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From Governance Panorama to Management Discord on Waste Management Practices in African Communities, Damaged Reputation! African Experience[S]

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Abstract:

Waste management is one discipline, that, African leadership takes for granted and is somehow positioned at the tail of African priorities. It is thus treated as the 'other business'. The purpose of this study is to interrogate governance and management of solid waste in Africa. The major research question is: To what degree is governance and management of waste idealized, prioritized and practiced in African communities? A qualitative research methodology was employed to obtain data for the study. The major finding of the study is that the current governance structure and systems perpetuate the continued ineffective and inefficient ways of waste management, making Africa one continent with a fragmented waste management system. The study recommends the adoption of an African waste governance and management model fused with western models. The study is not in itself a prescription for waste management but, is a dossier to governance systems. There is need for further research on how to involve communities from household levels on waste management practices.

Keywords: Governance, waste, management, model, theory of waste management, African panorama, management discord

1. Introduction

African communities are at crossroads. Their inability to handle the increasing amount of waste generated is a growing problem in many African states (United Nation Industrial Development Organization 2003; Daniel and Perinaz 2012). Waste heaps piled up are a common sight in most of the cities and townships of Africa. Exploding populations and changing lifestyles are generating enormous amounts of waste (Ahmed and Ali 2006).

In most African countries, waste management is part of the responsibilities entrusted to the municipal governments. The main stages in waste management are waste generation, collection and transport, treatment and value addition, and residue management. The options available are land filling, composting, energy production, and many others. Africa has a varied historical and political background of waste management (Afon 2007). Several pieces of research on waste management alleges that some African countries serve as dumping grounds for toxic and hazardous waste, produced mostly in the developed world (Smith 1993; UNEP-IETC 1996; Okot-Okumu 2012). This could directly link to a culture of economic dependency on developed countries; the inherent belief that Africa can be used for any purpose; any reason, corrupt traditions and practices that are endemic to Africa and which ultimately affect all facets of Africa lifestyles and approaches; and of course touches on the environmental management practices.

Admittedly, at this early juncture is that in most parts of African continent environmental problems poses serious challenges to the well-being of her societies. Estimates of between 0.7kg and 1.8kg per capita of waste are produced every day in developing countries (World bank 1999; UNIDO 2003; Ogola et al., 2012'). This is usually noted and witnessed within cities, especially with regard to the management of solid waste. This problem is compounded by the continued increase of African populations, especially in the urban areas due to rural-urban migration. The quantities of produced waste is on the increase daily but the governance systems and the effectiveness of handling such increase in terms of collection and disposal is a cause for concern and remains a grey area in African waste management culture (Daily Trust, 2013). Generally the collection and disposal of solid waste is a prerogative of any government, and hence must be treated as such. An observed phenomenon is

the problem of waste management from an African context where issues of waste disposal are questionable and this goes beyond that due to the in capabilities and failure of governments and waste management authorities to keep up with the version of the problem itself (Muzendal et al.,2011). This paper is set to interrogate the discourse of waste management governance in Africa. A microscopic view of a cross section of the capital cities and major urban areas in Africa is evident enough to show that there is need to erect proper governance structures and systems and respect the will of nature. Ideally, I intend to propose the development and creation of an African Governance Waste Management Framework [AGWAMAF] based on African Indigenous Knowledge Systems. The crafting of the African waste management model is long overdue. The paper argues, for the recognition of systems that minimizes and or eradicates solid waste from a human love perspective. Further arguments are hinged on the adoption of proper governance scenarios that creates a green and clean environment for all. Hence, to fully understand the fundamental problems, challenges and opportunities in the management of solid waste in the urban areas, it is important to scrutinize on the degree and level the governance temperatures and the general state of the atmospheric pressures with regard to policies, structure, implementation and the general socio-economic portfolio of the countries concerned.

Fundamentally, waste generation tend to increase with an increase in population and economic growth which ultimately leads to the major problems of waste management. Waste pollution, open landfills and blocked drainage systems expose severe health problems for the population, and more so children who are more vulnerable (Zurbrügg, and Schertenleib 1998). Generally the waste collection techniques employed by many of the countries together with their municipalities are inefficient, resulting in most of the waste remain uncollected (Pichtel 2005; Liyala 2011). The uncollected waste becomes dumping sites and a breeding place for mosquito and diseases such as cholera and malaria. The African Development bank warned that a possibility form the amount of waste generation may increase by approximately five times when we reach 2025 (World bank 1999).

