative effect of indiscriminate waste disposal with pointedness and assertiveness. A more educated participant in the research, R12, a University lecturer, captured the views of the other participants in a more elaborate way thus

It makes people have bad impression about the community, and even the residents of the community. It results in odor and odor can be contaminating. The effect of this is illness. People begin to fall sick and before you know it, they start spending money. It has financial implication. Apart from that, even the soil is polluted. Each time it rains, most of the things are washed away by erosion to different areas. So, I think the best thing is for the Government to create dump sites, provide vehicles to move from one area to another.

The responses of these participants highlight the various effects of improper waste disposal. Analysis of data shows that the residents are not ignorant of the problems that emanate from their indiscriminate disposal



of wastes. The identified problems emanating from improper waste disposal range from sickness, dirtiness, air contamination and pollution, soil pollution, and financial burden of care for the sick.

D. Research Question Four: How can a change of attitude to waste disposal be encouraged among the residents in Ife central Local Government Area?

Data collected revealed the different ways that positive attitudes towards waste disposal can be induced on the residents of the local government. A participant, R11 firmly asserted that the way to achieve a positive attitude towards waste disposal is through education and law enforcement. She said, “*educate people, enforce the law*”. Given the focus of this research on the importance of adult non-formal education in promoting environmental public health, the point about educating the people as a way of inducing positive attitudes in them about waste disposal is integral. Another participant, R12, corroborated the view by shedding light on how to educate the public. He said:

What the government can do is to sensitize people. And how do you do that? It is through mass mobilization. That is the most important thing. All they need do is to organize public address system, go around the street, from one place to the other to keep their environment clean. There must be sanctions. If there are sanctions, people will not dump their wastes anyhow because people have a way of studying the government.

Sensitization and mass mobilization that participant R12 mentioned are important strategies in adult non-formal education. This participant made it clear that by going around streets and different places to educate the public on the need for properly disposing refuse, people can become more aware of the menace of indiscriminate waste disposal. A health worker, who was also amongst the persons interviewed during the period of data collection, referred to as R14, captured the issue of organized educational provisions for residents of the local government. She said:

The first one is health education. They should create or establish a department that will try and lecture the citizens on the advantages and disadvantages associated with improper waste disposal.

Participant R14 seems to refer to government as ‘They’ and opined that there is need for government to

create an educational department in the local government area to organize lectures on wastes disposal. The views of R11, R12 and R14 emphasize the importance of adult non-formal education (which could be classified as either health education or environmental education) in ensuring that residents are able to maintain their environment and secure their health. Participants R11 and R12 also emphasized the need for law enforcement and sanctions as a way to induce positive attitudes in residents.

The other participants in the research emphasized the point about laws and sanctions as a way to limit indiscriminate waste disposal. For instance, R2 said “*may be if a scape-goat is caught, others will sit up. My advice is that they should continue with how they are doing.*” Another participant, R3 opined that sanitation officers should be going about with their vans to collect wastes from people that by so doing people will get accustomed to the practice of waiting for sanitation officers to come evacuate their wastes. Participant R12 observed that:

Well, to be up and doing and whoever is found violating the sanitation act should be punished accordingly. Anyone caught should be made to face the wrath of the government. Make people see sanitation as a major activity.

Although there is a mix of education and law enforcement/sanctions as the opinions of the these participants as a way of inducing positive attitudes towards wastes disposal, it should be mentioned here that a proper environmental adult education programme is expected to include, as part of its curriculum or scheme, the laws, codes, and regulations that the government has enunciated to protect the environment, and that guard against environmental pollution. Besides educating residents about the harmful effects of indiscriminate waste disposal, educating and exposing them to the laws that guard against committing the offence is a critical and integral part of the education process. One participant in the research, R4, gave a totally different view about how to induce positive attitudes towards wastes disposal. He said:

The advice I have for them is that they should carry out their responsibilities regularly. Most of them, their environment are not clean, and they would say they are checking other people’s houses.

By “them”, this participant referred to sanitation officers. He seems to suggest that environmental sanitation officers should themselves be exemplary in



their attitude and behaviour towards hygiene and cleanliness. As adult educators, the researchers view this as informal learning, which is an important component of adult education. By sanitation officers themselves behaving decently and neatly, they can influence residents positively without having to sensitize them outright. When people consciously or unconsciously observe others and behave as they have seen, learning can be said to have occurred, and that would be informal learning. This participant's view smacks of the impression that the negative attitudes of residents towards wastes disposal may have resulted from their observations of how sanitation officers have behaved with respect to hygiene and cleanliness. Availability of adequate personnel was also identified as one of the factors that can help induce positive attitude towards wastes disposal in the local government. A participant, R1, observed that when the sanitation offices are short of human power, they should employ more staff. He noted that when he was much younger, sanitation officers inspected everything, including the water they drank. "It seems they are short of staff," he said. This can also have implications for environmental adult education because if there is limited human power, having workers doing inspection and others carrying out educational activities will be impossible or ineffective.

7. Conclusion and Recommendations

This study has become necessary because of the attitudes and actions of the citizens in Ife Central Local Government towards where the presence of heaps of wastes in both residential and commercial areas have become a common and regular thing. This is having deleterious effect on the health and environment of the people.

Based on the findings of the research, the study concludes that positive attitudes towards wastes disposal can be induced if environmental adult education programme is strengthened, if the government will provide the needed human and material resources needed for proper discharge of environmental education, law enforcement, and inspection activities, and if the environmental sanitation officers discharge their duties as expected and live up to expectation in character.

