POLITICAL WILL AND POLICY OVERVIEW – THE CHALLENGES OF EFFECTIVE SOLID WASTE MANAGEMENT IN NIGERIA

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Abstract: Collecting and managing Solid Waste generated by the households, markets, industries and the communities are sometimes not as tasking as the process involved, which essentially include the political will on the part of the government, the need for advancement in the know-how and the effective policy implementations. The experience of the years of political interference, and policy implementation default in the management of solid waste in Oyo State, Nigeria is a phenomenon. The implication of poor solid waste management often results in the loss of life, sometimes, through associated flooding, diseases, property loss and distortion of government projects or policy mandate. Solid-waste management problems stem from the government inability to enforce appropriate law, regimes interference, lack of vision to develop a modern and an advance approach that could engender a sustainable policy that would make solid waste, more of an investment and business endeavour. The objective is to show and reviews the current trend and, identify some policies undermining solid waste management in Oyo State, Nigeria. Articles, journals, data and environmental reports from previous publications were used for these study.
Keywords: Flooding, Management, Solid-Waste, Political-interference, Policy-implementation,

Introduction

Solid Waste generation and management is as long as other human endeavours, and it remains a major environmental concern for all globally. In Nigeria it is one of most prominent environmental problems, especially in the towns and cities because of inefficient management system. Solid waste Management has been a major topic of discussion because of its effect on the attainment of sustainable Development Goals; as it has direct and indirect impacts on all the sustainable development goals objectives (Alaka & Osman, 2023). Izugbara & Vmoh (2004) added that to a large extent, waste management contributes to socio-political and environmental costs. These costs are thought to have enormous implications for the economy and the populace. However, Afon & Okewole (2007 noted that solid waste management is not regarded as important in the scheme of things by the three tiers of government in Nigeria, as they are either underfunded or short of policy implementation.

Solid Waste Management is a standard used to measure good and healthy living, as it is crucial to socio-economic development of a nation. Countries' performance in effective

solid waste management is used as an assurance and sustainability of other sectors, especially, the health and investment interests. Oyo State is situated in the southwestern region of Nigeria, stands as an inland state renowned for its historical cultural eminence (Wikipedia, 2023). Within its border lies the capital city of Ibadan, an urban centre that holds the notable distinction of being the third most densely city in Nigeria. According to Golub (2019) Ibadan ranked as the second most populous city across the entire African continent. In Nigeria, the states are responsible for the protection of the environment and in accordance with Sec. 20 of the Nigeria constitution "The state shall protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria", and the same constitution specifically assigns the responsibility of environmental sanitation to the local government, the third tier of government Omoleke (2004).

The history of solid waste management in Oyo State dated back to the early 60s when Ibadan City Council was responsible for the maintenance of Ibadan city solid waste. Years after years it transmits from local arrangement to a statewide commitment. Subsequent military and democratic regimes emphasize the importance of effective solid waste management in their policy actions. The government has a responsibility to undertake policy procedures that protect its citizens from the dangers of pollution of the environment (Wachira, 2017). Therefore, regulatory schemes were set out banning traditional and unhealthy disposal approach to the implementation of sustainable waste management techniques.

The present study aims at examining and reviews the current trend and, identify some policies undermining solid waste management in Oyo State, Nigeria. To reach the study's objective, it is important answer the following questions:

What is the political history of administration and waste management in Oyo state?

What is the policy implementation derived from the arrangements?

Is there any sustainability in the policy implementation?

The significance of this article lies in its ability to enhance our understanding through the political will and policy overview in relating to the challenges of effective solid waste management in Oyo state, Nigeria. Furthermore, this article stands out for its recommendations beneficial for stakeholders such as NGOs, private sectors, governmental agencies, academicians, and environmentalists.

The structure of the study is as follows: After this introductory section, section 2 presents the review covering political history administration and waste management in Oyo state. Section 3 outlines the policy implementation derived from the arrangements, discussing the issue from political arrangement reviewed. Section 4 focuses on sustainable approach to solid waste management, encompassing sorting, recycling, among others. Section 5 concludes the paper and gives some recommendations.

