

## SENSITIZATION OF SOLID WASTE MANAGEMENT PRACTICES IN RURAL AREAS IN NIGERIA: THE ROLES OF TRADITIONAL LEADERS

**Obi, Anulika Virginia (Ph.D.)**

Faculty of Management Sciences, National Open University of Nigeria

### **Abstract**

Solid waste management has become a practical necessity in rural areas. The issue of waste management has been an environmental challenge and matter of concern to all Nigerians. It is a problem of humanity which was and is being created by humankind. The usual approaches to waste management in Nigeria are neither effective nor sustainable. Solid waste generated in rural areas is predominantly organic and biodegradable and has become a major problem as the waste generated is not segregated at source. The impacts of improper solid waste management go beyond health and environmental problems. Open dumps degrade the land by destroying fish and wildlife habitats. Rural dwellers often have the misconception that the problem of poor solid waste management practices concern mainly urban cities. There is poor rural dwellers sensitization on solid waste management practices; there is the need that rural dwellers are communicated in the way and manner that they will comprehend, in order to effectively participate in modern solid waste management practices in Nigeria.

**Keywords:** Sensitization, Solid Waste, Management, Rural Areas, Roles, Traditional Leaders

### **Introduction**

Desa, Kadir and Yusooff (2012) and Sekito, Prayogo, Dote, Yoshitake and Bagus (2013), noted respectively that a variety of studies on solid-waste management in developing countries have been conducted in attempt to find solutions to the challenges of Solid Waste Management practices. Some researchers have also looked at the influence of education to waste management while others have investigated policy making for waste management in specific areas or countries, Rushbrook, and Finnecy (1988) and Lohri, Camenzind and Zurbrügg (2014). According to Arukwe, Eggen and Möder (2012) and Sasaki, Araki, Tambunan and Prasadja (2014), health and risk considerations around waste management have also been the focus of studies while Wilson, Velis and Cheeseman (2006) and Oteng-

Ababio, Arguello and Gabbay (2013) emphasized that current systems of waste management in particular areas or countries have been analyzed.

Solid waste management (SWM) is the most pressing environmental challenge faced by urban and rural areas of Nigeria (Wale, 2015:1). The same author noted that Nigeria has a population that exceeds 170 million and that at the same time, it is one of the largest producers of solid waste in Africa. Adogu, Uwakwe, Egenti, Okwuoha, and Nkwocha, (2015) observed that waste management practices in urban and rural Africa show no significant differences. Solid waste management in Nigeria is assuming alarming proportions with each passing day despite a host of policies and regulations.

In a report of Economic Commission for Africa (2007), chieftaincy in Africa is regarded not only as an integral part but also a vital element in the social, political and cultural establishment of African communities. Open dumping is common place and very little is done about it considering the fact that waste is disposed in a manner that does not protect the environment in tropical African countries. Rushbrook (1999) cited in Asi (2013:130), observed that about three-quarters of the countries and territories around the world use open dumping method of disposal of Municipal Solid Waste (MSW). The report further emphasized that MSW is a dynamic institution that reflects and also responds to the evolving political and social transformations of the society. Traditional leaders otherwise known as a local community leader in certain context can play influential or even decisive roles on how people act towards nature and environmental resources (Ihemeje, Okorie, and Ikpe, 2016: 75). Organising environmental orientation programmes for traditional leaders can assist in facilitating the implementation of effective solid waste management practices in rural areas. Sensitizing them on the importance of imbibing a sound solid waste management practices would give them a solid standpoint on which to stand and sensitize their communities about SWM practice. Again, they have close contact with their subjects than the waste management agencies. In working with such leaders, specific attention will have to be paid to issues of literacy level and effective medium of communication. Ihemeje et al (2016: 76) opined that since traditional ruler ship institution is closer to the people in terms of language and accessibility in all ramifications; it could work or serve as a complementary role to SWM in combating environmental crises by fostering attitude revolution.

Generally, traditional ruler is the custodian of the people's culture, tradition, religion, philosophies which is hitherto translated to the role of educating the rural populace, creation

of awareness on new innovations and facilitating follow-ups. Nworah, (2011) cited in IHEMEJE et al (2016: 78) quoted that prior to independence of Nigeria under the Macpherson Constitution of 1951, there was a provision for the traditional rulers to represent in the selection process of members in the House of Chiefs, as well as indirectly through their influence over the composition of the regional Houses of Assembly. Having this in mind, it is apparent that the office and person of a traditional ruler are inevitably saddled with crucial responsibility; mainly because of his nearness to the people, knowing and understanding their felt-needs, and ability to articulate way forward in a manner that would be appreciably understood and accepted. The traditional leaders' positions are cultural and well respected in the community. ACF (2011:11) stated that traditional leaders in the community play a vital role in the lives of their community members and can have high level of influence over them. They possess practical indigenous ecological knowledge for the protection and conservation of environmental resources (Asiedu-Amoako, Ntiamoah and Gedzi, 2016: A1). The traditional leaders have also religious power to institute control mechanisms to regulate human activities with regard to the environment (Asiedu-Amoako, et al, 2016: A1).