Fundamentally, some key elements of solid waste management and process of governance, which are critical and essential for the performance of the management systems in use needs serious consideration and attention. These include the effectiveness of the organizational structure, accountability, transparency in decision-making.

Waste Management Theory [WMT] is founded on the expectation that waste management is to prevent waste, causing harm to human health and the environment. The Theory of Waste Management is a unified body of knowledge about waste and waste management, and it is founded on the expectation that waste management is to prevent waste to cause harm to human health and the environment and promote resource use optimization (Pongracz 2002; Campell 1957). The theory is to be constructed under the paradigm of Industrial Ecology as Industrial Ecology is equally adaptable to incorporate waste minimization and/or resource use optimization. A quick mention on this study is that it is highly influenced by the WMT. The proper definition of waste is crucial to constructing a sustainable agenda of waste management governance. Medina (2000) defines solid waste as materials generated from the result of human daily activities resulting from area as such households, public places, city streets, shops, offices and hospitals. Fundamentally, the theory of waste management represents a more in-depth account of the domain and contains conceptual analyses of waste, the activity upon waste, and a holistic view of the goals of waste management (Cheyne and Purdue 1995). The theory is founded on the expectation that waste management is to prevent waste causing harm to human health and the environment.

We are convinced that a proper definition will indeed; influence the direction of policy formulation and governance systems. An incomplete definition of waste has implications on incomplete governance systems. The nature of legislation[s] found in African states is to some degree based on the depth and width of the definition ascribed to waste. Continuously seeking for new definitions of waste and even do away with the use of the word 'waste' and engineer a new one, may be a step towards the right direction, in taking this discipline seriously-and not 'the other'. The paper further argues that sustainable waste management depends greatly upon how waste is defined, by the various authorities charged with its management. Agreeably, they cannot be one universal definition of waste but, agreeably they can be a universal position of what waste is not. Effective definition of the core concepts is an epistemological well-bounded theoretical construct. The major underlying issue affecting waste management is the regulatory aspects of it, which ultimately defines the governance structures of it. A clear and precise pattern appearing from experience is that waste management, thus appears to be simply a reaction to waste. There are two things that will likely happen. Conflict of the duality of waste policy is observable. Assuming we define waste at the point of its creation, how can we avoid its generation? Its utilization is hindered as well, since when defined as 'waste', recoverable. Back to basics the argument of Fahmi and Sutton (2010) is an interesting starting point in terms of formulating policy and governance structures necessary to execute.

Fahmi and Sutton (2010) refer to waste as a result of the inefficiency of a system. In contrast EPA (2009) considers waste as something that has to be extracted to achieve efficiency. The term waste derives from the Latin *uastus*, meaning to ravage, to leave desolate, or to fail to husband or cultivate. Hence, of the varieties of waste, 'technical inefficiency' is probably closest in meaning to traditional usage (Maluleke 2014). A deeper understanding of waste should surpass just understanding it by its definition, but goes further to categorize it by its usage. This categorization is a critical ingredient to successful modeling of an effective governing system.

An analysis of waste shows the attributes of wastes, and does recognize that waste is a thing that has no purpose; or is not able to perform with respect to its purpose (Visvanathana and Trankler, 2003). According to this definition waste is in the eye of the beholder, as humans assign purpose and humans evaluate performance. However, this description also allows for the

possibility of the waste being turned into a non-waste, and emphasizes that being 'waste' is a temporary failing that needs to be remedied. It is important to set parameters on when a thing starts to be waste and when it ends to be a waste.

The analysis on the above shows that simple manipulation of object properties is capable of turning waste into non-wastes and the vice versa is true. It has to be recognized that, when trying to define the concept of waste, there are multi-dimensions to consider (Robertson 2002). Fundamentally waste is a dynamic concept, where the same thing can be waste or non-waste for different persons, in different places, and in different times. The paper argues that [given the above analysis] waste is a thing that is, in the given time and place, in its actual structure and state, not useful to its owner, or an output that has no owner, and no purpose.

