

Interrogating Cholera Outbreaks and General Waste Management Problem of Ghana: Towards Achieving a Permanent Solution

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Abstract

One of the major challenges facing Ghana is unsustainable waste management. Available data reveals that the country has recorded 13.6% instead of 53% with regards to MDG 7C in 2015. Also, the cost of waste management has risen to US\$290 million per year (1.6% of GDP). Recently, cholera outbreaks have caused some deaths in the major cities of the country. Nonetheless, Ghana maintains the aim that the population needs to operate within a safe, clean and pleasant physical environment. A similar aim is to attain Sustainable Development Goal 6B by 2030. In order to achieve these objectives, the paper proposes the elevation of Environmental Health and Sanitation, a department which functions under the Ministry of Local Government and Rural Development to a status of ministry. The new ministry confronts the slow, stagnated and sometimes reversed progress in waste management. However, it is argued that the worrying trends can potentially be solved permanently by the new ministry.

Keywords: Hygiene, sanitation, waste, cholera, SDG, department, ministry

1.0. INTRODUCTION

Unsustainable waste management is one of the biggest challenges in developing countries of the world. Waste generation is inevitable as developing countries strive to attain development. In the ensuing market and consumer economy, production of goods and services for the consumption of the ever increasing population results in unavoidable generation of waste. That is, materials classified as not-valuable to the consumer and often referred to as garbage, rubbish or refuse (Zhu et al., 2008). Besides the solids, there is generation of fluids as wastewater, fats, oils or grease, used oil as well as semi-solid waste such as sludge and human excreta, and hazardous household and industrial liquids. Such waste materials that contain free liquids are collectively termed liquid waste (Johnson, 2010). Consequently, unsustainable waste management exerts physical, social, economic and political effects on all sectors of the developing countries' economies (Peprah et al., 2015). To make good the situation, waste management has to be sustainable, that is, adherence of waste management to the tenets of sustainable environment. Waste management is considered as sustainable when today's supervised handling of waste materials (liquid and solid) from source through recovery processes to disposal does not compromise the prospects of future generation (Chirico, 2009). Hence, sustainable waste management chain entails regulated generation, storage, collection, transportation, processing and disposal of waste materials. The aim is to ensure environmental quality, improve human health and preserve natural resources for both the present and future generation (Daskalopoulos et al., 1999, Lin et al., 2008).

Following the passage of the US National Environmental Policy Act of 1969 and the subsequent introduction of environmental impact assessment in 1970, many countries including Ghana took turns to formalized national environmental protection (Betey and Essel, 2013). Concerted efforts to environmental management in Ghana began with the

country's participation in the Stockholm Conference of 1972 (Ministry of Environment Science and Technology, 2012). In 1974, National Redemption Council Decree 239 established Ghana's Environmental Protection Council (EPC). The role of EPC was to coordinate activities of relevant state institutions to ensure environmental protection. The consultative, advisory and research responsibilities were changed in 1994 by Act 490 which converted the council to agency with comprehensive regulatory and control powers. The Environmental Protection Agency (EPA) was placed under the auspices the Ministry of Environment and Science created one year earlier in 1993 (Harding, 2007).

In addition to the EPA, Act 462 of 1993 established the local government system with further responsibility towards environmental protection. However, environmental protection, sanitation and waste management were not explicitly spelt out under the functions of district assembly as per Act 462 no. 10. Also, sanitation was mentioned once in the 64-page document of Act 462 under no.62 building by-laws at 1c drainage and sanitation. Waste appeared on only two pages: V-3507 (disposal of waste) and V-3508 (waste management department). Moreover, Waste Management Department is one of the 16 departments which operate under the MMDAs (Metropolitan, Municipal and District Assemblies). Hence, this paper considers waste management as a secondary or subsidiary or supplementary function of the Ministry of Local Government and Rural Development. After all, the main focus of MLGRD is decentralized governance at the local level and to ensure rural development. Waste management is rather a related matter not a core business.