SWM is a common term that encompasses a wide variety of activities and practices that describes unwanted residues of any given culture (Asi, 2013:1). Solid waste management has become a practical necessity in rural areas also. The author further emphasized that all forms of human activities result in the generation of solid waste that can cause changes in the environment and harm to animals, plants and ecosystems. However, only a careful management will limit damage done to the environment and conserve scarce resources (Powell, 2001). The issue of waste management has been an environmental challenge and matter of concern to all Nigerians. It is a problem of humanity which was and is created by humankind. The usual approaches to waste management in Nigeria are neither effective nor sustainable. Indiscriminate dumping and littering of waste is a socially acceptable norm. Ronna (2016: 6) stated that the success of waste management depends on the perception of the people and how they give value to it. Waste is part of life and should not be viewed as a problem that ceases to be once it has been removed. In Asia, lack of environmental ethics and awareness contribute to the failure of solid waste management plans. Education and instilling awareness on environmental issues will go a long way to create an effective and better management of solid waste. Solid waste generated in rural areas is predominantly organic and biodegradable and has become a major problem as the waste generated is not segregated at

source. It is estimated that an average Nigerian in the urban or rural areas generates about 0.49 kg of solid waste per day with household and commercial centres contributing almost 10% of total urban waste burden (Adogu, et al., 2015:447). According to Mwesigye, Mbogoma, Nyakang'o, Idan, Kapindula, Hassan and Berkel (2009), waste management infrastructure is largely non-existent in rural areas of Africa

In the peri-urban and rural areas, the wild dumps are encountered due to the lack of waste and sanitation facilities. Frequently, such uncontrolled disposal sites are located in the proximity of households and water bodies. The impacts of improper solid waste management go beyond these health and environmental problems. Open dumps degrade the land by destroying fish and wildlife habitats. Rural dwellers at times have the perception that the problem of poor practices of solid waste concern mainly urban cities. There is poor sensitization of solid waste management in the rural areas, there is the need that the dwellers are communicated in a way and manner that they will comprehend. Another situation that needs urgent attention is the problem of poor road network. The waste agencies may not be able to go into the nook and crannies of the village due to certain challenges one of which may be poor road network. It becomes difficult for the wastes to be collected. Most residents in rural areas are not aware of the stipulated waste management practices and as such do not follow or comply with the orders and instructions of waste management systems. Again, the solid waste management practices within these villages are inadequate, leading to potential health problems, significant environmental impact, and general loss of amenity. These challenges are predominantly common to most villages throughout Nigeria and waste management is emerging as an important environmental issue.

Against this background, the purpose of this study is to provide an overview of the main challenges of SWM, and suggest the roles of the traditional leaders in rural areas for an effective sensitization of the rural dwellers on SWM practices as well as improving the present situation.

### **Review of related literature**

Gana (2014) conducted a study, an assessment of environmental awareness education on solid waste management in Gullele sub city. The objective of this study was to assess and analyze Environmental Awareness Education on Solid Waste Management in two selected woredas of Gullele Sub city. The specific objectives of the study are to assess awareness level of people on solid waste management practice, to explore sources of environmental

awareness education on waste management, to examine the problem encountered during environment awareness education on solid waste management and to identify appropriate method and strategies that should be employed to provide solid waste management awareness education for adults in community. Descriptive survey method was used in the study. Both quantitative and qualitative data were collected through questionnaire, interview, focus group discussion and observation. Data obtained through quantitative were described and analyzed in percentage and the sample size was 120.

The finding of the research indicates that the Sanitation and Beautification, Health office, and micro and small enterprises development office were providing environmental awareness education on solid waste management, communities understand their role on managing solid waste, but there was an implementation gap and lower community participation on waste management, and lack of waste management facilities in the locality.

A study was conducted by Jonathan (2015) to assess the degree of community participation in solid waste management (SWM): A case of Kigoma municipality, Tanzania. The study involved both quantitative and qualitative approaches in data analysis. The study used both the primary and secondary source data. The primary data were collected through the instrument of questionnaire, interviews, observation, focus groups discussion and secondary data were collected through documentation from Kigoma Municipal Council, internet sources, journal and books. Purposive sampling procedures were used to obtain ten representative wards. At ward level, 10 respondents each from different households were picked at random for the study leading to a sample size of 100 respondents. The collected data were analyzed using Microsoft excel software and SPSS software version 16.0. Results of the study indicated that more than 70% of the solid waste generated is of vegetable and food remains origin. The major limitations at household and community levels are lack of collection and storage facilities which could lead to serious health and environmental problems. Community members perceive SWM as a sole responsibility of local government authorities. Their perception towards SWM is quite low and their attitude in SWM is also unfavourable. It recommended that efforts should be directed towards training and awareness creation for purpose of enhancing their participation in SWM.