The Political History of Administration and Waste Management in Oyo state

The Oyo State government enacted an edict establishing the Ibadan Waste Management Authority (Gazette No, 8, Vol. 22 of 16th May 1997), authorizing Local Government Councils in Ibadan area to collect, transfer and dispose solid waste. It translates to the transferring of functions to local Councils under the 1979 constitution. Oyo State House of Assembly passed a law to establish the Ministry of Environment and Water Resources, which commenced functioning on 1st January 2001. The Ministry is responsible for the formulation and enforcement of policies, statutory rules and regulations on waste

collection, and disposal, general environmental protection, control and regulation of the ecological system, among others.

In 1988, the Federal Military government promulgated Decree No. 58 of 1988 which charged the Federal Environmental Protection Agency with the responsibility of maintaining decent environment in Nigeria cities and towns. Section 4 of the decree charged the agency with the responsibility for the protection and development of the environment in general. In furtherance of the institutional arrangements to enhance environmental sanitation, Oyo State government introduced another micro level arrangement of kerbside and beautification of the environment. The innovation was a prelude to May 1999, World Youth Soccer tournament preparation.

Table 1: Political History of Administration and Waste Management in Oyo state

Year	Government	Key developments in solid waste administration
1999-2003	Governor Lamidi Adesina	Repair and refurbish trucks and skip eater for waste management that was bought by the government of Bola Ige (1979-1983) in 1999. Instituted a new board of management led and comprised of political appointee. None are experienced or professionals in solid waste management. Zoning and re-zoning of areas of operation of existing private solid waste management contractors to accommodate new entrants for political benefits
2003-2011	Governors Rasheed Ladoja & Alao Akala	New board of management instituted twice consisting of political appointee. Registration and re-registration of private solid waste management contractors. The engagement of a foreign based businessman (ljoba-ni) to take the control of the Solid Waste Management in Oyo State. Not identified with skill, professionalism and equipment. Opposition by existing private contractors ensue. Thereafter Ijoba-ni) went underground. The development was a mark of instability in the waste management process in Oyo State
2011-2019	Governor Isiaka Ajimobi	Disbanded the Oyo State Solid Waste Management arrangement, and hands-off the government workers Engaged West Africa ENRG as the consultant to manage waste in Oyo State and bequeathed it with the State structure and equipment. No single truck, machine or equipment was brought by the consulting firm. Thereafter, the consulting firm terminated the contract of private solid waste contractors and seek for re-application on a stringent measure. Legal battle between the consulting firm, the private Solid Waste Management Contractors, and Oyo state government lasted till the inception of Governor Seyi Makinde.
2019-to date	Governor Seyi Makinde	On October 1, 2020, the board of management of OYOWMA was suspended and an Ad-Hoc committee was set up. July 29, 2022, Oyo State government barred the existing solid waste management contractors from waste collection, to give way to a new direction but not different from previous government. Mountainair Accredited Franchisees Consulting was subsequently engaged to manage waste in Oyo State till date.

Source: Authors Findings

Issues in Policy Implementation

It is pertinent to state that the approach to waste management in Oyo state over the years had been checkered and inconsistent on policy implementation, and without advancement into value addition. There are a lot of concerns around the approaches to waste management in Oyo -State. It has generated some issues, and this will be discussed in this section.

Political profiteering is often derived from solid waste management, as each regime and succeeding governments, engage new management team, and recently politically connected consultant are engaged, as their appointment are short of required due process, essentially not passing through the state bureau of public enterprise. Likewise, some ill equipped private solid waste contractors are engaged, not minding the sensitive nature of the service to be rendered. By extension there is lack of common standard in the registration and engagement of prospective solid waste contractors. Categorization and engagement of private solid waste management contractors into residential, commercial and industrial zones are sometimes not done based on professional experience and capacity. The implication of the inconsistence resulted in poor commitment on the part of those involved, low success rate and sometimes missing the target or mandate of solid waste management in Oyo State. Omuta (1987) noted that a major flaw in waste management administration in developing countries is the unavailability of proper waste management policy.