2.0. THE PROBLEM

At this point, it suffices to suggest that waste management problem in Ghana is gargantuan enough to be handled by a separate ministry. Briefly, the gravity of waste management problem is summed up under:

- unsatisfactory political will to make environmental protection, sanitation and hygiene a priority.
- inadequate stakeholder (particularly youth) participation in sanitation decision making.
- behavioural and attitudinal choices of the populace resulting in cholera outbreaks.
- inactive and ineffective sanitation reforms since the first cholera outbreak in the 1970/71.
- non-conformity of sanitation data collection to international best practices.
- lack of infrastructure and legislation to aid disposal of e-waste.
- about 85% of uncollected and untreated solid waste.
- as low as 4.5% sewerage coverage.
- average national sanitation coverage of only 55%,
- inability of waste managers to plan for sanitation management,
- ineffective enforcement of environmental policies and laws
- lagging far behind achieving MDG 7C (13.6% out of the target 53%)
- increasing annual cost of managing waste (about US\$290 million per year).

2.1. ELABORATION ON THE PROBLEM

In Ghana, environmental protection and sanitation are faced with a number of challenges. According to Tamakloe (2004) the main challenge is unsatisfactory political will to prioritize environmental concerns, to enforce compliance to environmental norms and regulations and to review out-dated laws to reflect contemporary trends in environmental management. There is the general ineffective enforcement of policies and laws regarding

environmental rules (Ministry of Environment Science and Technology, 2012). As regarding waste electrical and electronic equipment (e-waste) the challenge is the absence of infrastructure and legislation to support disposal (Oteng-Ababio and Amankwaa, 2014). The inability of policy makers to involve other stakeholders essentially the youth in environmental sanitation decision making is another challenge. In terms of numbers, the youth has great influence on changes in the environmental sanitation issues as regarding open defecation, generation of e-waste, improper disposal of waste and indiscriminate littering of streets or environment (Chibeze, 2013).

One of the consequences of unsustainable waste management in Ghana is the challenge posed by persistent cholera outbreaks. First known in 1970/71, epidemic levels of cholera outbreaks recur at intervals of four to six years. A decade later, in 1982, a total of 15,032 cases were recorded, the highest outbreak figure in any single year ever. However, cholera has almost become an albatross on Ghana since 2010 to date. Between June and September 2014, 16,527 cases and 128 deaths were registered with case fatality rate (CFR) of 0.08% (Dzotsi, 2014). Cholera cases increased to 20,955 with 166 deaths in October 2014 (WHO, 2014b). By November 2014, cholera cases had risen to 26,286 with 211 deaths affecting 123 districts in 216 districts in all 10 regions maintaining CFR of 0.08% (WHO, 2014a). In addition, cholera epidemic reveals that sanitary reforms are inactive and ineffective in Ghana. Since the first cholera outbreak in the 1970s, Ghanaian authorities have consistently failed to regulate food hygiene, sanitation, environmental health and waste disposal. Consequently, cholera outbreak has become nearly an annual epidemic (Ofori-Adjei and Koram, 2014).

Sanitation data collection is another challenge. There is lack of harmonization in relation to monitoring and evaluation methods of sanitation data collection. Consequently, government of Ghana partners and development partners efforts culminate in waste of money as Ghana's data on sanitation does not conform to international best practices (Fried, 2013).

