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Environmental strategy and management in the speed of change: Sharing the relevance of recycling approach for African societies

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Abstract
In Africa, waste is seen as a problem rather than a business, unlike their counterparts in other continent the like of Europe, Asia, and the rest, where there is a laid down structure to curb, manage and recycle such waste either solid or not, scrap metals are taken for impound where it would be crushed and melted to produce new products which will contribute to their Gross Domestic Product (GDP), and in turn leads to an increase in their revenue generation and also increase employment opportunities in those countries. Since waste has both pollution and resource potentials, there is need for African governments to properly monitor recycling practice and as well curb the way waste is being disposed indiscriminately through the establishment and sustenance of adequate waste management system. The study suggest that there is need for African countries to explore this economic opportunity to increase their Gross Domestic Product (GDP) by utilizing this sector to enhance and reduce unemployment that is bedeviling our labour force and to live in clean and healthy environment. The study finally highlighted some strategies and approaches to be employed by African business firms/governments for effective waste management system to help overcome the dwindling recycling management.

Keywords: Environmental, Management, Strategy, Sustainability, Waste

1. Introduction

As we now live in a world where technology is as accessible as drinking water, valuable objectives-such as achieving environmental sustainability, recycling-based society, etc., can create value in many other ways that support growth, improve returns on capital, reduce risk, or improve management quality. Breaking out the value of these activities enables companies to communicate it to investors and managers. Over the years, companies face increasing pressure from governments, competitors, and employees to play a leading role in addressing a wide array of environmental issues-ranging from climate change to obesity to human rights-in a company's supply chain, most of them have responded by developing corporate social responsibility or sustainability initiatives to fulfill their contract with society by addressing such issues.

Taking cognizance of this, for example, Coca-Cola has shown how a company can use enlightened environmental practices to increase its sales. Its new eKOfreshment coolers, vending machines, and soda fountains are far more environmentally friendly than the ones they replaced: they not only eliminate the use of hydro fluorocarbons (greenhouse gases) as a refrigerant but also have a sophisticated energy-management device that Coca-Cola developed to reduce the energy these machines consume. Together, these innovations increase the equipment's energy efficiency by up to 35 percent. The company highlights the benefits to retailers—especially the financial savings from energy efficiency—and requests prime space in their outlets in return for providing more efficient systems (Bonini *et al.,* 2009) [4].

On the other too, ethnographic Armageddon holds that the scientific discovery or technological invention, as of today, avail nothing to humanity, except damage, in the name of globalization. The story of open defecation in our midst can attest to this paradox, where owing to a lack of toilets, open defecation and a marked lack of shame, had become a way of life. In line with this thinking, Leo and Okafor (2013) [10] posited that a well-dressed lady in her Vivienne Westwood dress and Louboutin shoes, or a perfumed gentleman in a Seville Row suit, would not shy away from peeing in public, if it pressed. It is now worse than epidemic.

However, the final triumph of the forces of good over evil ones has now triggered off the first mobile toilet business in Nigeria, to help do away with the ugly culture that had grown among the citizens in a city which lacked toilets. The DMT, which stands for Dignified Mobile Toilets operating in Lagos, is a case in point as mobile toilet business that our forefathers do not live to patronized. Thus, to some extent, wagon toilet was constructed using container, and this even provided a mobile toilets for events, air conditioned VIP toilets are also produce to achieving better ways of managing the public toilets. To buttress this, Oleforo (2013) cited in Ujorha (2013) [18] posited that the VIP toilets are fitted with air conditioning systems, MP3, satellite TV, hand basins, and hand driers. They are also powered by generators, and there are urinals for the male side. DMT witnesses growth over years from a company that produced wagon toilets for rents to the production, rent and sale of plastic mobile toilets. Now, it has graduated to become a company that rents out mobile toilets, and is thinking seriously of establishing a bio gas plant.

2. Review of Relevant Literature

Introduction

The noun *management* is a derivative of the verb manage, which comes from the Italian word "*maneggiare*" meaning to handle especially horse, which in turn is derived from the Latin word *manus* (i.e. hand). The French word "*management*" further influenced the development in meaning of the English word "*management"* in the 17th and 18th centuries. Today

across the globe no meaningful business discussion can ensue without detailed reference to management as a tool for business success (Moses, 2010) [9].