Political manipulation of clean environment, as different regimes work for and against street trading. Most dirt that is blocking the drainage is often from street trading and the refusal to use locked up shops built by the government and the private developers. It was on record that the government of Senator Abiola Ajimobi (2011-2019) worked assiduously to discourage street trading, thereby built shops in strategic locations in Oyo state. It is expected that the succeeding government should go steps further to discourage street trading and encourage the use of market stores. Political interest of winning elections doesn't allow politicians to do what is right at the right time. A major barrier is lack of continuity in policy objectives. Ezeah & Robert (2013) reported that political interference results in instability in waste governance and lack of continuity. Policies are often set aside due to changes in administration of waste management bodies. Ezeah & Robert (2012) noted that the legal framework on waste management is weak and not considered a priority. Their view is that the waste policies in place do not have strategies for realization.

The neglect or poor attitude to the promotion of legal principle for proper adherence to solid waste management control is clear evidence that are either not implemented effectively or sidelined. Appropriate sanctions on the violation of waste management rules are often not implemented or sideline when elections are coming. Oyeniyi (2011) emphasized that solid waste management legislation must be enforced, while the existing solid waste management policy objectives must be adhered to. Policy and planning framework needs to be updated for effective management and to accommodate present day objective of value addition. As a result of the management challenges, Adefemi & Awokunmi (2009) reported a breakdown of law and order in relation to waste management. The engagement of ill-equipped and insufficient private solid waste management contractor often results in irregular schedule of solid waste evacuation, poor disposition by the residence and consequential illegal solid waste dump in the neighborhood and on the road median. Imam et al (2008) argues that for there to be sustainability in waste management, proper policy, planning and aggressive enforcement of waste management legislation must be implemented.

Structural Gap and condemnation of some existing dump sites. The dump sites, apart from not been modern and hygienic, are not enough to match the population vis-à-vis the increase in tonnage of waste generated. While some transfer stations, such as Orita-Aperin in Ibadan were closed down, it could have been used for other purpose within the cycle of solid waste management. The current approach to managing waste involves depositing all sorts of refuse into widespread formal dumps, located in depressive and low-lying areas within the communities. The proximity of the dump site to living area is posing health challenges, and better still an eyesore on the major roads.

The above pictures are the remnants of the Oyo State solid waste management transfer station at Orita Aperin, Ibadan, recently demolished by the state government to give way for other purposes. The Bodija market, Ibadan organic fertilizer plant, built inside the cattle market area, had long been cattle dung serves as raw material for the factory. The transport sand mechanical workshop of Oyo State solid waste management authority at Agodi-Bus stop now serves as Motor Park. Remark: The above and others could have been transformed and expanded to other zones, bearing in mind the growing population that comes along with an increase in solid waste generation. Better still, put to good use in other aspect of the cycle of solid waste management.

Corruption in its wider meaning can be attributed to the act of dishonesty by those in authority and their subordinates. The system and the process of solid waste management is enmeshed with deliberate sabotage. It ranges from acquisition of low capacity or substandard machines and trucks for solid waste management. Subtly, engagement of solid waste management consultant without due process, no clear evidence or intension to do things differently and lack of material capacity to do the job. Adewole (2009) argued that the inability to deliver a sustainable waste management service in Lagos may be due to corruption. He stated that waste management officials are known to demanding bribe. Dishonesty security men and solid waste truck drivers are "gangs" in sharp practices. Sometimes siphon fuel from trucks and refused to take data as expected at the dump sites. Agunwamba (1998) added that personal interests have often led to delays or stoppage of environmental policies by the government and other stakeholders. Mostly, because of financial gratification. The above and others are human factors, in the process which translates to inefficiency and failure in the effort to achieve effective solid waste management.

Dumping and dump sites: Solid waste disposal method of pick and dump by the government and its agents, is not fashionable, as it makes use of landfilling. The landfill approach has not been technologically set out to prevent further damage to the land and the environment. The recycling and waste to wealth scheme has not been promoted at the community level. In Oyo state and Nigeria at large, the process of solid waste management practice, which should prioritize reduction, reuse, recycling and composting has been overwhelmed by the reliance on the landfilling (Alaka & Osman, 2023). Waste management techniques and approaches have changed dramatically across the globe to decrease in waste generated and disposal to the dump the sites has witness a technological driven process of recycling. (Wachira, 2017). One major problem with Oyo State is that waste generated is not separated. They are dumped together in the various, unprotected landfill dumps. Managing the existing dump sites and their locations is inappropriate due to rapid urbanization and population growth. They have become "eye sore" for commuters and residents. Besides the air pollution that comes with the poor system. In addition, Sangodoyin (1993) argues that urbanization has increased the difficulty of getting enough and vast land needed for the siting of landfill dump sites.