Ubani (2003) in Olaniyan, Ige and Akeredolu (2015:22) notes that in almost cities and rural areas in Nigeria, the menace of solid waste have posed great environmental problems due to the inability of the solid waste management agencies to carry out their responsibility. This is

evidenced by the indiscriminate disposal of refuse on the streets, drainages and water bodies in most Nigerian cities. He observes that despite the government involvement in solid waste management, there has been no remarkable improvement. It is clear that if the household were to play its role more efficiently, some positive steps would have to be taking in the matters of storage facilities (Oladejo, 2011). Solid waste management relies on the cooperation of many including numerous household and industries for ultimate effectiveness and efficiency.

Khumalo (2016) conducted a study on the Institutional Repository Environmental impact of household solid waste disposal practices on plant growth in rural areas of KwaZulu-Natal: a case study of UThukela District Municipality. The absence or unavailability of solid waste disposal facilities and service in rural areas of the UThukela District Municipality (UTDM) compelled residents to adopt many disposal practices. This included open burning of waste, which leaves residues in the form of waste ashes. Some heavy metal and hazardous substances remain active in these waste ashes. In this study, the impact of Solid Waste Disposal Practices (SWDP) on the environment was investigated by evaluating the effect of waste ashes on plant growth. The research was directed towards the evaluation of the environmental impact of solid waste disposal practices by households in these rural areas of KwaZulu-Natal (South Africa), on the growth of Zea Mays (Maize) plants. Rural maize farmers dominate the district of UTDM because it is a good agricultural area with great potential for high rainfall in summer, moderate temperatures, good soil and moderate slopes. The method selected to achieve research objectives was the evaluation of the influence of waste ashes, as by-products of SWDP, on plant growth. This was achieved by, determining soil fertility; collecting household solid waste from different rural families to determine the composition (including already burnt ash, plastic ash and wood ash; analysing the chemical composition of traditional ashes collected from sites where it was burnt (waste ashes); applying the evaporation pan test; mixing waste ashes and other additives with soil in planting pots in equal parts; planting Zea Mays in winter and summer; and lastly, monitoring and measuring agronomic parameters of plant growth on a regular basis. The selected additives to the in situ soil were fertilizer, compost, waste ash, plastic ash and wood ash. Pots with soil only (no additive added) served as control. The findings revealed that plants exposed to wood, waste and plastic ash struggled to grow when compared to plants grown with fertilizer, compost and soil only. The impact of all waste ashes on plant growth was



negative in both seasons and some of the agronomic parameters were unable to sprout during the course of plant growth. The chemicals found after analysing the waste ashes included some of the heavy metals that remained active after burning. These were left behind in the environment. Consequently, it was concluded that household solid waste disposal practices in rural areas should be reviewed urgently, as they affect plant growth negatively. Recommendations were provided.

Abduli, Samieifard and Jalili (2008) carried out a study on the title: Rural Solid Waste Management. The province of Bushehr is located in southern area of Iran and north of Persian Gulf. Solid waste management in Bushehr's villages was the aim of this research. For the sake of this study, 21 villages scattered all over the province were selected. Field studies showed that about 646 grams of residential solid waste per capita is generated in selected villages every day. There were 322 shops in chosen villages and total amount of commercial waste is about 3565 kilograms per day. The average amount of medical waste is about 7.8 kilograms per hygienic unit. Waste Composition in selected villages is: putrescible materials: 42.49%, construction and demolition: 11.7%, paper and cardboard: 8.77%, plastics: 8.24%, wood: 6.90%, metal: 6.08%, glass: 5.89%, rubber and leather: 5.1% and textile: 4.83%. According to this study, the main obstacle to recycling program is the unbiased collection of waste in rural area. It is recommended that for the first five year program, source separation includes degradable matter and dry wastes (paper, plastics and metals). Source separation of other components such as wood, rubber, glass and textile can be carried out in the second five year program. From the economical point of view, incineration with energy recovery can not be a good alternative for rural waste disposal in Bushehr province. Due to the low volume of degradable matter, land availability with low cost and easy access to labour force in rural areas, low cost technology composting is recommended. The quantity of waste generated in each village is not sufficient to be managed separately, thus a regional solid waste management must be defined to include adjacent villages.

### **Solid Waste Management in Developing Countries**

Waste problems do not only exist in big cities, but also in rural areas (Alin, 2011:8). There is tremendous difference between the waste management situation in urban and rural settings in Nigeria. Epstein, (2015) stated that in developing countries, especially in rural areas of Africa, India, and China, human waste disposal is a major concern besides household and agricultural waste. A study conducted by Mihai (2017) estimates that 1.9 billion people lack

waste collection services in rural areas and coverage rate of rural population is under 50% in 105 countries.

Tommi and Arttu (2012:3) opined that rural communities, at least in Ho Municipality, Ghana, typically dispose of their waste in unmanaged dumps that are located within a walking distance from the community and even in erosion sites. These pose considerable health risks for the community: rotting waste can draw pests, hazardous components can accumulate to domestic animals that are later used for consumption, and stagnant water enables malaria-spreading mosquitoes to breed near the communities.