Nowadays, there is a requirement for far more effective waste management and disposal. The environmental sector in Nigeria needs to introduce more strategies for waste disposal. The Nigerian government must consider adopting these or other alternative strategies and policies so that it can encourage industries to adapt to climate change. Furthermore, the initiative could include a sensitization exercise on the benefits of recycling products such as aluminum, glass, plastic, cardboard and paper. This would help because it would allow industries to save a lot of energy needed to make new products. In addition the use of energy efficient technologies and renewable energy resources like wind and solar power could be integrated by the industries that have the means (Musawa, 2014) [12].

Waste Disposal and the Dynamic of recycling in Modern Society

As pollution "consumes" pure air and water, and pollution control "conserves" them for the future (Ayodeji *et al*, 2008) [3]. Nigeria is faced with the problems of inadequate solid waste disposal, and the dwindling recycling management. In our urban centres and slums, waste is gradually taking over every corner, junks like broken bottles, shattered glasses, cans, scrap metals and other types of disposed objects. Nwaka (2005) [13] opined that more waste is generated from commercial and domestic activities than can be properly managed with the rudimentary system available for collecting, transporting, and disposing of the wide variety of solid wastes in cities. The system is almost always overloaded, and large volumes of rubbish are left to litter the streets, or to accumulate in open dumps where flies and rats and other disease-carrying insects and rodents proliferate.

The level of environmental awareness is still low, especially in informal settlements, and the campaign for waste minimization and recycling has not advanced beyond the dangerous practice of picking and sorting through heaps of rubbish or moving from house to house to collect tin cans, plastics, empty bottles, paper, and discarded materials for possible recycling (Nwaka, 2005) [13]. Unarguably, one reality that seemed to have come to dwell permanently with humanity is the fact that cities in the world are rapidly urbanizing and the population too is increasing. Associated with this growth in population is increase in solid waste generation often poorly managed and in turn become a challenge to the society. As more people and government express concerns about the environment the demand that waste management must be sustainable had been played up (Okojie, 2015) [16].

Solid waste management poses a serious problem to government agencies and communities in Third World cities (Suleiman *et al*., 2014) [17]. It will be somewhat difficult to convince a first-time visitor to Abuja, the Federal Capital Territory (FCT), that there are some waste dumpsites located in some remote areas of the city. Investigations have shown that apart from approved refuse dumpsites, smaller dumpsites are sited in some areas of the city where the operations of the Abuja Environmental Protection Board (AEPB) have yet to be felt. Although, the AEPB has created the Gosa village waste dumpsite as part of its efforts to keep the FCT clean, the public perception of the dumpsite somewhat reflects the ugly side of an emerging cosmopolitan city. Funny enough, the heap of solid wastes of the side has inadvertently been a source of livelihood for scavengers who always throng the site in search of discarded items, which could either be sold or recycled for commercial purposes (Koleoso, 2013) [7].

The techniques of solid waste management in Nigerian cities include, open dumping, land filling, tipping, burning and refuse/recycling. Indeed, among these solid waste management techniques refuse/recycling have generated relatively little research attention (Sulaiman *et al.*, 2014) [17]. All the same, analysts said that tangible efforts should be made to adopt modern waste treatment techniques in the FCT, insisting that filthy dumpsites are an anathema in contemporary waste management processes of the 21st Century civilization (Koleoso, 2003) [7]. Cities like Lagos which is fast becoming Africa's modern mega city are gunning for proper management of solid waste through appropriate technology that is economically affordable, socially accepted and environmentally friendly. The relentless effort of the government can be understood in the context of the fact that over 12,000 metric tonnes of garbage is generated daily and over six million tonnes of waste are generated annually in the state. It is the thinking of experts that 30 percent of such waste can be recycled to reduce the amount going to landfills. As a way forward, the Solous 1 Material Recovery Facility (MRF), Igando-Lagos had been undertaken by West Africa Energy Group in collaboration with the Lagos State Government. The project experts and environmentalists affirmed is aimed at ensuring environmental sustainability in the state through waste recycling and creation of small scale entrepreneurial schemes in the catchment area (Okojie, 2015) [16].

Waste Management System as an Economic activity in our Dynamic Society

A future of the urban scene in Nigeria in recent years is the gradual takeover of virtually every available open space by refuse. Solid waste management has generated several research interests. Various aspects of solid waste in Nigerian cities have been examined, for example; wastes characteristics, waste magnitude (Adedipe and Adekunle, 1993) [1], factors affecting waste generation (Adegoke, 1990) [2]. Following a study of the informal sector of urban economy, the consensus is that the sector offers the best alternative to formal sector employment. It is said that the sector's contribution to the overall restructuring and functioning of the urban economy is most appreciated through the livelihood strategy perspective though initially that strategy was an instrument for assessing the dynamics of rural economy. The application of the livelihood strategy in the urban area acknowledges that a household's ability to achieve increase wellbeing is determined by its access to capital assets and also that the effects of external conditioning variables constrain or encourage the productive use or accumulation of such assets (Suleiman, *et al.* 2014) [17].

