



Effect of Poor Management Strategies of Solid Waste in Secondary Schools in Onelga, Rivers State

Favour Chukumela Woko

Department of Integrated Science

Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Nigeria

Email: favourchukumelawoko@gmail.com

ABSTRACT

The study is geared at investigating the effect of poor management strategies of solid waste in secondary schools in ONELGA, Rivers State. Two research questions guided this study. The study adopted a descriptive study design. The study was carried out in Secondary Schools in ONELGA. The targeted population is all students, teachers and administrators in secondary schools in ONELGA. 200 people were randomly selected from five secondary schools in ONELGA for the study. The instrument used for data collection was a questionnaire titled "Effect of Poor Management Strategies of Solid Waste in Secondary Schools" (EPMSSWSS). The data collected were analyzed using the SPSS statistical package. The study revealed that there has been an effect of poor management strategies of solid waste in secondary schools in ONELGA, Rivers State. Based on the findings, the study recommended among the following that there should be Wastes disposal equipment for schools to avoid dumping waste in the environment and to also avoid decay of these wastes in the school environment to avoid many diseases, an adequate dumping sites for solid waste provided by government for schools, the dumping sites for refuse should be far away from the school environment. There should be provision for adequate dustbin in each class of a secondary school in ONELGA, there should be funds raised for programs to orientate students on proper waste management, there should be a regular collection of solid waste within secondary schools in ONELGA, etc.

Keywords: Effect, Poor Management, Secondary School, Solid Waste

INTRODUCTION

The management of waste has become one of the key environmental concerns of the past decades, with hundreds of scientific papers published on the topic every year. Maintaining a sound and healthy school environment has always been a challenge to man (Obong, 2007). An increase in published papers on waste management was already highlighted by discussions held at the World Summit on Sustainable Development (Owusu-Sekyere, 2015). According to Agyei-Mensah and Owusu (2009), a good solid waste management (SWM) system is like good health, if you are lucky to have it, you don't notice it; it is just how things are and you take it for granted. However, if things go wrong, it is a big and urgent problem and everything else seems less important. The high rate of population growth in Secondary Schools in ONELGA Rivers State has resulted in the generation of an enormous volume of solid waste, which poses a serious threat to environmental quality and human health. The management of waste in senior high schools attracts increasing attention all over the world as people are becoming conscious of a variety of environmental problems such as global warming, air, water and land pollution (UNEP, 2016). Waste generated as part of daily human activities not only damages natural resources, but the potential negative impacts on the environment or human health cannot be excluded (Post, 2012). There are emerging environmental concerns in secondary schools in ONELGA as a result of the improper disposal of solid waste. Nigerian including students, teachers, and school management have a very poor attitude towards environmental sanitation in general and waste disposal in particular. People are fond of discarding waste indiscriminately.



The changing economic trends, urbanization and rapid increase in student population complicate solid waste management in developing countries (Ampofo & Banye, 2018).

Solid waste management has been viewed differently by various authors. Kumah (2007) viewed solid waste management as, "the administration of activities that provide for the collection, source separation, storage, transportation, transfer, processing, treatment, and disposal of waste". However, Owusu (2015), provide a more comprehensive definition of solid waste management. According to him, solid waste management is that discipline associated with the control of generation, storage, collection, transfer and transport, processing and disposal of solid wastes in a manner that is in accord with the best principles of public health, economics, engineering, conservation, aesthetics, and other environmental considerations. In an attempt to rectify the numerous challenges associated with poor waste management practices within senior high schools, most developing countries have opted for the construction of landfills. The rationale is that landfills are the most feasible option of waste disposal due to their cost-effectiveness and low negative environmental impact (Owusu, 2014:2015).