Managing solid waste in developing countries displays several problems, such as low service coverage and irregular collection, open dumping and unregulated burning of waste. (Tommi and Arttu, 2012: 4). Emphasizing further on the practices of solid waste management, the authors highlighted the many factors such as economical, social and cultural aspects that have strong effects on complex systems such as solid waste management. The quantity of waste generated is increasing in rural areas as a result of increased population, consumerism and commercial activities. It is estimated that 15,000 to 18,000 million litres of gray water and 0.3 to 0.4 million metric ton of solid waste are generated each day in rural areas (DDWS-UNICEF, 2008). WSP (2012:15), the quantity of waste generated in rural areas is increasing but it is still relatively low compared with urban areas. In rural areas, compared to urban ones, land availability is not often a constraint. Also, there are more options possible in rural areas for reuse of waste, such as composting of biodegradable material, which can be used in kitchen gardens, agricultural fields, and so on. Community participation is the strategic contributing factor in solid waste management. Their involvement in the process will utterly furnish a positive outcome notably in the waste reduction from the source.

Pravash (2012:31) emphasized that waste in the rural areas is a severe threat to the public health concern and cleanliness. Though, the form of waste (both solid and liquid) generated in rural areas is predominantly organic and biodegradable yet it has become a major problem to the overall sustainability of the ecological balance. According Asi (2013:11), solid waste management is one of the main responsibilities of both urban and rural communities and the fundamental objective of solid waste management programmes is to minimize the pollution of the environment as well as utilizing the waste as a resource. Ideally, the author pointed out that public awareness and attitudes to waste can affect the population's willingness to cooperate and participate in proper waste management practices. Schübele, (1996) cited in



Asi (2013:23) emphasized that with the importance of waste management to public health and environmental protection, solid waste management in most cities of developing countries is highly unsatisfactory. Grassroot development is seen by many as a means by which underserved communities can have a voice, invested interest, and ownership in the development of their land, economy, education, rights, and values. FSD, (2010), stated that cultivating a thorough understanding of the complex realities on the ground is the key to empowerment and collective action.

Okechukwu, Okechukwu, Noye-Nortey, and Agyei (2012) in Keita (2016:1) noted that some research studies found that either at-home safety consciousness or knowledge of waste related deleterious health effects is associated with household waste disposal strategy (Aroj, Muhammad, Ushahid and Qasim, 2004). Safety behaviour is required to prevent direct contamination and exposure to infectious and injurious substances to health from household waste and increasing knowledge can foster positive attitudes and build safe practices among populations.

Wastes pollute the tributaries and rivers, lakes, and coastal areas; thus, floating debris invade marine and ocean ecosystems. In order to improve the quality of life of the rural population, environmental sanitation needs to be improved. The time has now come to move onward, to garner the benefits of other aspects of environmental cleanliness, and use the present momentum to achieve important milestones in a “Sanitation Plus” drive to holistic waste management in every village (Pravash, 2012:30).

### **Solid Waste Management practice in Rural Areas**

According to Liyanage, Gurusinghe, Heart, and Tateda, M. (2015), the most common method of final disposal of MSW is an open dumping, which accounts for more than 85% of the collected waste. These are non-engineered sites where waste is tipped haphazardly without environmental protection. The majority of open dumps are in the low-lying areas, marshes and abandoned paddy fields that are filled with solid waste primarily as a means of land reclamation. Some of the local authorities use a daily topsoil cover to reduce nuisance and allay public opposition. These dumps are used to dispose of every type of waste, including industrial, hospital and clinical, and slaughterhouse wastes, together with MSW, without any proper segregation. None of the open dump sites is engineered to manage the leachate or control pollutants released from waste decomposition. Few or no basic operations exist, such as levelling or covering of waste at the site, presumably due to the high costs involved. Soil

cover is applied only at the final stage when there is a projected use of the land or public pressure. In addition to dumpsites operated by the relevant authorities, random dumping by private individuals takes place along streets, and on marshes and abandoned paddy fields. In the central part of the country, waste is mostly disposed of along the roads. Local authorities with regular responsibility take little control over these malpractices, mainly because of a lack of resources or stringent laws.

Poorly disposed wastes end up in the rivers, gullies and water ways and the proliferation of waste such as plastic leads to blockages of the drainages during rainy season.

### **The major challenges of SWM in the village environment**

According to Willis Chirgwin Waste Management Consultants (2001), these include:

- Lack of waste disposal infrastructure
- The widespread practice of keeping private spaces very clean, but using public spaces as dumping areas for waste.
- Perceptions that waste management work is of low value and low status, as such not regarded as a priority.
- Organic wastes used in fields are often contaminated with plastics, hazardous wastes such as dry cell batteries, and medical wastes.
- Limited awareness that there is a solid waste problem, and general apathy towards making positive changes.
- Residents in rural areas are not aware of the stipulated waste management practices and therefore cannot follow and comply with the orders and instructions of waste management systems (Parrot, Sotamenou and Dia, 2009).
- According to Mashau, Mandiwana and Akinsola (2017) residents in rural areas are often too poor to focus on waste management; they often grapple with everyday life trying to make ends-meet in accessing basic necessities. Konteh (2009) concurs that in rural areas priority is still on basic needs like food, shelter and livelihoods.

