

PERSPECTIVES ON WASTE MANAGEMENT AND COMMUNITY HEALTH PROMOTION IN URBAN CITIES IN NIGERIA

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ABSTRACT: *The issues of community health relative to the impact which waste management experts on the wellness of the community is central to the overall capacity of the community. This paper therefore correlates waste management with the promotion of community health for community development goals in urban cities. The gap in the study is that, the quantum of waste generated in urban cities constitutes a serious menace to the attainment and sustenance of community health, which if properly managed in the first instance, is critical to the sustenance of the development of community health.*

KEYWORDS: Waste Management; Community health; Urban Cities; Capacity; Community Development.

INTRODUCTION

The aggregate of health impact of poor waste management in developing countries remains a major issue of public health concern that demands urgent intervention by both governmental and non-governmental agencies with focus on health education designed at reducing environmental menace associated with waste management practices. A report by the National Orientation Agency (2011) indicates that Nigerian cities and towns are fast becoming what could be termed as “modern ghettos” because of the existence of heaps of refuse littering the streets. Cities and towns like Benin-City, Asaba, Lagos, Onitsha, Yenagoa and even in some parts of the Nation’s Federal Capital, Abuja is no exception. Waste management has emerged as one of the greatest challenges facing environmental protection agencies in Nigeria. The volume of solid waste generated continues to increase at a faster rate than the ability of the agencies to improve on the financial and technical resources needed to parallel its’ management in Nigeria cities as characterized by inefficient collection methods, insufficient coverage of the collection points and system and improper disposal of waste irrespective of the types (Agunwamb, Egbuniwe, and Ogwueleka, 2003)

Most developing countries, Nigeria inclusive, have solid waste management problems that are different from those found in industrialized countries in terms of composition, density, political will and economic framework aimed at financing its’ management. Besides, the wastes are heavier, wetter and more corrosive in developing cities than developed cities (Aigbokhavbo 2000; Akinwale, 2005).

The campaign against environmental decay is therefore seen as a collective responsibility of both the public and private sector. Against this backdrop, the various stakeholders needed to be more informed about the need for proper environmental care. This campaign becomes eminent as the morbidity and mortality that results from such indiscriminate waste management practices continues to hunt the people against the backdrop of development. (National Orientation Agency, 2011).

As at present, most urban communities are grappling with the forces of climate change that have engendered heavy rain falls, massive erosion, flooding among other environmental damaging consequences. It is also evident that communities are greatly overwhelmed by the attendant effects of health related issues as a result of the pollutions brought about by various waste materials that are poorly channeled and situated in communities. All these compromise the variants of community development, which Cary (1970), hypothesized in different context with environmental related issues. Accordingly, community development is always a process and will remain a process which in the view of Cary (1970), is about developing the power, skills, knowledge and experience of people as individuals and in groups, thus, enabling them to undertake initiatives of their own to combat social, economic, political and “environmental problems”, thereby enabling them to fully participate in a truly democratic process. In this context, the writer specified environmental problems, part of which is waste management. Therefore, a holistic community development process must take a lead in countering the destruction of the natural environment on which all depend.

Meanwhile, it has been underscored by Oghenekohwo (2012) that community development seeks to enable individuals and communities to grow and change according to their own needs and priorities, and at their own pace, provided this does not oppress other groups and communities, or damages the environment. Thus, the process of community development is associated with ensuring healthy environment that is devoid of pollution; (air; water, earth etc), but enhances community health practices as a major concern in waste management. Therefore, it is within the expectation of promoting community health that the variants of waste management draws on community development in practice.

Perspectives on Management Practice

Waste management is the organized and systematic channeling of waste through pathways to ensure that they are disposed of with attention to acceptable public health and environment safeguards. However, proper management cannot be achieved without a well-designed waste management plan. According to Rossel and Jroge (1999), waste management planning strategies should advocate avoiding waste generation, using cleaner technology, promoting waste recycling and recovery, using suitable treatment for generated waste and adequate waste final disposal.