According to Olafusi, (2004), the current status of solid waste management in Nigeria has been reviewed and recommendations for improvements are made. The existing solid waste management system is affected by unfavorable economic, institutional, legislative, technical and operational constraints. A reliable waste collection service is needed and waste collection vehicles need to be appropriate to local conditions. More vehicles are required to cope with increasing waste generation. Wastes need to be sorted at the source as much as possible, to reduce the amount requiring disposal (Filani, 1987). Co-operation among communities, the informal sector, the formal waste collectors and the authorities is necessary if recycling rates are to increase. Markets for recycled materials need to be encouraged. Despite recent improvements in the operation of the existing dumpsite, a properly sited engineered landfill should be constructed with operation contracted to the private sector. Wastes dumped along roads, underneath bridges, in culverts, and drainage channels need to be cleared (Fajehisan, 1998). Small-scale waste composting plants could promote employment, income generation, and poverty alleviation. According to Wahab. (2003). Enforcement of waste management legislation and a proper policy and planning framework for waste management are required. Unauthorized use of land must be controlled by enforcing relevant clauses in development guidelines. Accurate population data is necessary so that waste management systems and infrastructure can be properly planned. Funding and affordability remain major constraints and challenges (Sridhar Ojediran, 1983).

Solid waste has become an important issue in Nigeria. Piles of wastes are often found by roads, rivers and many other open spaces in cities, and this is causing significant health and environmental problems (Pragya et al, (2013). The urban population is growing at an alarming rate. While the Nigerian population is increasing by about 2.8% per annum, the rate of urban growth is as high as 5.5% per annum (UDBN, 1998). This is increasing the difficulties associated with providing an effective solid waste management system. As



cities grow, land use becomes increasingly complex and the wastes generated an increase in volume and variety (Omuta, 1987). Solid waste management systems (waste storage, collection and transport, resource recovery and recycling, waste treatment and disposal) in Abuja, the capital city of Nigeria, have been assessed. The legal, administrative and institutional framework and the role of informal recycling/scavenging have been analyzed, and ways of achieving more efficient and effective solid waste management are proposed. The landmark Federal legislation on environmental protection in Nigeria was decree Number 58 of 1988, which established the Federal Environmental Protection Agency (FEPA). The specific role of FEPA concerning solid waste management is to (Onibokun, 1999):

Study the most reliable systems that are appropriate for local, domestic and industrial wastes.

Specify waste disposal and treatment methods that take into consideration the geological and environmental setting and encourage recycling.

Specify waste disposal sites that guarantee the safety of surface and underground water systems.

Set up and enforce standards for adequate sanitary facilities for the disposal of human and other solid wastes in dwellings, housing estates and public facilities in both urban and rural areas.

Establish monitoring programs including periodic surveillance of approved waste disposal sites and their surroundings and wastewater systems.

Establish monitoring stations for the control of the disposal of leachate from dumpsites into surface water and groundwater systems. FEPA enacted several laws and regulations. These have included:

The National Protection Management of Solid and Hazardous Wastes Regulations of 1991.

The Pollution Abatement in Industries and Facilities Generating Waste Regulation of 1991.

The General Guidelines for Pollution Abatement in industries 1991. The Abuja Environmental Protection Board (AEPB) is responsible for solid waste management in Abuja. It has responsibility to Remove transport and dispose of domestic, commercial and industrial waste; Clear and maintain public drainage facilities, street cleaning and clearing of abandoned vehicles; Register private waste collection companies; Prepare and periodically update the master plan of waste collection and disposal in the city; Approve and monitor all disposal systems in the city; Assess recycling as a waste management option for industries and government agencies; Establish and recommend the basic standard requirements for solid, liquid, gaseous or toxic waste management provided they do not conflict with, but complement the standards of the FEPA; Establish and recommend acceptable safe methods of collection and disposal of hazardous and toxic waste products in the FCT; Educate the general public on the various disposal methods acceptable for domestic and industrial waste products; Initiate environmental protection legislation and keep existing legislation under constant review to reflect the latest discoveries and observations on the subject; Organize and mobilize the public to



participate actively in regular clean up exercises and beautification of their environments. Public awareness and attitudes to waste can affect all stages in the solid waste management process. This has an impact on household waste storage, waste segregation, recycling, collection frequency, littering and fly-tipping, willingness to pay for waste management services, and the level and type of opposition to waste treatment and disposal facilities. In general, people in Abuja have a poor attitude towards waste management (Agunwamba, 2003).