The environmental impacts listed above are likely to increase substantially over the next decade. Village populations are growing rapidly, along with rising incomes leading to a growth in consumer culture. The relative wealth of some segments of the community will lead to greater quantities of waste being generated.

## **Effect of poor Solid Waste Management (Obi, Orga and Agu, 2018)**

### **Pollution**

Stench odour from the wastes that are not promptly collected and disposed causes harm to the health of people living around the site. Equally, thick smokes that emanate from the burnt tyres and other waste do not only affect the environment but also very injurious to the body.

### **Littering**

Over times, people have formed the habit of dropping waste from moving vehicles, while walking on the road, etc. This attitude is possible due to the fact that there is no enforcement of such environmental policies that condemn the behaviour. The culprits are not penalized accordingly rather they will sort themselves out with the taskforce team in-charge of the policy execution and go scot-free.

### **Clogging of drainages**

Flood jumps its drainages and as a result flows into people's houses and farmlands causing damages. Oftentimes people have to stop their journey half way for fear of being whisked away by the flash flood.

### **Challenges Confronting the Traditional Ruler in Sensitizing Solid Waste Management Practices in Rural Areas.**

Majority of Nigeria populace in the rural communities lack access to education in terms of reading, writing and numeracy, and functional literacy which put them at a disadvantaged group with respect to SWM practices awareness and environment education. This accounts for high illiteracy level in the country (Ihemeje et al, 2016). Issa, (1998: 132) opines that the rural populace/dwellers suffer from acute low productivity, social and economic retrogression due to ignorance which is a direct consequence of their inadequate information provided to them. This therefore suggests that a literate rural dweller would have acquired basic knowledge and skills, usually those pertaining to environmental education; and is able to apply them effectively. Successful SWM practices and environmental education awareness programme largely depend on quality and quantity of literates in any rural community.

Inadequate monitoring by environmental experts on policy action as regard pollution; insufficient manpower; lack of compliance on the path of rural dwellers to consistently information into applicability is another factor that confronts the traditional rulers. Liyanage et al, (2015) emphasized that limited environmental awareness combined with low motivation has inhibited innovation and the adoption of new technologies that could transform waste

management. Public attitudes to waste are also a major barrier to improving SWM. Liu and Huang (2014) and Zeng, Niu, Li, Zhou and Zhao (2016) observed that Rural Solid Waste is often discarded randomly, illegally burned, or dumped on riverbanks and roadsides.

### **The importance of traditional leader's involvement and Rural dwellers Participation in solid waste management in Rural Areas**

In a report by Alemma-Ozioruva (2017), speaking on behalf of the state government, Acting General Manager, Edo State Waste Management Board, Prince Aiyamenkue Akonofua said that various segments of the society including traditional rulers, law enforcement agencies, non- governmental organisations, faith-based organisations, educational institutions and others would be involved in the waste management campaign.

The local leaders are the backbone to most of the environments because they understand the values, norms, beliefs, culture and the traditions of the local community. Community participation should include local leadership because communities tend to believe and follow whatever their traditional leaders say. Participation of individuals ultimately ensures tremendous success of SWM.

Participation of the community is generally limited to activities associated with primary collection of domestic refuse. Examples of some of the most common roles that communities could undertake are managing waste within the household and removing them from their premises, reducing waste production and facilitating improvement for the purpose of recycling and keeping public areas around the neighbourhood clean (Sylvaine, 1999).

According to Howlett and Nagu (2001) in Jonathan (2015:21), participation is one of the critical components of success. It has been associated with increasing mobilization of ownership of polices and projects; greater efficiency, understanding and social cohesion; more cost-effective services; greater transparency and accountability; increasing empowerment of the poor and disadvantaged; and strengthened capacity of the people to learn and act.

The municipal authorities play a vital role since in most developing countries the local government is responsible for the delivery of basic services, like waste collection and disposal and for the implementation and enforcement of environmental legislation (Kinyashi, 2006). Community Participation, according to Manira (2012: 8), is the process by which individuals and families assume responsibility for their own health and welfare and for those of the community and develop the capacity to contribute to theirs and the community

development. Marina further emphasized that community participation is considered important because it is believed that the involvement of the community in an activity like waste management helps them decide about their lives and the issues that affect their daily living. It is also believed that community participation gives efficiency and effectiveness to projects.

Subash, an SWM Specialist opined that community participation can be viewed as the sociological process by which residents organise themselves and become involved at the level of a living area or a neighbourhood, to improve the conditions (water, sanitation, health, education, environment, etc.) of daily life.

### **Attitudes of rural dwellers towards SWM**

Amobi and Agu, (2017) alarmed that the worst hit by bad sanitation habit is rural poor and resident of slum areas in fast growing cities, mostly in Africa and Asia. SWM education has been integrated to ensure the current and future waste generation learn to respect and conserve nature in United States of America. The overall goal of solid waste management is to collect and dispose of solid waste generated by population groups in an environmentally and satisfactory manner. The question still remains, how can the populace dispose of the solid waste in a satisfactory manner if their attitude towards SWM is poor as well as if they are not sensitized adequately about the impending dangers of their poor solid waste management practices and the benefits of maintaining a healthy solid waste management? Effective solid waste management systems are needed to ensure better human health and safety. The increased knowledge capacity about the environment and its associated issues lead to favourable attitudes which in turn lead to action promoting better environmental quality free from waste (Palmer, 1998).