Well known and popularized theory nomenclatures 'institutional theory is at the Centre for this study. The concept of institution is obtained through comprehending the general meaning of the institution of the formal forms of rules like constitution, legal systems and the governing structures a to include even the informal aspects of life. According to Scott (2001) institutions are composed of cultural cognitive, normative and regulative elements that, together with associated activities and resources, provide stability and meaning to social life. It is against the same background that the study on waste management will lean to see how the waste management institutions are structure governed and also determine their efficiency. The issue of human behaviour cannot be left to chance when discussing institutional theory, despite the presence of the regulative, normative and cultural cognitive which defines and redefines operationalization of institutions. Understandably, institutions can restrict or improve actor's behaviour and material resources (Scott 2001).

The theory of waste management is useful in providing the, much needed practical solution[s] to waste management and promotion of good governance perse. By virtue of the relevance of the theory in question, they must be some practical implications of the said theory, and should provide answers or solutions to certain areas found within and without it. The areas being alluded to here include:

- Giving answers to conceptual questions by explaining waste and concepts associated with it.
- Information for legislators
- Developing a guiding framework that will facilitate the choice of waste management options.
- Providing a foundation for how and when to select and integrate waste management options.
- Forecasting and predicting the outcomes of the use of waste management action.

The governance model that addresses African waste using the African approach could be in this instance a function of how we see, perceive the value of waste and its impact to human lives. In formulating the governance systems or forming a culture of good governance is a direct function of the theoretical base and power created by the same systems that manages it. Thus the theory of waste management indeed represents a more in-depth account of the domain and contains conceptual analyses of waste, the activity upon waste, and a holistic view of the functions and goals of waste management and all underlying issues connected to it (Tromans2001; Song 2014; Ojok et al. 2014).

1.1. Waste Management! Whose Responsibility? What Goals?

In Africa and other parts of the world, there is a general tendency of believing that waste management is purely and absolutely a responsibility of the municipalities. The reason for this perceptual view emanates from the idea that, indeed most municipalities do collect and dispose physical waste (Halla and Majani, 1999). An ideal operating environment, waste management should start with individuals up to the last notch of the management structures [government]. A clear delineation of waste management is necessary.

The major thrust of waste material governance is

- Manage waste act and see that it is implemented. The waste management Act of any country should generally create a duty to waste holders to avoid generating waste, minimize the amount of the waste generated.
- Grown the contribution of the waste sector to the green economy.
- Promotes access to basic waste services.
- Promote awareness of the impact of waste on people's health and safety.
- Ensure sound financial management in Africa.
- Put in place compliance mechanisms in adherence to waste management act and or similar acts.

The governance focus should enable three key things to be done (Black 2008; Municipality 2004; Mgimba and Sanga, 2016). There are norms and standards to be set and fundamentally they are:

- Classification of waste.
- Planning for and provision of waste management service.
- Storage, treatment and disposal of waste.

In terms of waste generation, civil society [consumers and households, NGOs, community based organizations, trade unions etc.] play a fundamental role. By virtue of being end users, it is prudent for them to reduce, re-use and recycle waste, and dispose it responsibly. Studies on waste management show that most consumers are not aware of the environmental impact of products they purchase and consume (Modak, 2011; UNIDO 2013; Mgimba and Sanga 2016).

The government is mandated by the existing constitutional arrangements to organize and manage waste through its designated departments or institutions in line with the constitution of the country. Waste management is a key task of local

government or municipalities empowered by the constitution to do so. Ideally, local government does provide waste management services [waste removal, storage and disposable services]. The municipalities need to work with industry and other stakeholders to allow for recycling at that level. The major question that arises is to what extent is the industry involved in this task? Do these mechanisms inform, educate or integrate industry interests. General the municipalities must design a waste management structure that is meant to diffuse the waste management dilemmas facing Africa. Some countries such as South Africa, there is a provincial government, which acts as the primary regulatory authority for waste activities (Matete and Trois 2008; Malulekeln 2014). The provincial bodies provide a nationally harmonized regulatory environment framework. National government is ultimately responsible for ensuring that the Act is implemented and the harnessing of various provisions (Muzenda et al., 2011). The key role of government here will be: to establish the National Waste management strategy; setting national norms and standards' preparing a national waste information system. Integration and ensuring implementation is an entire responsibility.