People who handle waste are regarded as dirty, poor and inferior, and carrying household waste to bins is often regarded as a duty for children. Efforts have been made by both the government and the private sector in Abuja to increase public awareness of solid waste management issues, and there have been televised discussions on waste management. The side effects of improper waste disposal have been well-publicized. However, most people still do not appreciate that environmental quality is not just the responsibility of the government and that the individual also has an important role. There are now 12 private waste management collection companies operating in Abuja and these require significant technical backup, especially in the area of capacity building. An important factor in the success of the private sector is the ability of the state government to support, enforce and sustain written contracts. These describe the services required, and state penalties and other sanctions that will be applied in the case of failure to deliver. The award of contracts and the monitoring and enforcement of the contracts are the responsibility of the AEPB, and a system is required that ensures and encourages sustainable private sector participation (Cointreau & Coad, 2000; METAP.2004; Coad, 2005).

Following the unrelenting urbanization and largely unimpressive performance of the public sector in the provision of infrastructure in many cities in low-income countries, the search for alternative strategies for urban environmental services became inevitable (Zarqa, 2016). One obvious consequence of rapid urbanization is the growing generation of solid wastes, and many city authorities face unprecedented challenges in managing these, including problems coping with their collection and disposal. Despite the importance of adequate solid waste management to the urban environment, the performance of many city authorities in this respect leaves much to be desired. According to the 1996 Global Report on Human Settlements, between one-third and one-half of the solid wastes generated within most cities in low and middle-income countries are not collected (Agunwamba, 2003). They usually end up as illegal dumps on streets, open spaces, and wasteland. According to Adepoju (1999), it is believed that in the poorest communities (many of which are in sub-Saharan Africa), 80 to 90 percent of wastes generated are not collected for safe disposal. Even in countries where city authorities provide waste services, these are often spatially concentrated, leaving some parts of the city un-served. In recent years, there has been a paradigm shift in urban infrastructure development and management from a dominance of the public sector to an emphasis on private sector provision of services. The World Bank's policy on the urban sector shifted from project-based lending in the 1970s to the current emphasis on institutional, regulatory and



financial Reforms by the public sector, enabling the private sector to play a major role in urban infrastructure development and provision (Tormin, 2001.).

A report on infrastructure development prepared by the Bank advocated three measures necessary for reforming the provision of infrastructure services. These included a wider application of commercial principles in service provision, broader competition and the increased involvement of users (Wilson, Velis, and Cheeseman. 2006). The public sector is to enable the private sector through regulator}', institutional and fiscal frameworks rather than embarking on the direct provision of infrastructure services. An enabling strategy, which encourages private sector participation, private-public sector partnerships and) other forms of private participation such as the involvement of nongovernmental organizations (NGOs), communities and households, was adopted as a global policy in the housing sector of the Global Strategy for Shelter to the Year 2000 (Afon and Okevvole, 2007). The facilitation of private sector participation in urban infrastructure services development and management by the public sector through various arrangements was also endorsed by member countries of the United Nations at the City Summit held in Istanbul in June 1996. It was believed that private sector participation would provide much needed private capital for investment in infrastructure development, and it has been argued that private involvement and the associated application of market principles would eliminate inefficiency, a characteristic of public infrastructure provision (Longe and Adenuga. 2013). Concerning solid waste, the deterioration of the urban environment resulting from heaps of uncollected refuse in neighborhoods and public places, coupled with the apparent inability of the city authorities to respond effectively to the challenge, necessitated the search for other options. Four broad types of private sector participation in solid waste management have been identified, namely: contracting, concessions, franchises and open competition.