Banga, (2013) noted that the participation in solid waste separation activities depended on the level of awareness of recycling activities in the area, household income, educational level and gender. In a study conducted by Ayodeji (2012), he observed that awareness and knowledge about waste disposal among people in Nigeria is appreciable but most of them are only aware of the crude and traditional methods and are oblivious of the modern methods such as incineration and recycling.

Ihemeje et al (2016) are of the view that since traditional ruler-ship institution is closer to the people in terms of language and accessibility in all ramifications; it could work or serve as a better alternative in combating environmental crises by fostering “attitude revolution.”

## **Traditional Leaders as Agents of Change in enhancing Solid Waste Management practices in rural areas**

Conclusively, taking the advocacy on solid waste management further, the traditional authorities should do all they can to win the trust of their people. The traditional leaders should appreciate that solid waste management practice in their communities is very poor and as such strive to develop some strategies for healthy solid waste management practices which should be inculcated into the habit of their subjects.

This paper is of the opinion that for an effective sensitization of SWM practices in the rural communities, the traditional rulers are expected to be effectively involved, hence perform their role as agents of change.

Therefore, below are some strategies the author suggests that can be useful to the traditional leaders in improving the solid waste management practices in rural areas in Nigeria.

### **Environmental consciousness**

This is usually the first step in a city-wide waste campaign. It is used to raise people's environmental consciousness and to stimulate peer solidarity. It seeks to introduce greater understanding of the negative effects of careless handling of solid waste - on overall environmental conditions in the neighbourhood. A campaign makes people more aware that proper waste collection and disposal have a positive effect on public health (Maria Muller Lane Hoffman 2001: 31).

### **Education Advocacy**

Education is concerned with making people aware as individuals and as a community that there is a worthwhile contribution they can make to their community health and safety, and create awareness of waste challenges, income opportunities through the use of new solid waste management practices and modern organisational approach. Educational campaigns are more generic and abstract than raising awareness which focuses on practical individual action.

### **Environmental Education Advocacy**

Environmental Education has a mandate of fostering clear awareness of and concern about environmental issues as well as providing opportunities to acquire knowledge, attitudes and values needed to protect, manage and improve the environment. Once new attitude to the environment has been formed by individuals, groups and society, it will produce citizens who are knowledgeable of problems associated with the biophysical environment and are aware of



how to help solve them. Such individuals will disseminate knowledge of modern solid waste management to all members of the community.

### **Promotion of sensitivity and awareness campaigns**

Sensitivity and awareness campaigns are also very important in combating cultural taboos and prejudices about solid waste and those who work in, on and with it. Recycling in certain areas has a negative social image and the waste pickers often are tainted by association. Because waste is a 'free' resource, which the more established groups prefer to avoid, waste-related work is often relegated to the most marginalised people in society. The traditional leaders should insist that the waste management agency should mount a strong public awareness campaign on the impact of different types of wastes on human health so as to increase community participation and positive attitude and knowledge on the quantity, type and toxicity of hazardous waste and their environmentally sound management. There is a need for continuous training and sensitization among media personnel to equip them with knowledge on emerging issues in waste management including electronic waste.

### **Propagation of cultural evenings with messages on effective waste management practices**

Cultural evenings may be organised in the villages, having the traditional leader as the host. The waste management staff may take some time to sensitize the residents on waste segregation, waste reduction etc. The cultural programme will continue, then again for 15minutes Solid Waste Management (SWM) plan shall be put across to the residents. At the end of the programme, the General President of towns union shall sum up the message asking for the cooperation of residents for proper management of wastes, and not throw wastes indiscriminately in village corners.

### **Invitation of the agency staff for face to face educative gathering with the people**

This may be done once in 5 months after which the traditional leaders should further take a proactive measure to ensure the sustainability of the waste management practices that were taught.

### **Formation of village environmental sanitation task force group**

It is the duty of this group to patrol round the village to ensure that there are no violators of solid waste management practices. Their duties also include meting fines to the offenders as well as giving stern warnings to deter defaulters as well as giving fair and firm treatment to

all offenders. The village leader also must be willing to welcome complaints from his followers as regards the attitude of the task force to the villagers.

### **Enhancement of co-operation between Waste Management Agencies, Communities and Traditional Leaders**

There is the need to ensure enhanced co-operation between waste management agencies, communities and traditional leaders; building a transfer station from which waste is transported to the municipal sanitary landfill could be a long-term SWM solution. However, poor quality roads as well as poor road network inhibit this process especially in more remote communities. A greater community involvement/participation in SWM will not only minimize the chances of conflicts that have been a setback to major environmental sanitation projects but enhance environmental monitoring and management, and capacity building of local community members.