There exists generally three major methods or approaches of waste collection in Africa-namely- informal phase, primary and secondary phase. The informal and primary phases are basically the ones from household to community collection points. The formal institutions such as urban councils and private operators are the ones in charge of the secondary phase. Normally wastes are usually transported from community transfer points to landfills or final disposal sites. Private operators collect waste directly from households by door to door approach (Christensen et al 2014).

As if it is eaten! There is genuinely a serious problem with some of our African societies in terms of hygiene and status quo maintenance. There is solid waste scattered all over around people's premises and in towns (Malulekeln 2014). It appears as if it is normal and part of life. There are few, if any authorities in waste management, who are able to keep a 100% clean environment, with or without resources, mainly because it is treated as 'the other' or it is managed by default (Omran and Gavrilescu 2008).

1.2. Management of Waste; Governance Protocols

Every state has an international obligation to implement some international conventions on waste management. The modern system of global environmental governance largely an outcome or consequence of the Rio Earth Summit in 1992 and agenda 21 did set a series of multilateral environmental agreements. For example the Basel Convention, addresses the need to control the trans-boundary movement of hazardous waste and their disposal, setting out the categorization of hazardous waste and policies between member countries (Matthews and Themelis 2007).

Other international obligations include the Rotterdam Convention, which promotes and enforces transparency in the importation of hazardous chemicals and the Stockholm Convention, which require member countries to phase out Persistent Organic Pollutants [POPs] and prevent their imports and exports. Governance matters must account for international conventions and treaties on waste management (Black 2008; Popov et al 2004).

1.3. Governance Order

Broadly speaking, there are two ways of managing waste. Systems can be decentralized or centralized. The major question is which model is most effective in managing waste at all levels of society? Waste management varies from country to country in Africa, sometimes variations are seen within the same country from one region to another or from one city to another or from one location in a city to another location or from one village to another (Smith 1993; World bank 1997). Such is the variation.

1.4. Decentralization and Centralization

What does Decentralization mean? Decentralization of what? What does Centralization mean? Centralization of what? What is in its Core? Is this about mean policy, law, institutions (basically a governance structure)? Decentralized management system' pertains to planning from below involving the primary stakeholders, in the decision making, implementation, monitoring and evaluation of the programme/initiative/activity (Onibokun and Kumuyi 1999; Robetson, 2002; Daniel and Perinaz 2012). As with the decentralized waste management system, for it to work, there has to be a decentralized structure put place.

One of the obvious advantages of a decentralized system is the improved aesthetic condition in the locality. Also, it will not require a secondary collection service by the municipality. Decentralized schemes provide better income and employment options to the underprivileged sections of the society (Okot-Okumu and Nyenje 2011; Perinaz 2012). The localized collection and processing of wastes, avoids the carting of wastes too far off dumping sites (Eekels 2001; Robertson 2002). It does reduce the contamination of ground water through the seepage of leachates.

Decentralized community-based waste management arrangements do not suffer from the challenges of centralized systems. A good example is that, they treat solid waste near to the origin. Thus the treated waste becomes an economic resource, which can be used, thereby eliminating the need for transport, landfill, or treatment at the waste disposal site. They also encourage civic responsibility, and innovation (Nzeadibe 2009; Modak, 2011).

An important aspect of governance framework is that of whether to centralize or not. Centralized management system refers to 'Centralized approach' in planning, decision making, implementation, monitoring and evaluation as part of the operationalization of any initiative/intervention (Beukering and Sehker et al 1999; Richardson 2003).

1.5. Challenges Facing African States in Waste Management

Africa's growing population and economy is resulting in increased waste hence pressure being exerted on waste management facilities.

- There is generally evidence of shortage of recycling infrastructure.
- Outdated and old equipment of waste management
- African leadership treats waste management as the 'tail' of African priorities. The policies put in place are embedded in this philosophical thinking that undermines the importance of best practices in waste management
- Submission of waste data is limited due to lack of research in the area, hence there is limited appreciation of the waste management ethos.