Typically, for contracting, after a competitive process a private firm may be awarded the contract for waste collection, transfer and disposal site operations. Such a firm is usually paid for its services by a municipal authority, as pre-arranged in the contract. Franchises also involve a competitive selection process for private firms, who are required to deposit a performance bond with the government and undertake solid waste services in sections of the city. The private firms recover the costs of the service directly from customers, although the government may seek to regulate prices. Concessions entail a long-term contractual agreement whereby a private firm builds and run as a waste management facility. Finally, in open competition, a license is issued to qualified firms to compete and operate in any part of the city for the provision of municipal waste services. These options are designed primarily to bring private sector capital into waste management and to enhance efficiency in service delivery.

Land-filling: This involves the burial of waste in pits by bulldozers, which is the main method of waste disposal, and the public authorities should make the provision of disposal sites a priority in solid waste management in cities. For instance, in the absence of adequately maintained disposal sites, all often a rapid growth in the urban population.



This makes some form of private sector participation desirable and inescapable. There is the issue of the nature of the government's role in the articulation and implementation of private participation in municipal waste services in low-income countries. Arbitrary interference in, or recommendation of service levels and user charges may be counter-productive. Encouraging residents and private sector operators to work together to resolve issues of service standards and service charges fits into "bottom-up" approaches to infrastructure development, and is likely to be successful particularly in low-income communities. It is also important that the opinions of local residents on waste management issues be elicited throughways that ensure that the broad preferences of households are represented rather than those of community heads selectively consulted. For instance, a random sampling of households in a city on waste management approaches and cost implications may be an appropriate way of gauging public preferences-and likely responses to particular privatization initiatives. In low-income urban communities, there is a need to encourage community/private operator partnerships. This can encourage the adoption of initially "sub-optimal" service standards compared to conventional services but which, nonetheless, are good enough to foster an improvement in environmental health conditions. For instance, instead of house-to-house refuse collection, the use of neighborhood bins which are frequently emptied is a more feasible option in the suburban areas with problems of access. In low-income communities, it may be reasonable to tolerate minimal service standards that meet environmental health requirements, which can then be upgraded over time and with the availability of funds. This approach is suggested not necessarily because it might be argued that infrastructure provision should respond to demand, but rather because of concerns about ensuring that some areas in cities, particularly suburban localities as in the case of ONELGA should not be left without services.

Moreover, service standards adopted by low-income communities should reflect a compromise between conventional minimum standards and services consistent with the satisfaction of basic needs, and the cost of such services about to the users' ability to pay. Depending on local circumstances, it might be advisable to combine two or more of contracting, franchises, concessions and open competition rather than implement a single method in all areas of a city. For instance. In Benin, open competition may be appropriate in high-income neighborhoods such as the Government Reservation Area, contracting in middle-income estates, and private sector/community partnerships desirable in low-income communities, the reason being that cost recovery is an issue in urban service deliver}' in Benin, as in Nigeria as a whole (Imam et al, 2008). Any strategy that reduces cost and incorporates residents 'preferences and possible labor contributions will be suitable in low-income urban communities. Efforts to inform the population of the need for proper waste disposal and the necessity for user charges are important. Such environmental awareness and enlightenment campaigns could be undertaken via the local media, community groups, and associations (such as market women's associations, Benin traders' associations, youth associations, etc.) and neighborhood meetings. This is important, particularly given that some residents may, in fact, not be used to the "culture" of user charges and associated cost recovery for waste services. Without such



enlightenment, compliance with service charges may be low particularly where the enforcement of local bye-laws is weak (Ahkolkar, 2001).

Since solid waste collection and disposal is a statutory function of local government, city councils still have an important role to play despite any privatization schemes or initiatives. Apart from monitoring the activities of private operators or community/private operator partnerships, the development of disposal sites is important. For instance, only one ill-maintained disposal site was in operation in 1995 and, likely, that this is still the case. Disposal sites are important to proper waste management and enhance the quality of the urban environment. Service operators in ONELGA and other parts of Nigeria are largely small-scale entrepreneurs who may be neither able nor willing to acquire, develop and operate disposal sites (Walhi, 2001). It is important to note that endangered public health situations can exert excessive pressure on the health budget, curtails productivity and worsens the urban condition of health. This ugly situation persisted for a decade because of the high rate of illiteracy, ignorance, uncivil culture of indiscriminate Waste littering and other factors. Keeping all this view, the present study was assigned to access the effect of poor solid waste management strategies on secondary schools in ONELGA, Rivers State.