Based on the findings, the study recommends that:

1. Environmental adult education should be made an important part of the activities of environmental sanitation workers. Through this form of education, environmental sanitation and different wastes disposal strategies and provisions will be brought to the consciousness and awareness of residents, and they can be constantly reminded of the harmful effects of indiscriminate wastes disposal. This form of education can be achieved through the use of the mass media (such as television, radio, bill boards, banners, fliers, and

posters). Community Heads, Community Development Associations (CDAs), Age Groups, Landlord Association, etc. can also be used in the education process. The attention of the people should be drawn more to the problems that can emanate from their behaviour during sensitization and awareness programmes put in place to publicize environmental sanitation.

2. Stake holders like Health educators, teachers at all levels of education, sanitary workers etc needs to be trained and properly engaged to give public education about the effects of dumpsites on population health and public health in general. This will give ripples of effects on the society and will help create awareness to the need for proper waste disposal and obedience of laws. A public orientation and awareness must be organized for these stakeholder and communities and municipalities on proper handling of waste and disposal methods in a bid to stop open dumping of refuse, indiscriminate disposal of waste must be stopped

3. It is important for proper implementation and enforcement of all established environmental laws that environmental laws enforcement agencies and personnel must be well trained to boost the chance of proper handling, management and enforcement of environmental laws and defaulters.

4. Therefore, government should employ more active and qualified public health environmental health inspectors who will be responsible for supervising inspecting and monitoring many aspects of public hygiene with emphasis on waste management

5. Private sector participation should be allowed in waste collection. This will ensure prompt clearance of refuse from the refuse receptacles or dumping sites. This will augment government's efforts.

REFERENCES

- Adeolu, A. T., Enese, D.O. & Adeolu, M.O. (2014) Assessment of Knowledge, Attitude and Practice of Waste Management in Secondary School in Oyo. *Journal of Research in Environmental Science and Toxicology*, 3, pp. 66-73.
- Adewole, A. T. (2009). Waste management towards sustainable development in Nigeria: A case study of Lagos State. *International NGO Journal*, 4(4), pp. 173-179.
- Attah, M. (2013). Problems of domestic waste management in Nigeria: any repressors? Retrieved from <http://www.nigerianlawguru.com/articles/environmental%20law/PROBLEMS%20OF%20DOMESTIC%20WASTE%20MANAGEMENT%20IN%20NIGERIA,%20ANY%20REPRESSORS.pdf>
- Butu, A. W., & Mshelia, S. S. (2014). Municipal solid waste disposal and environmental issues in Kano metropolis, Nigeria. *British Journal of Environmental Sciences*, 2(20), pp.10-26.



- Fazzo1, L. Minichilli, F., Santoro, M., Ceccarini, A., Della Seta., M., Bianchi, F., Comba, P., & Martuzzi, M., (2017) Hazardous waste and health impact: a systematic review of the scientific literature. *Environmental Health*, 16(107), pp.1-11. DOI 10.1186/s12940-017-0311-8
- Jatau, A. A. (2013). Knowledge, attitudes and practices associated with waste management in Jos south metropolis, Plateau State. *Mediterranean Journal of Social Sciences*, 4(5), pp.119-127.
- Mbalisi, O. F. & Offor, B. O. (2012). Imperatives of environmental education and awareness creation to solid waste management in Nigeria. *Educational Sciences*, 3(2), pp. 253-258.
- Nabegu, A. B. (2010). An analysis of municipal solid waste in Kano metropolis, Nigeria. *Kamla-Raj*, 31(2), pp.111-119.
- National Environmental Health Association (2011). Solid waste management problems in secondary schools in Ibadan, Nigeria. Retrieved From <https://www.tmcnet.com/usubmit/2011/09/09/5765046.htm>
- Noibi, A. S. (1992). Environmental education for sustainable development. A public lecture delivered at Lagos State College of Education, Oto-Ijanikin.
- Manzoor, J. & Manoj Sharma, M. (2019). Impact of Biomedical Waste on Environment and Human Health. *Environmental Claims Journal*, 31(4), pp. 311-334. DOI:10.1080/10406026.2019.1619265
- Muhammad, U. L., Shamsuddin, I. M., Yahaya K. M. & Nuhu M. (2019). Environmental Impacts of Waste Disposal: An Overview on the Disposal of Polyethylene Bags in Gusau City Zamfara State. *Journal of Evolutionary Science*, 1(2), pp. 31-39 DOI: 10.14302/issn.2689-4602.jes-19-2760
- Ogundele O. M., Rapheal O. M., & Amusat M. A. (2018) Effects of Municipal Waste Disposal Methods on Community Health in Ibadan – Nigeria. *Polytechnica*, 1, pp. 61–72 <https://doi.org/10.1007/s41050-018-0008-y>
- Opara, J. A. (2009). Urban waste management in Port Harcourt metropolis of the Niger Delta region of Nigeria. (Doctoral dissertation, Universidad Central de Nicaragua, Managua-Nicaragua). Retrieved From https://www.slurc.org/uploads/1/0/9/7/109761391/urban_waste_management_port_harcourt.pdf
- Oyekan, T. A. & Sulyman, A. O. (2015). Health impact assessment of community-based solid waste management facilities in Ilorin West Local Government area, Kwara State, Nigeria.. *Journal of Geography and Regional Planning*, 8(20), pp. 26-36.
- Oyeniyi, B. A. (2011). Waste management in contemporary Nigeria: the Abuja example. *International Journal of Politics and Good Governance*, 2(2,2), pp.1-18.
- Selin, E. (2013). Solid waste management and health effects – a qualitative study on awareness of risks and environmentally significant behaviour in Mutomo, Kenya. (Degree Thesis, Umea University. Kenya) Retrieved From <http://www.diva-portal.org/smash/record.jsf?pid=diva2%3A607360&dswid=3658>