Urban solid waste management incorporates several interrelated aspects, which needs complete cooperation and collaboration of the community for efficient delivery. It comprises aspects of waste generation, waste composition, collection, recycling (if any), pretreatment and treatment, and finally disposal (Periathamby, 2011). These management aspects thus require input from legal, economic, governmental, political, administrative, and environmental actors. Thus, it requires the involvement of multi-professional drivers such as community change agents among others. At times, the failure of one component is sufficient to cause the whole management to collapse. The management structure and functions is site-

specific and depends on socioeconomic, behavioural, cultural, institutional and political frame works. These stakeholders need to interact and cooperate for the management system to achieve its target (Periathamby, 2011).

Globally, there is an increasing awareness on environmental planning and community health management. Unfortunately, Nigeria has not fully developed and implemented environmental health protection policies efficiently. Lagos is one of the largest and the most industrialized cities in Nigeria, unfortunately, also one of the dirties with waste littering its landscape. There has been a tremendous increase in municipal solid waste (MSW) generation in Lagos over the years, principally as a result of rapid population growth as well as economic and industrial development in the country. Such waste management problem can be directly linked to its ever-increasing population, but this problem is not different from that of India, a developing country where MSW management has become a major environmental health issue as noted in Singhal and Pandey (2001). The study of Kolawole (2000) shows that the Lagos metropolis with its' high level of industrial and social activities has a high rate of solid waste generation at present. The study also estimated that the more than 10 million inhabitants of the city produce a total of 4 million tonnes of MSW annually. How to control these wastes and hopefully recycle them has been a source of concern to the state government with its attendant environmental health issues.

The management of urban waste is a big problem in cities because of the lack of sufficient equipment to collect the waste. There are different major aspects of MSW management. These according to Ezeigwe (1995) are storage, collection, transportation, treatment and disposal. All these impact on the health of the community so much that at each stage, there are health related concerns. Storage of waste deals with storing of the waste at its point of generation until collection by waste managers. Collection and transportation involves collection of the solid waste at the point of storage and its' transportation to a treatment or final disposal site. Treatment disposal refers to the practice of processing the material to recover resources or to render it innocuous, and to the final removal of the waste without harmful effect on human beings or the environment.

The statement by Mastsuto (2002) that "every nation defines what its municipal solid waste (MSW) is" can be applied to the situation in the cities or where such waste in the country are mostly generated by two categories of society; the household/residential sector and the business/commercial sector. The industrial sector generally disposes of the waste they generate. Therefore, such wastes do not constitute part of what is encountered on a daily basis in the communities.

From the time when local authorities were given legal responsibility to provide regular waste collection systems, motivated by the links between poor sanitation and infection diseases in the second half of the 19th century, the new formal systems gradually displaced existing informal sector recycling systems across Europe and North America. When recycling began to be recognized as essential for both environmental and resource management reasons, recycling rate for household waste in most developed countries in the 1980s were in the low single figures by percent. Modern western waste management systems have recycling rates over the last 20 years. For example, recycling rates in the UK had increased to 31% by 2006/07 (Defra, 2007), and rates are as high as 50% in some countries (Eurostat, 2008). This has been achieved by integrating source separation of clean materials for recycling into the

formal system, and is supported by legislative policy instruments, and funded from a variety of sources in addition to the direct revenues from selling the collected materials.

In most developing countries, if not all, collection for recycling is undertaken by the informal sector and is funded entirely from selling the recovered materials. The relationship between the formal and informal sectors remains uneasy as the official municipal perception of those who work in the informal waste sector is often negative (dirt, unclean) and in some instances, where the city aspires to a 'modern' waste management system, the relationship is openly hostile; nevertheless, the informal sector continues to provide the major source of livelihood for a significant proportion of the urban poor. Modern waste management systems which many developing country cities aspire to are all characterized by high recycling rates of clean, source separated materials.