Statement of the Problem

There has been an effect of poor management strategies of solid waste in secondary schools in ONELGA, Rivers State. The resulting poor management of solid waste in the city has contributed much to the various problems. The health hazards associated with poor health management in various schools and communities has become a serious matter of concern to health education. Usually in secondary schools, Because the amount of solid waste disposal in a day is very high and this volume of solid waste being generated are poorly managed due to unavailability of disposal sites, inadequate haulage equipment and lack of expertise and appropriate technical know-how; weak enforcement of environmental regulation, poor financial capacity of authorities in dealing with the waste problem, indiscriminate and irresponsible dumping in school environment and corners. According to (Sule, 2009) the disease especially malaria, typhoid, diarrhea, has been rampant among secondary school students and poor waste management. However, scholars in recent and past have not researched vividly on the impact of solid waste disposal and management strategies on the health of secondary school students. This study is geared to closing the gap hence the need for this study.

Purpose of the Study

The purpose of this study is to investigate the effect of poor management strategies of solid in secondary schools. Specifically, the study will achieve the following objectives:

To access the role of government in creating awareness of urban waste management.

To determine the situational factors, behavioral intention and Psychological variables regarding solid waste management.



Research Questions

The following questions will guide the research study:

What is the role of government in creating awareness of urban waste management?

What are the situational factors, behavioral intentions, and psychological variables regarding solid waste management?

Hypothesis

Ho₁: There is no significant role played by the government in creating awareness of urban waste management

Ho₂: There is a relationship between situational factors, behavioral intention, and psychological variables regarding solid waste management.

Significance of the Study

The research is geared on the evaluation of environmental sanitation because many people in the community are still ignorant of the threat poor waste management can pose on the environment and health respectively. Hence, they do not attach any importance to proper waste disposal, so they tend to lose interest in the benefit of the sanitary disposal of solid waste. It is believed that these studies will improve knowledge attitude and practice in solid waste disposal for environmental sanitation in secondary schools. Hence the significance of the study includes:

That this study could eradicate some ignorance, superstitious beliefs and culture that might inhibit sanitary activities and thereby improve healthy living in the environment.

It will guide in understanding conditions necessary to improve sanitation in terms of equipment, staffing, and facilities

This study could serve as a guide to schools, communities, individuals and the government to engage in programs aimed at improving the environment in secondary schools, the community, and local government area.

It will arouse the interest of students on the need for sanitary disposal of solid waste

It will help educate members of the public and schools on the need for regular sanitary disposal of solid waste.

METHODOLOGY

The data and results of each research question and its corresponding hypotheses are presented on different tables. The research project is an exploratory undertaking, which utilizes both primary and secondary data, the data was acquired directly from the fieldwork involving a combination of methods, namely interviews using a questionnaire and secondary data were derived from journals, magazine, Internets, theses, books, government reports, workshops, and conferences. The researcher visited the sampled areas and administered the instrument to the male and female selected students, teachers and proprietors of the schools chosen and also retrieved them after completion. The respondents were briefed on the purpose of the research and how to respond to the questions. Mean and standard deviation was used to analyze the research questions while hypotheses were tested using t-test with the aid of the spss statistical package



Research Question 1: What is the role of government in creating awareness of urban waste management?

Table 1: Mean and standard deviation showing the role of government in creating awareness of urban waste management.