The traditional rulers and other opinion leaders must be given additional roles ensuring environmental cleanliness. This can be done by authorising the rulers in each community to take up the additional job of engaging the youths in the villages in the job of ensuring clean environmental practices. They should direct their efforts towards educating community members about on their roles in SWM activities. This will enhance their participation in SWM matters.

### **Annual Lectures on SWM practices**

For sustainability of the SWM practices in rural areas, the traditional leaders should find a way to include lectures on solid waste management practices in their programmes which comes up once in a year particularly during such occasions that attract people to come home, new yam festivals (in South East of Nigeria) and yuletide. Then subsequently should be mandated to oversee the continuation of such lectures and the implementation of recommendations from the lectures. There is the need to create monitoring team to monitor SWM practices in the towns. The traditional leaders should establish a strong link/cooperation between the community and local government authorities. The traditional leaders should be encouraged for purposes of enhancing community participation in SWM.

### **Creation of environmental Committees**

Active and empowered ward environmental committees should be created for the purposes of enhancing participation at lower levels. Communication and information are paramount to stimulate people to participate in all forms of SWM activities. People need easy access to

information about which SWM activity is being implemented and how they can get involved; obviously communication gap contributes to public apathy and leads to a collapse of group participation in SWM. The traditional leaders should mount pressure on the state government to provide quality road networks for the villagers under them. According to the Makhado Local Economic Development Strategy (2013) inaccessible and poor road network in rural areas contribute to poor service delivery.

### **Cleanest Village Award**

The traditional leaders are recommended to conduct an annual village competition in their towns. The prize can be an award, national promotion, a trophy, and a sign at the town's entrance announcing its status as the cleanest village award winner for the particular year.

### **References**

- Adogu, P.O.U., Uwakwe, K.A., Egenti, N.B., Okwuoha, A.P. and Nkwocha, I.B. (2015) Assessment of Waste Management Practices among Residents of Owerri Municipal Imo State Nigeria. *Journal of Environmental Protection*, 6, 446-456. <http://dx.doi.org/10.4236/jep.2015.65043>
- Alemma-Ozioruva A. (2017) Challenges of managing waste disposal in Nigeria. The Guardian Saturday Magazine
- Arukwe, A., Eggen, T. and Möder, M. (2012) Solid Waste Deposits as a Significant Sources of Contaminants of Emerging Concern to the Aquatic and Terrestrial Environments— A Developing Country Case Study from Owerri, Nigeria. *Science of the Total Environment*, 438, 94-102. <http://dx.doi.org/10.1016/j.scitotenv.2012.08.039>
- Asi Eugene Ndum (2013) Bottom-Up Approach to Sustainable Solid Waste Management in African Countries: A thesis approved by the Faculty of Environmental Sciences and Process Engineering at the Brandenburg University of Technology in Cottbus in partial fulfillment of the requirement for the award of the academic degree of Doctor of Philosophy (Ph.D.) in Environmental Sciences.
- Asiedu-Amoako, S., Ntiamoah, M.K., and Gedzi, V.S. (2016). Environmental degradation: A challenge to traditional leadership at Akyem Abuakwa in the eastern region of Ghana. *American Journal of Indigenous Studies*, 1, A1-A13. Retrieved from <http://www.asraresearch.org/ajis-vol-1-no-1-2016/>

- Ayodeji, I. (2012) Waste Management Awareness, Knowledge and Practices of Secondary Schoolteachers in Ogun State, Nigeria. *The Journal of Solid Waste Technology and Management*, **37**, 221-234.
- Banga, M. (2013) Household Knowledge Attitudes and Practices in Solid Waste Segregation and Recycling: The Case of Urban Kampala. *Zambia Social Science Journal*, **2**, 27-39.
- Centre for Rural Infrastructure (2016) Solid Waste Management In Rural Areas A Step-By-Step Guide For Gram Panchayats National Institute Of Rural Development & Panchayati Raj Rajendranagar, Hyderabad - 500 030 [Www.Nird.Org.In](http://www.Nird.Org.In) May 2016
- Desa, A., Kadir, N.B.A. and Yusoooff, F. (2012) Waste Education and Awareness Strategy: Towards Solid Waste Management (SWM) Program at UKM. *Procedia-Social and Behavioral Sciences*, **59**, 47-50. <http://dx.doi.org/10.1016/j.sbspro.2012.09.244>
- Gana, G (2014) An assessment of environmental awareness education on solid waste management in Gullele sub city Addis Ababa University Institutional Repository College of Humanities, Language Studies, Journalism and Communication ILS Proceedings ILS Proceedings - The 19th Annual Conference
- Gotame M. (2012) Community Participation In Solid Waste Management Kathmandu: Thesis submitted in the partial fulfillment of requirements for the Master of Philosophy in Development Geography Department of Geography University of Bergen, Norway
- Ihemeje G., Okorie N. and Ikpe E. (2016) Traditional Ruler, Environmental Education, Pollution and Rural Communities in Nigeria: Challenges and Prospects *European Journal of Sustainable Development* (2016), **5**, **2**, 75-86 *Doi: 10.14207/ejsd.2016.v5n2p75*
- Jonathan J. (2015) An Assessment Of Community Participation In Municipal Solid Waste Management: A Case Of Kigoma Municipal Council A Dissertation Submitted In Partial Fulfillment of The Requirements For The Master Degree In Project Management of the Open University of Tanzania
- Keita Mamady (2016) Factors Influencing Attitude, Safety Behaviour, and Knowledge regarding Household Waste Management in Guinea: A Cross-Sectional Study: Hindawi Publishing Corporation *Journal of Environmental and Public Health* Volume 2016, Article ID 9305768, 9 pages <http://dx.doi.org/10.1155/2016/9305768>
- Khumalo, Sabelo A. (2016) Environmental impact of household solid waste disposal practices on plant growth in rural areas of KwaZulu-Natal : a case study of UThukela

