



Solid Waste Management in Ghana

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Editor' Note: This paper has been targeted for a broad audience. The level of scientific detail provided is therefore not as high as would be normally be required in technical paper subject to peer review by environment industry professionals.

Environmental education is becoming increasingly important as our lives, cities and priorities change. As our cities become more congested and busy, knowledge of the impact we each have on our surroundings becomes more and more crucial. Equally important however, is our understanding of how we can contribute to protecting the environment around us. We live in rapidly changing societies which are subject to profound changes, so why doesn't our environmental education transform to accommodate this?

In Latin America, there is very little concern expressed for disposing of waste appropriately in public. This attitude would be frowned upon in Europe, probably with the assumption that Europeans do not behave in this way because they are wealthier and therefore educated to a higher standard than their Latin American peers. But the assumption that lack of care for one's environment is due to poverty is false.

In our rapidly urbanizing global society, solid waste management will be a key challenge facing all the world's cities. In West Africa in general and Ghana in particular, the issue of collection, management and disposal of solid waste continues to feature prominently in major towns and cities across the region. The contamination of water bodies -leading to spread of water-borne diseases, health hazards from the stench emanating from uncollected and decaying garbage, air contamination, garbage-choked drains and gutters, the plastic waste menace, irresponsible disposal of refuse in communities are some of the challenges this write up seeks to address.

Waste issues seems to be a boring subject not many get excited about; however its consequences if overlooked can wreck the health and existence of any well meaning people. "Managing solid waste well and affordably is one of the key challenges of the 21st century, and one of the key responsibilities of a city government. It may not be the biggest vote-winner, but it has the capacity to become a full-scale crisis, and a definite vote-loser, if things go wrong". According to UN—HABITAT, a city that cannot effectively manage its waste is rarely able to manage more complex services such as health, education, or transportation.

What is solid waste management? Why is it an issue of national, regional and global significance? What are the challenges across Ghana and West Africa? Are there successes realized so far? Any new technology in addressing the waste issues? How about commitment on the part of the state, waste management companies and the citizenry. The waste recycling question. What about the business aspect of waste? Are the methods of disposal appropriate? Is there a deliberate attempt to address the problem or just rhetoric and surface dressing while the deeper issues persist? What about the integrated solid waste management system (ISWM)?

Solid waste management

Solid Waste Management is defined as the direct generation, collection, storage, transport, source separation, processing, treatment, recovery and disposal of solid waste. It is a polite term for garbage management. It is a solution in response to the world's stinking and escalating problem: garbage.

The Global picture of solid waste in 2012

The annual cost of solid waste management is projected to rise from the current \$205 billion to \$375 billion, according to a new, far-reaching World Bank report on the state of municipal solid waste around the world.

Released on June 6, 2012, the report titled "What a Waste: A Global Review of Solid Waste Management", said a sharp rise in the amount of garbage generated will come from urban residents between now and 2025.

The report estimates that the amount of municipal solid waste (MSW) will rise from the current 1.3 billion tonnes per year to 2.2 billion tonnes per year by 2025, with much of the increase coming in rapidly growing cities in developing countries.

Giving projections, the report indicated that Low Income countries are expected to generate 213 million tonnes of solid waste a day with the population rising to 676 million by 2025. Lower Middle Income ones are also projected to generate 956 million tonnes of solid waste per day. Its population is predicted to reach 2.08 billion.

Waste generation will hit 360 million tonnes per day by 2025 in Upper Middle Income countries with expected population of 619 million.

For High Income nations, waste generation a day by 2025 will reach 686 million tonnes and population at 912 million. The report adds that the challenges surrounding municipal solid waste are going to be enormous, on a scale of, if not greater than, the challenges we are currently experiencing with climate change. This report should be seen as a giant wake-up call to policy makers everywhere.

The challenges of solid waste disposal in Ghana and West Africa

From research and observation over the last decade or two, these are some of the challenges faced by towns and cities in addressing the waste problem:

- Negligence on the part of authorities responsible and the citizenry to deal with waste as a priority issue in society. These challenges are many and include unavailability of properly engineered disposal sites and waste treatment plants, inadequate haulage equipment and the lack of expertise and appropriate technical knowhow.
- Increasing population alongside rapid urbanization has come with increasing challenges to waste management.
- Poor financial capacity of authorities in dealing with the waste problem. Waste business has become increasingly expensive for city authorities alone to handle.
- Low technical capacity for long term planning and management of solid waste.

- Weak enforcement of environmental regulations - which allows local authorities to flout environmental regulations without any sanctions - has all contributed to compound the problem.
- Indiscriminate and irresponsible dumping in street corners, in between houses, in gutters and drains, in water ways etc.
- Inadequate containers or equipment for storing and transporting solid waste.
- Lack of definite schedule for collecting waste from storage to disposal point; waste collectors may show up every week, every three weeks or after one month and such erratic waste collection program leads to an overflow of garbage at storage point.
- Lousy transportation system where the garbage been conveyed in trucks are left uncovered and end up falling off the trucks and littering the very street they are trying to keep clean.
- Poor management of landfill sites and refuse dumps. No foresight and organized system to control garbage sites.
- Little or no supervision by community authorities to ensure proper management of solid waste. The "I don't care" attitude so rampant.