S/ no	Item	N	Mean	SD	Decision
11	Environmental education programmes are not adequate to create sufficiently awareness of waste management	200	1.80	0.7	Not agreed
12	Government is not doing enough to educate the public on waste management	200	2.00	0.63	Not Agreed
13	Lack of political will to provide machines and trucks for waste evacuation.	200	3.00	1.09	Agreed
14	Lack of provision of proper equipment for waste disposal by the government	200	3.1	0.61	Agreed
15	Lack of proper education programs On method of waste disposal for basic school by government	200	1.80	0.75	Not Agreed

In table 3 above it was not agreed that environmental education programs are not adequate to create sufficient awareness on waste management and that the government is not doing enough to educate the public on waste management. More so, it was not as well agreed that there is a lack of proper education programs on the method of waste disposal for secondary school by government. It was only agreed that there is Lack of political will to provide machines and trucks for waste evacuation and that there is a lack of provision of proper equipment for waste disposal by the government.

Research Question 2: What are the situational factors, behavioral intentions, and psychological variables regarding solid waste management?



Table 2: Mean and standard deviation showing the situational factors, behavioral intentions, and psychological variables regarding solid waste management

S/no	Item	N	Mean	SD	Decision
16	Increased industrialization	200	3.40	0.80	Agreed
17	Culture of people that promotes Indecency	200	2.00	0.63	Not
18	I Participate in waste management activities in my school	200	3.20	0.75	Agreed
19	I discourage burning of refuse	200	2.82	1.09	Agreed

All the items were agreed as situational factors, behavioral intentions, and psychological variables regarding solid waste management except item 17.

H₀₁: There is no significant role played by the government in creating awareness of urban waste management

Table 7: One sample t-test showing effect of solid waste to the environment

N	Mean	Sd	Df	T	Sig	Decision
200	11.60	1.02	199	160.46	.000	Significant

The analysis of Table 1 provides the answer to this question. Table 1 show that the calculated t-value is 160.46 while its corresponding table value (t- critical) is 1.96 at 0.05 alpha levels. The calculated value is greater than the critical value.

The null hypothesis is rejected. This implies that there is a significant role played by the government in creating awareness of urban waste management.

H₀₄: There is a relationship between situational factors, behavioural intentions, and psychological variables regarding solid waste management.

Table 4.8: one-sample t-test showing effect of solid waste to the environment

X	Mean	Sd	Df	T	Sig	Decision
200	10.20	1.32	199	108.46	.000	Significant

The analysis of Table 1 provides the answer to this question. Table 1 shows that the calculated t-value is 160.46 while its corresponding table value (t- critical) is 1.96 at 0.05 alpha level. The calculated value is greater than the critical value.

The null hypothesis is rejected. This implies that there is a significant relationship between situational factors, behavioral intention, and psychological variable regarding solid waste management.

DISCUSSION of FINDINGS

From the results of the analyzed data, it is seen that solid waste products cause pollution (air, water and soil pollution). As posits by Kausal (2002). Dumping of wastes inappropriately causes stagnation of water thereby becoming a breeding ground for



disease vectors, the stagnated water, and the waste produces odor-causing respiratory disease when inhaled. Not only the odor, the water sources could also be contaminated and when taken in, but the system of the individual will be infected with diseases. In order to avert these diseases contamination, solid waste should be properly disposed of and managed. To keep the environment clean and appealing to stay in a healthy and clean environment, solid waste should be managed as agreed by (Rathi 2006). Several factors have stood against proper solid waste management in ONLEGA as a local government. Factors such as collection and storage, transportation of the waste to appropriate dumping sites, disposal, production and utilization of the solid wastes. All these are factors pointed out by Wokekoro (2007) from the work of Uchegbu (1998) and was also seen and accepted by the respondents. Lack of fund by the government and PTA is also a factor militating against improper solid waste management in school, the PTA and other public members should fund the proper management of solid waste to prevent it littering the school premises and posing as a threat to the student's health. After all, the motor of the UBEB is education for all is the responsibility of all. Another identifiable factor is the lack of proper orientation on how to handle solid waste in the environment. There should be proper enforcement of proper waste management regulation. Hobo (2002) has observed that the problem of the irregularity of sanitation, incineration, composting and landfilling are the factors that have caused improper waste management in Rivers State. the Same is affecting ONELGA schools there should be agencies to regulate the sanitation dates and the checking should be done regularly without being biased or sentimental.