In the same vein, Martin (2001) [11], however, suggest an alternative framework for understanding contemporary livelihood in urban areas. The "Multiple modes of livelihood Approach," that according to him has its antecedent in the household survival strategy and the informal sector literature. He supports the definition of a 'livelihood system' as 'the mix of individual and household strategies, developed over a given period of time that seeks to mobilize available resources and opportunities". The study also agrees with the thinking that

focuses on how a changing population makes a living in a globalizing city where formal employment is not only limited but for which access may be restricted.

Urbanization, rapid population increase, inadequate formal employment opportunities, poverty and economic meltdown has made the situation in waste refuse, reduce, reuse, reform and recycle most visible manifestations of livelihood strategies. Though, in Africa, waste is seen as a problem rather than a business, but in today's fast moving world, there is the need for African countries to explore this as an economic opportunity to increase their Gross Domestic Product (GDP). By analyzing critically the nature and scope of waste management system as an efficient livelihood strategy and asset accumulation process, however, has received very little scholarly attention. Such deficiency tends to give justification for the occasional castigation of the practice by some people and media. This study aimed to proffered approaches and strategies to contribute in filling this information deficiency on waste management system most beneficial to the African continent (Sulaiman, *et al*., 2014) [17].

A detailed explanation of waste management system proffered an efficient livelihood strategy, for example, the first mobile toilet business in Nigeria began with the sum of ₦60,000. Now, the company is the leader in the mobile toilet trade in West Africa, and earns a handsome 120 million naira annually. It hopes to build a biogas plant in the Lagos area, and Phase I alone which will be worth 1.5 megawatts, will provide 30,000 households with an uninterrupted supply of energy, converted from waste (Ujorha, 2013a) [18]. Hence, we need a better way of managing our public toilets, either by scratch cards, or by dropping coins (Oleforo, 2013 cited in Ujorha, 2013a) [18]. The future looks bright for the mobile toilets business, which itself is on the cusp of a major turnaround (Ujorha, 2013a) [18].

Hence, Dignified Mobile Toilets is presently in talks with the Bill Gates Foundation which wishes to invest about 10 million Dollars in the business, and these monies are to fund the bio gas plant that the company wishes to set up (Ujorha, 2013) [18]. The topmost thing on our founders mind was a wish to set up a bio gas plant, which will produce electricity and cooking gas from waste. That was his dream. The bio gas plant will be in two phases. The first phase will supply 1.5 megawatts of electricity. These 1.5 megawatts will provide 30,000 households with an uninterrupted supply of light. Just across from us there is a big factory that can't wait for us to set up this plant. For the second phase we have just acquired 64 plots of land on the Lagos-Ibadan expressway. This phase will produce 5 megawatts of electricity (Oleforo, 2013) cited in (Ujorha, 2013) [18].

The above represent one way of showing the speed of change in the 21st century. The ministry of environment in Nigeria believes that renewable energy projects in most developing countries have demonstrated that this form of energy can, in fact, directly contribute to poverty alleviation by supplying the necessary energy needed for establishing businesses and employment (Ogunsina, 2015) [14].

Grand Strategies for Waste Management in our Dynamic Society

A critical study of business activities demands that the business firms in Nigeria and elsewhere need to introduce more strategies for waste disposal. The best of plans and ideas can be put in place such as the 5R environmental strategies; this is because the objective of waste management cannot be achieved in the fast moving world without adequate measures taking to protect our environment through conscious efforts of what happen around us. Recycling and reuse in internal production processes, substituting green inputs for conventional inputs, recycling and reuse internal production processes with greater water and energy-efficiency, and the redesign of production and infrastructure systems serve as efficient strategy to mobilize available resources and opportunities.

Fig 1:5 Grand strategies for waste management system.