(Onibokuu and Kumuyi 1999; Smith 1993; Medina 2000; Simelane, Kaggwa and Mutanga 2011)

The majority of problems experienced in the management of waste solid waste in particular is the discourse error created by deliberately negligent to oversee the collection, delivery and disposal of waste by responsible authorities. Culture of regarding waste management as a waste of time and resources pervades across most African communities and is regarded as 'that other business'. This is the problem, African states encounter and this does perpetuate the incorrect attitudes, our society, including the very governing bodies has over the management and disposal of waste (UNEP-IETC 1996; Cleary 2009; Muzenda et al., 2011; Chevalier, 2011:).

The strong link between solid waste and climate change has raised serious concerns all across the world (Onibokun and Kumuyi 1999; Phillips et al., 2002). Increasing problems of solid waste management and its disposal has given rise to environmental and health hazards (UNEP 2005). Important to note are emissions of greenhouse gases in the Earth's atmosphere have caused climate change. Methane is released from the anaerobic decay of wastes in landfills, and nitrous oxide from solid waste combustion.

Healthy systems are compromised due to high level of uncollected, unmanaged, discarded and ignored wastes especially in urban areas (-Bai and Suntato (2001); Kgathi and Bolaane. 2001). Apparently the management approaches, methods, strategies and techniques employed to date in most African countries have failed and failed successfully. More so, the sectors and bodies charged with the management of waste appear perennially not to receive adequate support from the government. The persistence of waste management failures and public health compromisation is somehow due to the weak financial structures and possible institutional incapacity of various authorities mandated to manage waste, pre and post disposal (UNIDO 2003). The paper argues that waste management is an important and fundamental practice to healthy communities and must be treated as such. It is an important facet of life and the aspect of good governance must be reflected not only from the authorities tasked to manage waste but also from a societal perspective and government perspective. The study is meant to inform, create innovative platform and enhance the adoption of a well-orchestrated waste management, governance model that is embedded in indigenous knowledge systems. Managing waste the African-way, the global-way and the best way cannot be overemphasized.

Given the above problems, the paper is set to answer the following research questions:

- To what degree is governance and management of waste idealized, prioritized and practiced in African communities?
- What key governance challenges are being faced?
- What are the merits of having clearly defined governance systems in place?
- Which governance model can be used to address current mishaps in waste management in Africa

It goes without saying that this paper is set to aid a number of stakeholders in achieving their core mandate. The governments of the African continent will take one or two leaves from this study from an informative, theoretical and practical perspective. The recommendations of this study are a useful tool for policy makers in so far as decision making processes and facilitation is concerned. Adoption of proper governance models institutionalized within the African context will translate into a clean and peaceful society that ultimately restores the healthy status that is currently in the doldrums in most African communities. It goes without saying that once a Pandora box is opened; every interested person would like to see themselves being part of the solution and not part of the problem. Contributions from other scholars, researchers and practitioners cannot be over emphasized once they get an opportunity to come across this staling piece of work.

2. Methodology

This study is a qualitative case study complemented with a mini-desk review- based on various other studies and events elsewhere in Africa Kamalski, 2010). The mini-desk review is supported by a live case survey of waste management practices in Botswana, South Africa, Tanzania, Zambia and Zimbabwe. The governance system deployed and employed in the major municipal cities of the five randomly selected countries is interrogated to support overall studies on waste management in Africa and beyond. In-depth interviews were held with senior personnel in the respective case areas, either by phone, Skype or face to face. One cannot defy personal experience employed in understanding the waste management strategies used. The study also took the indigenous methodology/ approach [We suggest in future a more rigorous research to promote indigenous methods of gathering data as opposed to western influenced scientific approaches, which negates the African ways of doing things] of discussing with a total of 53 individual members of the community in selected countries, including other

independent groups to hear their views on waste management in Africa. We attended a community gathering that was discussing community development in Harare, Zimbabwe and requested for a slot to discuss about waste management issues and how it impacted on their lives. It was more of a focus group approach based on the concept of 'Dare' a community gathering in the African perspective that discusses critical issues that has a bearing on the lives of the members of the community. This method defies the scientific approach to research, because the scientific approach to research does not embrace the indigenous methodologies of data gathering. This supports the idea that we raised earlier on the need to develop an indigenous waste management model with a global touch. The choice of the research approaches was informed by the theoretical and conceptual grounding on waste management governance.