How is Ghana dealing with its waste challenges and suggested measures to solve the problem

Ghana produces 13,000 tonnes of waste daily, but lacked waste management infrastructure says Naa Lenason Demedeme, Director, Environmental Health and Safety Unit.

The director appealed to Government to support assemblies to build more facilities such as engineering land fill sites to manage waste.

There is even more the need to educate and sensitizing the public to reduce the quantity of waste produced.

The Environmental Health and safety Unit believes that the Ghana-Polluter Pay Principle (PPP) is the answer to waste generation and management: The PPP (says Snr. Lecturer Mr D.K Twerefou, University of Ghana) is a civil and social act that would enable economic agents as well as individuals to pay for waste they produce daily. This is an initiative from the Environmental Services Providers Association which explains that this initiative would provide the opportunity for waste generators to contribute to sustainable financing of waste management, and mobilize additional revenue for environmental management. The initiative would help reduce pollution, provide incentive to control and clean pollution, including waste management, recycling, reuse as well as recovery of waste. It would also discourage the importation of over aged goods, prevent the use of Ghana as a dumping ground for unwanted goods and improve the quality of the environment. The PPP experts believe is expected to improve the level of sanitation in Ghana from 14 per cent to 54 per cent by 2015.

In addressing municipal waste in Ghana, the government along with local waste managers Zoomlion have worked out a public-private partnership in which Chinese technology is been adopted in 3 waste recycle plants across the country. Accra, Kumasi and Takoradi are the selected cities for this project implementation. One of the waste management projects has already set up in Accra with the

estimated daily capacity of disposing 300 tonnes of wastes in the capital city through the public-private partnership between the government and Zoom Lion Ghana Ltd.

The Accra plant designed to process 300 metric tonnes of waste will also sort out plastics and metals and have them supplied to fast establishing recycling companies in the country. "China for decades now have had this technology developed in cities like Beijing, Shanghai and others to manage waste efficiently and we are pleased to be sharing this with Ghana," said Ding Zhiqiang, project engineer of the waste management plants.

The government is committing 5 million cedis (3.27 million dollars) as equity into the project. Project coordinator, George Kwesi Rockson disclosed that the recycling plant, occupying a land of 140 acres, would be offering employment to hundreds of university and polytechnic graduates who would be trained in modern waste management methods and technology.

Chairman of the Local Government Committee in Ghana's parliament, Dominic Azumah, called for the establishment of smaller recycling machines in all 10 regions of the country to deal with waste at all levels, saying that "we collect the waste well enough, but the problem has always been how to dispose of it."

The current dump-site in the city, an abandoned stone quarry pit sited at the westernmost end of the capital, is being filled with solid waste for reclaiming purposes. It however has less than 12 months to be exhausted, and a capital that has already been hard-hit by cholera epidemic needs to find an alternative waste disposal system in the shortest possible time.

Health implications of waste disposal in city suburb

In 2011, residents of Weija, a suburb of the capital where the dumping site is located, have complained to the joint parliamentary committees on local government and road transport about the manner the waste was affecting their community.

Sited close to the Weija dam from which water is collected and treated for over 5 million residents, it is feared that, waste water from this site seeping through features in the rocks into the dam, posed serious health risks for consumers in the capital.

Moreover, flies hover from the dumping site into the communities posing serious health challenges to the people.

Waste managers - (Zoomlion Ghana Ltd) measures in dealing with waste

The Communications Officer of ZoomLion Ghana Limited, Mr. Solomon Agyemang-Duah, has disclosed that his outfit was putting in place measures to gradually build the culture of environmental protection and personal hygiene among the Ghanaian populace.

Mr. Agyemang-Duah disclosed that ZoomLion Ghana Limited was putting up a waste management institute to help train people in professional waste management skills, as well as environmental protection issues, in order to ensure that the problems associated with waste management become a thing of the past.

He said the management of ZoomLion Ghana Limited had started putting up infrastructure for the institute, and the necessary measures were being put in place to effectively collaborate with the

Kwame Nkrumah University of Science and Technology (KNUST) and the University of Cape Coast to help in the training process.

The ZoomLion Communications Officer pointed out that Zoom Kids Sanitation Clubs were being established in basic schools in the Volta Region, as a way of inculcating in children the habit of waste management from their childhood, so as to ensure they would embrace the concept when they grow into adulthood.

The Managing Director of Zoom Lion Ghana Company Limited, Mrs. Florence Larbi said the company had made inroads in tackling the nation's solid waste threat.

"The company has been able to practice cleanliness in this country to an appreciable level, created various squads to address environmental challenges from various angles: talk of the eco-brigade, mosquito control, afforestation, sanitation guards, the bola and tricycle teams."

She said, "One distinguishing feature about Zoom Lion is the employment of over 65,000 citizens out of the labour force of Ghana that is also bringing economic sanity into our country."