Urban Town Planning and solid waste management are connected. Poor planning of houses and structures constitutes a barrier to effective sanitation, and solid waste management especially when the roads and pathways are too narrow to be motorable and sometimes impassable in the dry and rainy season. When garbage trucks are available, they may not be able to pass through for evacuation of refuse. Omolawal & Shittu (2016) stated that in the cities core areas, solid waste management does not have standard approach except one-off, discretional long interval and picking that are not measurable for effectiveness. Agunwamba (1998) added that the lack of planning and adequate development makes solid waste collection a difficult task. Poor and uncoordinated town planning efforts, negligence and graft have independently and collectively affected effective solid waste management in Oyo State. Bammeke & Sridhar (1989) cited unplanned development as a major cause of the current waste management practices in the major cities of Oyo State. No saner rules prevail on building construction approval and monitoring. Houses are built, converted or restructured for commercial purposes without consideration for road setbacks, sewage, space and provision, for solid waste containers (Oyeniyi, 2011). Town planning is an institutional measure that can be used to promote effective solid waste management, especially when it has to do with the populated core area. Ogbazi (2013) stated that most government bodies on urban planning have approached planning developments haphazardly, and lack of planning impacts negatively on solid waste management. Alaka & Osman (2023) opined that if infrastructure is conducive, residents are likely to engage actively in sorting and recycling as it leads to saving on waste disposal fees.

Sustainable Approach to Solid Waste Management

The government must lead in the efforts to create a technological driven, multiple investment opportunities and employment in solid waste management. Starting from sorting to reduce the tonnage of waste, evacuation, mechanised street sweeping, gutter and drainage cleaning at regular intervals and value addition through recycling of assumed solid waste into useful products. All stakeholders in the public and private sectors need to be on board to study and be involved in solid wastes and the management method that will

be sustainable. Machine and tools manufacturing companies are important, especially at the primary stage of solid waste management (Amasuomo, & Baird, 2016).

Sorting: is an essential stage in the process of solid waste mgt. It is a stage that determines cost implications, reduces solid waste tonnage, value addition, health implication, and efficient management. Solid wastes need to be sorted at source as much as possible, and the primary sources are the households, communities, markets and industries. According to Rishabh Srivastava (2016), effective waste management strategies involve a synchronized system of controlling the production and disposal of wastes. He further emphasised that most developed countries are using advanced management techniques, such as mobile sorting, that has proved to be very helpful in eluding the waste as well as creating a better probability of recycling and reuse. It also enables the recovery of valuable components from the waste. Sorting as an important process prevents waste materials being created. It facilitates some materials for re-use, possibilities of repairing of some broken items and encouraged some items to be redesigned for refill or reusable. Alaka & Osman (2023) emphasized that waste collection, sorting, composting and selling recycled materials to business and manufacturers, boost economic incentives and promote sustainable waste practices.

Mode and timing of solid waste collection and disposal needs to be prioritized to reduce air pollution, likely to come with high temperature during the day, traffic jams caused by solid Waste management truck and picking along the median. Broken-down trucks are some of the environmental displeasures occurred or associated with the process. In some developed and developing countries, solid waste is picked and disposed off with the consideration of traffic direction, at the wee hours of the working days and done extensively at the weekends.

Recycling can be referred to as a resource recovery practice, that involves the collection, and reuse of waste materials. The commonest in Nigeria are empty plastic, beverage containers, other types are damage plastic, aluminum, old iron and steel. The materials from such items are further reprocessed into new products. Gafar et al (2012) as described by the IPT/CEMPRE (2000) explained that recycling is a process involved in a number of activities aimed to reduce and divert waste from its initial state and to be utilised as secondary raw materials for goods manufacturing. Pontes & Cardoso (2006), explained that recycling as a process is an idea which has gained considerable recognition, aiming at promoting the recovery of materials considered as solid waste, and processing them into raw materials to be used in another material production process. Recyclable materials are sometimes collected in separate or dedicated bin in an organised waste management setting to facilitate effective process. Adesiyan (1998) asserted that substantial part of waste generated are recoverable and recyclable plastic, metal, bottle and organic substance, which if recovered at source can provide income as well as reduce the quantity that will be pass to final disposal site. Likewise, the owner of the waste many required separating materials in bins, e.g. for paper, plastics, metals, before its collection from the various household and industries. Recycling is not only a systematic diversion of waste or recovering useable materials, it facilitates cleaner environment, reduce tonnage of waste and cost effective management. Alaka & Osman (2023) further emphasized the sorting recyclable materials and selling them to either the middlemen or recycling plants. He said such practices is an economic incentives to reduce waste and primarily for financial benefits.