3. Results and Discussion

The following results emanates from the study, both from the desk mini review as well as from the empirical study. A cross sectional analysis of the study reveals that there is generally poor waste management practice in Africa. This could be contributed to laws and regulations governing waste management. Diseases are quite prevalent in many parts of Africa and this normally is contributed by flies that breed in some constituencies of solid waste. Evidence from the study shows that uncollected waste often ends up in drains, causing blockages which result in overflowing and insanitary conditions. In the same endeavour mosquitoes breed in blocked drains and in rainwater that is retained and discarded cans, tyres and other objects. One common outcome from the study, relates to rats that find shelter and food in waste dumps, consume and spoil food and spread disease.

As part of the study, we had an opportunity to interact with various constituencies through phone and emails. The general themes emerging from the interviews indicated that Africa was at crossroads in terms of solid waste management and the discourse of commitment towards effective waste management was questionable. Waste management appears to be 'the other task' not 'the task'. It is against this perspective that participants from the selected countries almost concurred in all the major challenges faced in waste management both from micro and macro levels.

Below are direct comments coming from communities from the selected countries and suggests a common basket of problems within the region. This is possibly a result of sharing common historical and cultural background.

3.1. Interviews Quotes: Community Responses and Other Beneficiaries

"Residents are forced to dump waste on street corners"
 "Council is struggling with waste management"
 'Council has not been responsive to ratepayers 'interests'
 'Refuse collection is erratic...'
 Council Has failed to dedicate to the so called dedicated collection schedule'
 'All over the cities, there are undesignated dump sites"
 'We live with flies and mice"
 'There is a heap of uncollected garbage that is piling up at the market square"
 ' The public pays for refuse collection, which is never collected"
 'every time their refuse collecting vehicles experience breakdowns"
 ' There is the need for community involvement in the whole governance system of waste management'
 'Our municipalities should decentralize refuse collection to the lowest level. This can also create employment to local communities"
 'Refuse or waste is taken for granted here'
 'Council is no longer supplying residents with basic services'
 'High density areas seem to receive a raw deal, while low density areas are favoured in most cases.as the frequency of delivery is different'
 'A lot of corrupt practices in awarding of tenders to collect waste '
 'The Environmental Management Agency must press and pressurize city authorities whose bellies are growing big yet work is not being done properly..
 'Urban waste management is weak in areas which were designated for blacks during the colonial era...it's no surprise that most dumping sites are found in those areas..."

Figure 1

Source: Adapted From Interviews Held

Below are comments coming from workers within institutions that manage waste [local authorities and bodies tasked with waste management, including executives from relevant ministries? Clearly coming from these statements is the aspect of lack of resources and outdated technology needed to deal with the management of waste. Study conducted by Muzenda et al.

(2011), revealed that lack of resources and outdated technology are key challenges facing most countries in Africa. In addition to this are issues of lack of commitment and centralization of the management of solid waste.

3.2. Interview Quotes: Stakeholders in Waste Management Industries

"Our governance structure is just a paper model...'
 'The greatest challenge we have is lack of resources...'
 "Our equipment is dilapidated."
 "There is lack of coordination of activities...'
 "It seems waste management is being over politicized and has lost meaning...'
 "We do not have properly qualified personnel to manage waste effectively and efficiently"
 'There is a mismatch between the current waste management capacity and the expansion and growth of population...'
 'Management of waste is an expensive exercise...'
 'Even within the SADC region, we have always felt that waste management is not being given enough attention...'
 'We have fragmented legislations that regulate the management of waste.
 "There is a void in policy formulation....'
 "There is too much corruption..."
 "Wrong prioritization of waste management aspects...'
 "Leadership deficiency..."
 'Local authorities should encourage recycling..."
 'Incentives should be given to communities that are clean...".
 "Increase number of proper receptacles...'
 "Increase the number of human resource to optimum levels.'