Empirical Facts on Waste Management Approaches And Community Health Practice

According to the US Public Health Service (2012), community health refers to a field of public health, which is concerned with the study and improvement of the health characteristics of biological communities. While the term community can be broadly defined, community health tends to focus on geographical areas rather than people with shared characteristics. It looks into the effects of the community (environmental conditions) on health outcome. Lucas (2008) reported that proper community health education and intervention is crucial to optimal waste management and hygiene and therefore, the prevention of diseases and their potential burdens. He further stated that, community health education is crucial to behavioural change necessary for optimal health outcomes and environmental stability. Poor environmental and community health practice is (a predictor of) several disease conditions including infectious disease and chemical toxicities which are usually prominent among children (Skinner, 2004).

Globally, optimal waste management strategies remain a problem that is challenging and poorly handled even in Nigeria, where Akinwale (2005) reported that waste management has emerged as one of the greatest challenges facing state, local government and environmental protection agencies in Nigeria. Although waste dumps or landfills are generally constructed to minimize any form of negative externality such as pollution of ground water and air, the Environmental Research (2011) described a secured landfill as a carefully engineered depression in the ground into which waste are put with the aim of avoiding any hydraulic connection between the wastes and the surrounding environment, particularly, ground water with subsequent limitation of infection and other negative health outcome.

Basically, land-fills are common sites of waste disposal at the community level. A landfill is a setting in the ground; a double lined landfill is one built up inside another (Gouveia & do Prado, 2010). Three types of landfill are normally used for solid waste disposal and they are: secured or sanitary landfills, control landfills and open dumpsites. A secured land-fill or sanitary landfills are highly lined at the base to prevent infiltration by percolating liquids; control land-fills are waste dumps where the refuse are merely covered with soil and in open dumps, there is no standard for refuse dumping (Gouveia & do Prado, 2010).

In developing nations, a large proportion of waste generated are dumped either in controlled landfills or open dumpsites which constitutes sources of health risks to surrounding communities. The use of sanitary landfills is not feasible for many waste management

authorities of most countries due to the cost constrains. In a study on health risks of urban solid waste, landfill sites in Sao Paulo, Brazil, only 47% of all the garbage collected were disposed of in sanitary landfills, 23% in controlled landfills while the remaining 30% were in open dumpsites. (Medina; 2000; Gauvela & do Prodo, 2010)

For Manzini city, Swaziland, Abu (2010) confirmed that open dumpsites rather than secured landfills are more in number for waste disposal and this constitutes great health hazards to the residents. Such open dumps are found on the outskirts of urban areas which form breeding sites for disease – carrying vectors in the communities. The cost issue has prompted some municipal government authorities in some developing nations to adopt cost reducing programmes as well as conservation which tend to reduce, reuse and recycle so as to reduce the level of waste generated and recycle. This is being achieved through aggressive community education of consumers and producers on waste. This does not only have positive environmental impact on the communities involved, but also, have an important role in controlling the negative health outcome from the management of open dumpsites (Goldman & Ogishi, 2011).

The preponderance of open dumpsites in many parts of developing nations has spurred the need to examine the health implications of such dumps to the surrounding residents. For instance, Youngsi et al (2008) conducted a cross-sectional epidemiological study to examine the health risks of different waste disposal system in Cameroun. The study found a 14% diarrhea prevalence among the respondents and a strong statistical association was found between household refuse management methods and incidence of diarrhea among the respondents.

Abul (2010) examined the health impact of solid waste management among the residents around the Managwanemi dumpsite in Swaziland. The study which was conducted among 778 households found a negative relationship between the distance of residential apartments from dumpsite and being affected by the dumpsite.

In Nigeria, Oluranti and Omosalewa (2012) in their study on the health and economic implications of open dumpsites in Lagos city found that there are evidence of various forms of illness reported by residents in Oke-Afa waste dumpsite in Lagos with an inverse relationship between frequency of illness and proximity to the dumpsite.