On the part of the government, outside the provision of funds, there have to be adequate educational programs to create awareness on proper solid waste management. Olafusi (2004) supported that vehicles are required as a truck for collection for the same collection and disposal by the government (equipment like bags, shovel, baskets, gloves, helmet, nose mask, and coverall and safety boots). It is on this note, that Onibokum (1999) states that there should be national protection management of solid and hazardous wastes regulations. Private waste collection companies should be registered. When all these are done, drainage should be cleaned regularly, remove, transport and dispose of domestic, commercial and industrial waste. Zarga (2006) stated that the unimpressive performance of the public sector in providing infrastructure prompted the inevitable search for alternative strategies. As industries increase, the generation of solid waste also increases. The public sector is to enable the private sector through regulatory, institutional and fiscal framework rather than embarking on the direct provision of infrastructure services. Some cultural beliefs made it difficult for some communities to dispose of solid waste properly. It is very paramount that everyone in the school within a community participates in waste management activities. To avoid air pollution which is hazardous to human health, solid waste shouldn't be burnt. It is on the above findings that the researcher is positing that the government should organize an avenue where awareness will be created for proper waste management. Regulatory agencies should be formed to monitor the proper waste management. The Government on the other hand to provide facilities for this management and everybody should be part of the waste management. When these are done, they will not be ground for disease vectors to breed and the



environment will be health}, clean and safe for a human to breathe in fresh air, drink clean water which the land pollution will be avoided.

Conclusion and Recommendation

The finding of this research work provides evidence to support the claim that there is an effect of poor management strategies of solid waste in secondary schools in Onelga rivers state. Safe and sustainable solid waste management has obvious environmental, social and economic benefits for Africa. These include reducing or removing the environmental and human health impacts connected with poor waste management; minimizing the sizes of solid waste disposed of to land; recovering valuable resources from the waste and reintroducing these into local and regional economies; and improving livelihoods of formal and informal waste sector workers. Yet, despite these obvious benefits, waste is being disposed of in open spaces in secondary schools within ONELGA by students, teachers and school management are worried about the waste disposal situation.

RECOMMENDATIONS

Based on the findings, the study suggests the following recommendations:

Waste disposal equipment should be provided for schools to avoid dumping waste in the environment and to also avoid the decay of these wastes in the school environment to avoid many diseases.

The dumping sites for refuse should be far away from the school environment.

There should be provision of adequate dustbins in each in secondary schools in ONELGA, Rivers State.

There should be fundraising for programs to orientate students on proper waste management.

A subject that teaches students how to clean the environment like, health/environmental science should be made compulsory for students so that they can learn.

There should be a regular collection of waste in secondary schools within ONELGA in Rivers State by the institutions responsible to avoid heaping of waste and overflowing of skips with solid waste. At least, waste should be collected once in every week.

There should be regular monitoring of waste collection by the Environmental Protection Agency, this will keep the place constantly clean and prevent any possible outbreak of communicable diseases such as cholera and typhoid.

There should be an Integrated Solid Waste Management Model within secondary schools in ONELGA, Rivers State to ensure effective solid waste management.

Students should be encouraged. ONELGA Municipal Waste Management Department to separate the waste generated into their various components before final disposal. This is disaggregated into plastic, metals, wood, cans, bottles and food waste. In this case, rubber cans, bottles, metals can be reused; plastics like polythene bags and empty water sachets can also be recycled. The rest like food waste can be composted for manure, incinerate those that are combustible and landfilled those that cannot be subjected to any of the above-mentioned methods.

There should be proper management of waste disposal in secondary schools within the study area. Thus the waste disposal sites in secondary schools within ONELGA should



be properly managed to avoid the heaping of waste and burning. This will go a long way to prevent the burning of waste in the schools.

Finally, the study further recommends to the Environmental Protection Agency in ONELGA which is the regulatory authority on sanitation should ensure routine monitoring of the management of waste disposal sites in secondary schools within the ONELGA.

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