Refuse: Refuse as recycling strategy is a design to avoid purchase of environmentally burdensome materials whenever possible. Some companies have moved beyond focusing on the supply chain risks from the day-to-day practices of their suppliers and now consider the suppliers' long-term sustainability as well. Under Nestlé's Creating Shared Value strategy, for instance, a business has to make sense for all its stakeholders. As an example, Nestlé works directly with the farmers and agricultural communities that supply about 40 percent of its milk and 10 percent of its coffee. To ensure its direct and privileged access to these communities, Nestlé promotes their development by building infrastructure, training farmers, and paying fair market prices directly to producers rather than middlemen. In return, the company receives higher-quality agricultural ingredients for its products. These strong relationships also give Nestlé's factories a reliable source of supply, even when the overall market runs short (Bonini *et al.,* 2009) [4].

Reduce: Reducing waste material in business activities contribute to recycling-based society. For example, Bonini, *et al*. (2009) [4] posited that some companies have made great progress tracking operational metrics (such as tons of carbon emitted) or social indicators (say, the number of students enrolled in programmes) but often have difficulty linking such metrics and indicators to a real financial impact. IBM has also developed green data-center products, which help the company, grow by offering products that meet customers' environmental concerns.

Reuse: Reuse waste material without processing ensures operational efficiency. This strategy can help companies realize substantial savings by meeting environmental goals—for instance, reducing energy costs through energy efficiency, reducing input costs through packaging initiatives, and improving processes. Such efficiencies often require upfront

capital investments to upgrade technologies, systems, and products, but returns can be substantial (Bonini *et al.,* 2009) [4].

Reform: Reuse materials in a different form contribute to an innovative and recycling-based society. For example, waste like saw dust, wood chips, defecation, etc., shouldn't be waste away. We can convert them into energy. For example, Lagos generates so much waste every day; those wastes can be converted into energy by simply putting them in a small device called "Bio-Digesters". So it can digest those wastes through bacteria and the rest, Scientists know more about that, and you can even use it to cook in your house.

Recycle: Reuse materials as resources i.e. using wastes to create energy, it will solve the problems of how do we deal with wastes. For example, 250 kg of fruit waste is processed and put in the anaerobic digester daily. This waste generates between 15-20 cubic meters of biogas and is used to power an 8.5 KV A gas generator. The whole process is renewable as more fruit waste is produced, electricity is generated. It has reduced the issue of nasty odours and rodents living off discarded fruit waste in the market (Phil-Ebosie, 2015 cited in Ojo, 2015) [15].

Hence, imagine converting all the wastes in Lagos to energy, you don't have to worry and then, there is a link between that source of energy and agriculture, for example, all the waste materials like husk, corn stalks, even thinks like cassava are all sources of bio-energy resources to generate energy through biomass in Nigeria (Adaju, 2015). So obviously we are not doing it right, in Africa, we just need to know the technologies that are available and how to apply them and then it would be very easy. I mean I've visited some biomass plants where waste fruits like orange and apple, peeled aspect of it, they are now converted to energy. So you can imagine, you know peels from cassava, even yam peels they are put together and converted. I saw a plant in India that was generating about 1.75 megabytes, just from wastes of food sources that is a problem for somebody in mile 12 Lagos. If you go there, how we manage the waste is a problem. They are sitting on money and they don't know what to do with it" (Adaju, 2015).

3. Research Methodology

The development of environmental management courses targeted narrowly defined segments in management issues should be studied ethnographically, since this research would benefit government, policy makers, politicians, researchers and academicians by providing insight into the responsibility of focused, trans-disciplinary education. The proposed qualitative methodology will allow for deep practical insights as ethnography is an excellent research tool when there is limited empirical support (Genzuk, 1999; Gummesson, 2003) [5, 6]. The findings will make significant theoretical and practical contributions in the field, and serve as a basis for hypothesis development for future statistical research.

4. Conclusion

As the United Nations has projected a sustainable development goal to ensure access to affordable, reliable sustainable and modern energy for all by 2030, there is no gainsaying the fact that renewal energy generated from green fuel could make the goal reliable in Nigeria where 170 million people share 4,000 megawatts. The energy shortage has led to a situation where 10 percent of rural dwellers and about 40 percent of urban families have access to electricity, a situation that has fuelled poverty since domestic and industrial activities requiring electricity have been crippled (Ojo, 2015) [15]. However, the trash merchants are surprisingly turning waste to value. These breed of social entrepreneurs who are not just consumed by the motive to make profit but the passion to provide innovative solutions to waste management in our mega cities now provide alternative solutions to our teeming environmental problems. With a booming population that is predicted to beat that of the US by 2050, according to a recent report released by the U.N., there is no doubting the fact that the recycling industries in Nigeria which experts have pegged as a multi-billion dollar business will continue to thrive and enhance the lives of daring individuals who would not mind digging their hands in trash to reach out for the cash.

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