In 2007, Nriagu and others investigated blood lead levels in children in three major cities in Nigeria, namely, Ibadan, Port Harcourt, and Nnewi. All three cities are sprawling and overcrowded, as building codes and zoning regulations are poorly enforced, and hence represent fertile grounds for environmental lead exposure to the teeming population. Their study added to the growing bank of scientific data, which shows that many children in these cities are burdened by lead poisoning. Approximately one quarter of the children tested had blood lead level (BLL) over $10 \mu\text{g d}^{-1}$; for approximately 4% of the children the levels exceeded $20 \mu\text{g d}^{-1}$.

The mean BLL value for this study ($8.9 \mu\text{g d}^{-1}$) was slightly less than the $11 \mu\text{g d}^{-1}$ reported for children and much less than the $15 \pm 1.4 \mu\text{g d}^{-1}$ reported for 218 children in Jos. The study in Jos reported that 70% and 18% of the children aged 6-35 months had BLLs > 10 and $> 20 \mu\text{g d}^{-1}$, respectively.

Another study of children 0-5 years of age in Jos reported an average BLL of $11.2 \mu\text{g d}^{-1}$ (range $9.1\text{-}13.3 \mu\text{g d}^{-1}$), and that 55% of them had BLLs above $10 \mu\text{g d}^{-1}$. Although $\text{BLL} \geq 10 \mu\text{g d}^{-1}$ is currently considered as the threshold for concern, several studies suggest that there is no safe dose for lead exposure especially among children. BLLs well below $10 \mu\text{g d}^{-1}$ have been associated with impaired neuropsychosocial development, delayed physical development and small stature, delayed onset of menarche, and auditory problems. However, there is still much uncertainty regarding the magnitude of these effects.

Many traditional risk factors identified in other studies elsewhere were not found to be predictors of BLL in Nigeria. In an attempt to correlate BLL to possible health outcomes, Nriagu and Kim (2000) found a significant association ($p=0.008$) between BLL and malaria in a pediatric population, which remained significant after controlling for age and gender. Approximately 63% of the children in the study were reported to have had malaria, and there were significant differences in the prevalence of malaria in the three cities. The BLL was significantly associated with a number of disease symptoms including headache, restlessness, agitation, depression, weakness, and irritability.

Community Health Implications

There are implications that could be derived from the above analysis in relations to community development.

First, it is always said that “health is wealth”. Therefore, a healthy community built on effective and efficient waste management is a factor critical to sustainable development.

Secondly, the presence of waste materials with positive value represents potential source of livelihood for the poor. This was true for medieval cities and for rapidly industrializing cities of Europe and North America in the 19th century, and also applies to developing countries today (Wilson, 2007). It has been estimated that as much as 2% of the urban population in Asia and Latin America depend on waste picking for all or part of their livelihood (Medina, 2000).

Thirdly, it is observed that a component of community development is human capacity. It is a process of ensuring that the human resource factor of the community is enhanced through capacitation, re-orientation and ultimately serving as catalyst or change agent for development. It is then true that the individuals in the community must appreciate the environmental elements of the community which definitely define the status personalized of the community in the development process.

Fourthly, the management of waste is central to the definition and expression of community health in the attainment of healthy living which is a necessary factor for sustainable transformation process in communities.

REFERENCES

Abul (2010). Solid waste management through bartering. A case study in Sylhet *Journal of Soil Science and Environmental Management* 1(5); 86-91, July 2010