Adopting the right technology and technical know-how requires the attention of the government. These can be achieved through collaboration with the private sector. The solid waste often generated by the households are more of natural, local, heavy waste that can be recycle into organic useable materials for farming. Therefore, the machine and equipment needed for such process can be designed locally for effective sorting, grinding and compaction. Therefore, Shittu and Saka (2019) emphasized that appropriate method and facilities would save waste management a lot by reducing cost incurred in waste disposal, extend economic benefits in terms of job creation and further means to tap into the potentials in waste generated. However, emphasise should be on selling recyclable materials to accredited middlemen and plants for safety, security and efficient solid waste management.

Effective policy implementation on waste management is a nonnegotiable and a lifeline step in the process of having a clean environment and value-added waste management. According to Omoleke, effective enforcement of all regulations concerning refuse collection, disposal and other sanitation laws are important. Making use of sanitary or environmental inspectors from the state, Local Government, Non-Governmental Organisation and the private sector participants on erring waste management contractors, residence and the industries appropriately for contravening any environmental law in accordance with provision under offence related matters is a must. Promotion of the existing environmental courts, establishment of new ones and the enhancement of the capacity of the mobile courts is enough to get a high degree of compliance. Policy and it implementation on solid waste management sets the foundation for a reliable and sustainable clean environment, therefore, the policy must be relevant, at all time, to the activities, products and services of the solid waste management authority (Wachira, 2017), it is expected to be documented, and available in the public domain to encourage compliance and avoid undue penalty.

Data Bank: The relevance of keeping statistics for all the processes in solid waste management is important. It gives the assurance of immediate needs and appropriate forecast for effective solid waste management. Data banks need to be available and findings published at regular intervals for public digestion to get feedback, proper assessment and academic research. It enables waste management authorities to measure trends, optimize collection routes and the allocation of resources efficiently. Lack of data-evidence in decision making in waste management systems, both local and national policies on health and environment, may be affected adversely. Generating comprehensive information on the quantity and type of recyclables and recoverable materials helps to prioritize the recovery opportunities. It helps to find areas where more waste are generated excessively, find how the process can be efficient and identify opportunities to reduce waste.

Conclusion and Recommendation

Government needs to institutionalise and encourage the marketing of recycled materials as regards the economic gains and clean environment. A value added and properly sited engineered landfilled dump sites needs to be constructed in earnest. Such that dump site can generate some levels of energy. The abandoned solid waste transfer stations and the defunct market sited organic fertilizer plant must be reintroduced for early and better utilization or the establishment of more to meet the challenging population increase.

Composite plants and organic fertilizer plants in the major markets need to be considered and promoted to create employment, income generation and poverty alleviation. Partnership with the private sectors cannot be underestimated.

Recycled products and materials can be promoted for local contents in agriculture and manufacturing. It can be standardized to reduce pressure on Scarce resources and reduction in the tonnage of solid waste.

Annual conference on solid waste management needs to be facilitated by the Oyo State Government, the private sector, Academia, Engineering companies, health experts, agriculture and other stakeholders, for assessment and projection for the future. Such conference will develop a comprehensive master plan or assessed the existing one by anticipating development in solid waste management with the objective of adding value to the process.