- District Municipality, University of South Africa, Pretoria,  
<<http://hdl.handle.net/10500/22175>>
- Liu, Y.; Huang, J.K. (2014) Rural domestic waste disposal: an empirical analysis in five provinces of China. *China Agric. Econ. Rev.* 2014, 6, 558–573. [CrossRef]
- Liyanage, B.C., Gurusinghe, R., Heart, S. and Tateda, M. (2015) Case Study: Finding Better Solutions for Municipal Solid Waste Management in a Semi Local Authority in Sri Lanka. *Open Journal of Civil Engineering*, 5, 63-73.  
<http://dx.doi.org/10.4236/ojce.2015.51007>
- Lohri, C.R., Camenzind, E.J. and Zurbrügg, C. (2014) Financial Sustainability in Municipal Solid Waste Management — Costs and Revenues in Bahir Dar, Ethiopia. *Waste Management*, 34, 542-552. <http://dx.doi.org/10.1016/j.wasman.2013.10.014>
- Makhado Municipality (2013). Draft annual report 2012/2013, financial year. Section 46 and Section 121 of MFMA. Makhado.
- Mashau N.S., Mandiwana C, and Akinsola H. A (2017) Socio-Economic Factors Influencing Household Solid Waste Management Practices At A Rural Village In South Africa. Proceedings of ISER 92nd International Conference, Saint Petersburg, Russia, 8th-9th December 2017.
- Okechukwu O. I. Okechukwu, A. A. Noye-Nortey, H., and Agyei O. (2012), “Health perception of indiscriminate waste disposal—a Ghanaian case study,” *Journal of Medicine and Medical Sciences*, vol. 3, no. 3, pp. 146–154, 2012.
- Olaniyan O. S., Ige J. A. and Akeredolu D. A. (2015) Solid Waste Management Of Omi-Adio, Ibadan, Oyo State, Nigeria: Impact: *International Journal of Research In Engineering and Technology* (Impact: Ijret) Issn(E): 2321-8843; Issn(P): 2347-4599 Vol. 3, Issue 2, Feb 2015, 21-26 © Impact Journals
- Oteng-Ababio, M., Arguello, J.E.M. and Gabbay, O. (2013) Solid Waste Management in African Cities: Sorting the Facts from the Fads in Accra, Ghana. *Habitat International*, 39, 96-104. <http://dx.doi.org/10.1016/j.habitatint.2012.10.010>
- Pravash C. M. (2012) Rural Solid Waste Management: Issues and Action. <https://www.researchgate.net/publication/265413674> progress and promise. London. Routledge. A. Subash, Community Participation in Solid Waste Management SWM specialist, TNUDP-III

- Ronna Mae A. Villanueva (2016) a primer on the challenges of solid waste management in Southeast Asia in designs for success: best practices in local waste management.
- Sasaki, S., Araki, T., Tambunan, A.H. and Prasadja, H. (2014) Household Income, Living and Working Conditions of Dumpsite Waste Pickers in Bantar Gebang: Toward Integrated Waste Management in Indonesia. *Resource, Conservation, and Recycling*, 89, 11-21. <http://dx.doi.org/10.1016/j.resconrec.2014.05.006>
- Sekito, T., Prayogo, T.B., Dote, T., Yoshitake, T. and Bagus, I. (2013) Influence of a Community-Based Waste Management System on People's Behavior and Waste Reduction. *Resource, Conservation, and Recycling*, 72, 84-90. <http://dx.doi.org/10.1016/j.resconrec.2013.01.001>
- Tommi N and Arttu V. (2012) Lahti University of Applied Sciences Degree Programme in Environmental Technology and Initiating a Community-Based Solid: Waste Management System in a Rural Community in Ghana: A Practical Framework Case: Akrofu-Xeviwofe Bachelor's Thesis in Environmental Engineering
- Wale B. (2015) Solid Waste Management in Nigeria: Media Assistant (New Media Department) Office of the Senate President, Federal Republic of Nigeria. April 22, 2015.
- Zeng, C.; Niu, D.; Li, H.; Zhou, T.; Zhao, Y. (2016) Public perceptions and economic values of source-separated collection of rural solid waste: A pilot study in China. *Resour. Conserv. Recycle*. 2016, 10, 166–173. [CrossRef]