Other suggested measures in dealing with waste in Ghana

Vice President John Dramani Mahama speaking at the first ever National Environmental Sanitation Forum at the Accra International Conference Centre indicated that a ban on the use of non-degradable plastics could be on the cards for consideration as part of measures to stem Ghana's increasing waste management difficulties. John Mahama said the nation is drowning in plastics and it is high time a decision is taken on what to do with the menace.

The Vice President told the forum that banning plastics in the country may not be the best option and expressed the hope that the situation does not come to that, but he stressed that if the country failed to come out with an effective programme to deal with the danger, then the safety of the populace would have to take precedence and a ban imposed on the use of plastic bags.

In 2008, Professor Mumuni Yakubu, a former Dean of the Faculty of Science at the University of Ghana, Legon, proposed the development of a waste management portal. He defined a protocol as a set of rules that everybody in a given community or society agrees to go by and noted that a national waste management protocol would enable people to understand the sanitation problem and also contribute to solving it. He said it was important that as a country we have in place laws that could answer questions like where the individual puts his garbage, what happens if that is not done, who collects the garbage, how much does an individual pay for rubbish, can anyone just burn rubbish in a given community?

This writer believes that households in our communities should become part of the solution to the environmental problems. All the sophisticated technology can be adopted in dealing with waste. However, if the attitude of the individuals and households is wrong and they do not see their individual actions as part of the problem or the solution, the issue of solid waste would be a tough one for society to address. It is wrong for Africans to think that someone somewhere is responsible for the garbage they litter in the neighborhoods or street corners.

Waste must be managed on a community to community basis. The leadership of each community must map out how its waste is collected, stored, processed, and disposed of timely in a highly hygienic manner. An advance system of community management can also include recycling of the waste. This is where the integrated waste management system (IWMS) comes in.

The Integrated Sustainable Waste Management (ISWM) system for West Africa

West African nations have similar challenges as it pertains to solid waste management. For this reason experts in waste management from four ECOWAS nations including Ghana, Nigeria, Cote d'Ivoire and Senegal met at a waste management conference in Accra, Ghana in May 2012. The implementation of an Integrated Sustainable Waste Management system was the area of focus.

How can West African states improve solid waste management sustainably?

The conference spearheaded by Ghana's leading waste management company, Zoomlion Ghana Limited was under the theme, "Pathways toward Integrated Waste Management in Western Africa." It aimed at developing a comprehensive plan that will help tackle challenges associated with solid waste management in the Western African countries. The participants are expected to create a consortium that will establish and promote integrated solid waste management systems adopted by Western African countries whose major priority is to empower stakeholders participating in the waste management chain through the enforcement of legal framework and open transfer of knowledge and technology.

The project consortium would also seek to promote the establishment of integrated solid waste management systems in West Africa by developing the appropriate management policies and implementation strategies for the integrated waste management in Western Africa at the national, regional and local levels.

Integrated and Sustainable Waste Management (ISWM) recognizes the high-profile elements 'collection', 'transfer' and 'disposal' or 'treatment'. It gives equal weight to the less well understood elements of 'waste minimization', 'reuse' and 'recycling and composting'.

The ISWM system involves primary collection and recycling at community level while improving the health and environmental conditions of community dwellers.

This waste management system if well managed in West Africa can developed the capacity of municipalities and stakeholders in assessing wastes, and analyzing opportunities together with the constraints, dissemination of information, establishing links between international good practices and setting up central ISWM Resource Centers nationwide.

ISWM recognizes three important dimensions in waste management: (1) stakeholders, (2) waste system elements and (3) sustainability aspects.

In the context of ISWM, waste is regarded both as a negative and as a useful material providing a potential source of income to the unemployed. In Kumasi, Ghana sachet water bags in parts of the city are collected, stored and recycled into plastic cups and bowls for domestic use. Such projects when enhanced across the sub-region, can be a great source of livelihood for thousands of unemployed people.

The stakeholders include policy makers, community members, waste management firms, environmentalist, law enforcement officials and all beneficiaries of the integrated waste management system.

All waste system elements should be looked upon as being stages in the movement, or flow, of materials from the mining stage, via processing, production and consumption stage towards final treatment and disposal. A waste management system is a combination of several stages in the management of the flow of materials within the city and the region.

The issue of waste must be taken seriously in West Africa. There is very little or no supervision of garbage dumping sites. Garbage is deposited on the bare ground without any engineering mechanism to properly store solid waste. The entire system of waste needs a total overhauling from collection, storage, recycling to disposal.

Efforts are been made by waste management companies but more ought to be done by communities themselves to ensure a clean environment where waste will not only be a negative element, but also a resource that can actually enhanced living standards of communities.

Municipal authorities must provide more waste bins on the streets of towns and cities to reduce littering into gutters, drains and open places. The private sector can also add supporting waste management to part of their corporate social responsibility. A few bins here and there will be of great assistance. Open community awareness must be enhanced across the nation. People are either ignorant or just won't bother with waste matters. A consistent reinforcement will remind people of their bad habits and keep them inline.

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