References

1. Adewole, A. (2009). Waste Management towards Sustainable Development in Nigeria: A Case Study of Lagos State. International NGO Journal. 4. 173-179.
2. Afon, Abel & Okewole, Afolabi. (2007). Estimating the Quantity of Solid Waste Generation in Oyo, Nigeria. Waste management & research: the journal of the International Solid Wastes and Public Cleansing Association, ISWA. 25. 371-9. https://doi.org/10.1177/0734242X07078286
3. Agunwamba JC. Solid Waste Management in Nigeria: Problems and Issues. Environ Manage. 1998 Nov;22(6):849-56. https://doi.org/10.1007/s002679900152 PMID: 9732514.
4. Alaka, S.A. and Osama, Y. (2023). Assessment of Municipal Solid Waste Management in Oyo State, Nigeria – Challenges and Solutions. IIARD International Journal of Geography & Environmental Management (IJGEM). Vol. 9 No. 6 2023 E-ISSN 2504-8821 P-ISSN 2695-1878 https://doi.org/10.56201/ijgem.v9.no6.2023.pg78.90
5. Amasuomo, E., & Baird, J.R. (2016). Solid Waste Management Trends in Nigeria. The Journal of Men's Studies, 6, 35-44.
6. Bammeke AO, Sridhar MKC. Market Wastes in Ibadan, Nigeria. Waste Management & Research. 1989; 7(1):115-120. https://doi.org/10.1177/0734242X8900700116
7. Ezeah C, Roberts C.L. Analysis of Barriers and Success Factors Affecting the Adoption of Sustainable Management of Municipal Solid Waste in Nigeria. J Environ Manage. 2012 Jul 30; 103:9-14. https://doi.org/10.1016/j.jenvman.2012.02.027
8. Ezeah, Chukwunonye & Roberts, Clive. (2014). Waste Governance Agenda in Nigerian cities: A Comparative Analysis. Habitat International. 41. 121–128. https://doi.org/10.1016/j.habitatint.2013.07.007
9. Gafar, Abdulateef & Saka, Abdullahi & Habeeb, Shittu. (2019). Solid Waste Recycling Plant for Oyo State Waste Management Authority (OYSWMA): Waste Minimization for Sustainable Environment.
10. Gazette No. 8, Vol. 22 of 16th May (1997) Oyo State, Nigeria.
11. Imam et al (2008). Solid Waste Management in Abuja, Nigeria.
12. Izugbara, C.O., Umoh, J.O. Indigenous Waste Management Practices among the Ngwa of Southeastern Nigeria: Some Lessons and Policy Implications. Environmentalist 24, 87–92 (2004). https://doi.org/10.1007/s10669-004-4799-4
13. Ogbazi, J.U. (2013). Alternative Planning Approaches and the Sustainable Cities Programme in Nigeria. Habitat International, 40, 109-118. https://doi.org/10.1016/j.habitatint.2013.03.001
14. Omolawal, S.A., & Shittu, O. (2016). Challenges of Solid Waste Management and Environmental Sanitation In Ibadan North Local Government, Oyo State, Nigeria. African Journal for the Psychological Study of Social Issues, 19, 129-142.
15. Omoleke, I.I. (2004). Management of Environmental Pollution in Ibadan, An African City: The Challenges of Health Hazard Facing Government and The People. Journal of Human Ecology, 15, 265 - 275.

16. Omuta, G.E. (1987). Urban Solid Waste Generation and Management in Nigeria: Towards an Environmental Sanitation Policy. Habitat International, 11, 77-87. https://doi.org/10.1016/0197-3975(87)90058-0
17. Oyeniyi, Bukola. (2011). Waste Management in Contemporary Nigeria: The Abuja Example. International Journal of Politics and Good Governance. 2. 1-18.
18. Rishabh Srivastava (2016). Waste Management-Developed and Developing Countries. International Journal of Science and Research (IJSR). ISSN (Online): 2319-7064
19. Samuel, Adefemi & Emmanuel, Awokunmi. (2009). The Impact of Municipal Solid Waste Disposal in Ado Ekiti metropolis, Ekiti-State, Nigeria. 3. African Journal of Environmental Science and Technology. Vol. 3 (8), pp. 186-189, http://www.academicjournals.org/
20. Sangodoyin, A.Y. (1993). Considerations on Contamination of Groundwater by Waste Disposal Systems in Nigeria. Environmental Technology, 14, 957-964. https://doi.org/10.1080/09593339309385370
21. Stephen, S. Golub (2019). Urban Analytics and City Science.
22. Wachira, M. (2017). Public Policy and Sustainability: A Public Policy on Waste Management. European Journal of Business and Management, 9, 130-134.