- Akinwale, A. (2005). Waste management in Nigeria Local governments; International Conference on Energy, Environment and Disasters. INCEED, Charlotte, N. C. USA, July 24-30
- Agunwamba, J. C (2003). Solid waste management in Nigeria Problems and issues, *Environmental Management*, 22(6): 849-856
- Dauda, M. & Osidta O. O. (2003). Solid waste management and re-use in Maiduguri, Nigeria. Towards the Millennium Development Goals. 29th WEDC International Conference, Abuja, Nigeria, pp. 20-23.
- Defra, I. (2007). Municipal waste statistics <http://www.defra.gov.uk/environment/statistics/wastes/bulletin07.htm>. Accessed 14 May, 2008.
- Diaz, L. (2006). *Soled waste management, Volume 2* UNEP/Earthprint.
- Environmental Research Foundation (2011): The Basics of Landfill: How they are constructed and Why they fail <http://www.zerowasteamerica.org/BasicsOfLandfill.htm>.
- Eurostat, (2008). Treatment of municipal waste. <http://epp.enrouostat.ecuropa.eu/navigate/to/the/table/via:themes-environment-and-energy-tables-long-term-indicators-environment-waste-treatment-of-municipal-waste>. Table last updated 09.01.08, data provided is from 2002. Assessed may, 2008.
- Ezeigwe, C. (1995). Appropriate solid waste disposal methods for developing countries. *NSE Technical Transactions* 32(2); 33-34
- Glossary of Environment Statistics (1997), UNSD, 1997. unstats.un.org.
- Giusti, L. (2009). A Review of waste management practices and their impact on human health. *Waste Management*, 29:2227-2239
- Goldman, G. & Ogishi, A. (2001). The Economic Impact of Waste Disposal and Diversion in California. A Report to the California Integrated Waste Management Board, University of California.
- Gouveia, N, & Ruscitto do Prado, (2010), Health risks in Areas Close to urban Solid Waste
- Kolawole, A. (2000). Waste management in Lagos state with Oshodi-Isole as case study. Mechanical Engineering Department Unpublished B. Sc Project, University of Lagos, Nigeria, pp. 1-19.
- Landfill Sites: Rev Saude Publica, 44(5):1-8. <http://www.zerowasteamerica.org/BasicsOfLandfill.htm>. Retrieved: August 31, 2011.
- Matsuto, T, (2002), Residential solid waste generation and recycling in: proceedings of the International Symposium and workshop on Environmental Pollution Control and waste management, Tunisia pp: 187-192.
- Medina, M. (2000). Scavenger co-operatives in Asia and Latin America. *Resources Conservation and Recycling* 31, 15-69
- National Orientation Agency (2011). The role of the National orientation agency in managing Nigeria. www.noa.gov.ng.
- Nriagu, J & Kim, M. J. (2000). "Emissions of lead and zinc from candles with metal-core wicks". *The Science of the Total Environment* 250(1-3): 37-41
- Oluranti, O. & Omosalewa, A. (2012). Health and economic implication of waste dumpsites in cities. The case of Lagos Nigeria. *International Journal of Economics and Finance* 4(4).
- Ogwueleka, C. T. (2009). Municipal Solid Waste Characteristics and Management in Nigeria. *Iran Journal, Environ Health Science & Engineering*. 6(3): 173-180.
- Periathamby, A. (2011). Municipal waste management. *Waste Streams*, 110. 125.

- Ray, A. (2008). "Waste management in developing Asia: Can trade and cooperation help"? *The Journal of environment & Development* 17(1): 3-25.
- Reich, M. C. (2005). Economic assessment of municipal waste management systems – case studies using a combination of life cycle assessment (LCA) and life cycle costing (LCC). *Journal of Cleaner Production* 13:253-263
- Rossel, S. A. & Jorge, M. F. (1999). Cuban strategy for management and control of waste, Congress proceeding, vol. 1 EMPA, Switzerland, pp: 287-290.
- Skinner, H. J. (2004): Solid waste management policies for the 21st century A. Keftiop, &P. Lacy(Eds) *Solid Waste Assessment, Monitoring and Remediation*. Twardorwska pp: 1091-1098.
- Singhal, S. & Pandey, S. (2001). Solid waste management in India: Status and Future Directions. *Time* 6(1), 1-4
- The European Union (2005). Waste management directives. www.northwestwaste.org.uk
- US Public Health Service (2012). Public Health Development, workforce planning and education. www.workforce.southcentral.nhs.uk
- Wilson, D. C. (2007). Development drivers in waste management. *Waste Management and Research* 25(3); 198-207.
- Youngsi, H.B.N., Ntetu, A. L. Sietchiping, R. & Bryant, C. (2008). Environmental sanitation and health risks in tropical urban settings: Case study of household refuse and diarrhea in Yaounde-Cameroon. *International Journal of Human and Social Sciences*, 3:220-228