Figure 2

Source: Adapted from Interviews Held

3.3. Resources Use Optimization-Waste Minimization

Prevention of waste creation is the main priority of waste management, which corresponds to the principal goal of waste management: conservation of resources. Moving toward waste minimization requires that the firm commits itself to increasing the proportion of non-waste leaving the process. It has been argued that, it follows from the laws of thermodynamics, that producing by-products is concomitant of a main product (Chevallier, 2011). For this reason, industrial firms have to look beyond their factory walls, and seek for external utilization of their waste, in accordance with the principles of Industrial Ecology (IE). If we accept that waste minimization and resources use optimization is the most important objective. Figure 1 shows the waste management hierarchy [next page]:

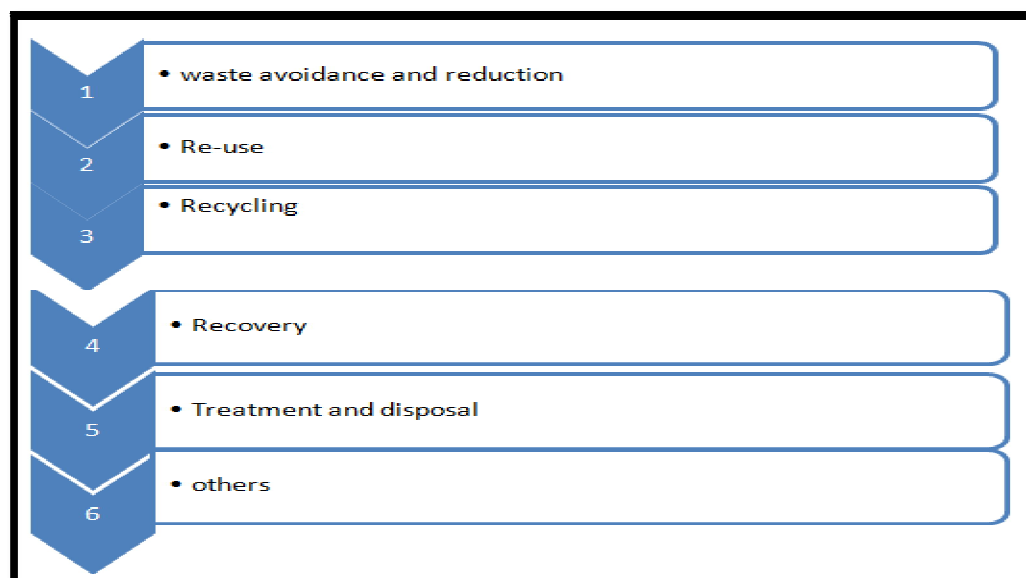


Figure 3: Waste Management Hierarchy

Source: Researchers Developed

Important to mention is the first step in waste management a philosophy based on avoidance and reduction of waste material. How is this to be achieved? The stance is to ensure that goods are designed in a manner that minimizes waste components. This is of course followed by re-use, recycling, recovery, treatment and disposal and other mechanisms. Waste management philosophy need not wait until waste is created but taking waste management proactive frameworks will go a long way in solving some of the problems that otherwise could be avoided.

3.4. Partnerships, Regulation and Co-Regulation

In order to achieve the objective of waste Acts in Africa, it calls for dedication and sacrifice on the part of those tasked to take the lead in moving the agenda. Coordinated action is required by all including individuals, households, businesses, community organizations, NGOs, parastatals and the government (Pitchel 2005; Cleary, 2009; Liyala, 2011). Implementation of the hierarchy above requires total cooperation amongst all stakeholders. There is need for thorough collaboration and exercise of due diligent in the whole process.

Industry, businesses, government and households have a critical role to play in managing their own waste streams. Self-regulation by all responsible authorities cannot be over emphasized. It is likely that the greater the self-regulation, the less the involvement of government on matters of waste. The governance regulatory model put in place should optimally combine regulation and compliance measures with self-regulatory components and voluntary initiatives.

3.5. Observations and Personal Experience Input

- Solid waste management system in Africa is invariably initiated without proper planning, for example Landfill sites are often identified and then converted into dumping yards, making life miserable for residents in the locality and forcing them into some form of resistance.
- This paper observes that the local government resists change in solid waste management. When the resistance is strong alternative methods like decentralized waste management are chosen; and where the resistance is weak there is a tendency to maintain the centralized waste management system.
- Transporting waste is an important economic and logistical factor to be considered, given the large volumes that may need to be dealt with.
- The trend is that landfill sites are located only in areas inhabited by poorer sections of society. Areas where the urban rich and influential class of people resides are never chosen for landfills. Hence, the development of landfill sites and the struggle against them have a class identity.
- A considerable proportion of waste material, ranging from is not managed at all.
- Waste is also transported inadequately, as many cities lack proper transport facilities, and its disposal in many cases is not done in a scientific manner. This, in turn, leads to poor public sanitation, and higher incidence of disease causing vectors.

4. Recommendations

- It is necessary to ensure that the technology for managing waste be suggested and applied on a central approach, while 'decentralized management of waste' is very much significant and be adopted perse to allow for effective and efficient service delivery.
- Evolve model for decentralized and cost effective solid waste management with local people's participation.
- Laws and policies should also be reinforced and offenders must be brought to book and pay for their environmental sins.
- The expansion of urban boundaries in most African cities also necessitate and call for changes in the current approaches to waste management.
- African heads of countries must not isolate themselves but seek support from the international community who are more experienced than them. International communities are known for their knowledge and technical know-how and as such, African countries could sign a bilateral agreement with them on coming to invest in their countries for an environmentally sound management of waste streams in African.
- Governance issues to consider include: attention to Health and Safety for the workers and the community around. It also requires attention to potential legal issues such as access and ownership of the waste.
- There is need to promote Private Public Partnerships in the management of waste. States alone do not have adequate resources to champion the cause of waste management.
- Thus, considering the graveness of the problem, community participation in waste management has now become imperative.
- Adopt pull mechanism in waste management. Pull mechanism allows for the local community to participate in the building waste clean-up work and thus spreads the economic benefits of building waste work deeper into the community.
- Separating solid waste into organic and inorganic components also needs to be enforced through municipalities' regulations.

- Centralized waste management is neither feasible nor advisable for most African states. States need to switch over to a micro-level system with the active participation of local bodies and waste generators.
- Africa must respect the view that micro-level waste management system using scientifically designed processing technology is key to waste management.
- The perception and approach to solid waste as something to be discarded needs to be changed. It should instead be treated as a source of inputs that can be processed into something worth marketing.
- Private sectors should be actively involved. They should be allowed to partner with government bodies. This will create employment opportunities and more jobs for the teeming population.
- Africa must, all things being equal stop blindly copying the models of waste management developed and practiced in other continents with different cultures with us.
- Preparation of composites at house level to accommodate rubbish and waste material is advisable. The composite can be used as manure or gas is produced and used for cooking. Thus turning waste into new products.
- In fundamental terms, an adequately planned long-term waste disposal plan can provide economic benefits through re-use, recycling and/or sale of materials, according to local needs. Thus, an African Model that focuses on involving households, communities through their chiefs, schools, districts and provinces need to be promoted [African Governance Waste Management Framework [AGWAMAF] based on African Indigenous Knowledge Systems] Ownership of waste management must be transferred from the local authorities to the people. Individuals who are able to keep a health environment must be given incentives. That will indeed likely promote the same endeavor by the rest of the community. Approaches in waste management must be sustainable and community-based.
- Fundamentally, a successful waste management plan focuses on maximizing the re-use of materials, minimize the volume of waste requiring ultimate disposal and improve waste management in the longer term.
- An important technique of waste management involves volume reduction. Volume reduction of waste at source is the most desirable long-term option and should be an integral part of every waste management plan.

5. Conclusion

The inability of African countries to make efficient use of their waste through re-use suggests that as a future direction, African countries need to adopt a set of appropriate technologies that will assist them to convert waste into re-usable assets. Decentralized arrangements of waste management in Africa could bring about citizen participation, generate livelihoods, and contribute to environmental sustainability and economic efficiency. The need to pursue and uphold sustainable approaches to waste management cannot be over emphasized. The centralized waste disposal arrangements shift the problem from the source of waste generation to waste disposal sites and hence must be de-moted. They also involve long distance transportation of waste, with possible negative externalities and higher fuel consumption. Agreeably so, creating a sound and well-coordinated waste management plan should assess all possible options for each type of waste. There is need to choose the most viable one on the basis of the time, practical options, public health, as well as legal, financial and environmental considerations. In overall governance practice, African states must continue to embrace the indigenous driven approach to waste management, by compelling themselves to internationally accept approaches thus the African waste management model should not isolate itself from modern scientific approaches. One is therefore confident to conclude that an integrated African waste management model, embedding modern technologies will aid in proper governance and management of waste. We want to alert my African colleagues that waste management is a serious business discipline and cannot be perceived or regarded as 'that other business'. It must be given due respect and be undertaken with maximum care and concern of community lives.

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