The challenge with sanitation data gathering notwithstanding, MLGRD (2010a) reveals that only 15% of solid waste generated in Ghana is collected and disposed. As regarding solid waste generation, the literature shows that the five largest metropolises of Accra, Kumasi, Sekondi/Takoradi and Tema constitute 19% of Ghana population and generates 3,200 tonnes per day. The remaining urban centres represent 34% of the population produce 5,000 tonnes while the rural population (47%) generates 4,400 tonnes per day putting the national daily solid waste generation at 12,600 tonnes. "At the national level, 3.7% is buried, 16.9% is burnt, 2.2% is house-to-house collection, 4.1% is dumped at a public container, 58.9 % is dumped indiscriminately, 2.0% at public dumps, and 11.7 % is disposed of in other ways. In total, close to 85% of all refuse generated is currently not collected or disposed of in a proper manner" (MLGRD, 2010a:6). As involving liquid waste, national sewerage coverage is low (4.5%) and only 7 out of 44 sewerage treatment plant is currently operating. Human excreta receptacles include public toilets as in WCs, KVIPs and Aqua Privies (31%), pit latrines (22%), households with access to KVIP (7%), WCs (9%) as well as pan or bucket latrines (4%). On the whole, average national sanitation coverage is estimated at 55% (MLGRD, 2010a:7-8).

Moreover, the managers of solid waste management in Ghana are saddled with improper planning and forecasting for solid waste generation. As such waste managers are not able to predict the quantum of solid waste production and hence, the waste managers are not able to plan properly for collection and disposal (Owusu-Sekyere et al., 2013). A programme at the Ministry of Local Government and Rural Development dubbed District Environmental Sanitation and Strategy and Action Plan (DESSAP) has identified that, local

government actors (individuals and groups) in Ghana lack the capacity to identify, initiate and strategically plan and develop sanitation programmes (Royal Netherlands Embassy in Ghana, 2012).

Available data reveals that Ghana has recorded 13.6% instead of 53% with regards to MDG 7C in 2015 (Ghana Statistical Service, 2013:45). In 2012, only 13% of Ghanaians had access to improved sanitation implying that there was only 0.6% increase in three years (2012-2015) (Royal Netherlands Embassy in Ghana, 2012).

Also, the cost of waste management has risen to US\$290 million per year (1.6% of GDP). The annual cost of waste management in Ghana translates to US\$12 per person in Ghana per annum (Ghana Statistical Service, 2013:45).

3.0. AIM OF THE STUDY

The aim of the study is to reveal the enormity of the waste management problem of Ghana and suggest a solution. The solution is a suggestion to establish a New Government Ministry to handle waste management sustainably.

3.1. OBJECTIVES OF THE STUDY

The study specifically seeks to reveal that:

- Waste management duties are secondary or subsidiary or related and not core duties of the Ministry of Local Government and Rural Development.
- Unsustainable waste management is a huge problem, big enough to be handled by a separate ministry (cholera, choked drains, uncollected solid waste, dumping of untreated liquid waste in the sea, etc).
- A new ministry for hygiene and sustainable waste management could adequately address the problem of unsustainable waste management.

4.0. STUDY METHODOLOGY

The study design is desk study based on literature review. It began with the intellectual guess that 'unsustainable waste management in Ghana could be adequately solved by establishment of a separate ministry (new ministry) to handle hygiene and waste management sustainably'. Relevant literature is sought to justify the claim.

5.0. FINDINGS OF THE STUDY

5.1. EXISTING POLICY FRAMEWORK

In Ghana, waste management policy is captured under the Environmental Protection Agency Act 490 of 1994 and the National Environmental Sanitation Policy of 1999 (revised in 2010). The policies aimed at ensuring the development and maintenance of a clean, safe and pleasant physical environment in all human settlements, to promote the social, economic and physical well-being of all sections of the population.

As per the policy, the Ministry of Local Government and Rural Development (MLGRD) in addition to the Environmental Protection Agency (EPA) coordinate the multi-sectoral efforts of waste management. However, implementation of the waste management policy is the direct responsibility of metropolitan, municipal and district assemblies (MMDAs) under the supervision of MLGRD as well as the offices of the EPA (Ministry of Health, 2006). A detail waste management responsibility register is shown in Table 1.

Table 1. Detailed waste management responsibility register

Policy Option	Agency/	Responsibility	Membership
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	Department		
Basic Sanitation	National Environmental Sanitation Policy Coordinating Council (NESPoCC)	Coordinating the policy through effective communication and cooperation of all relevant departments and agencies	<ul style="list-style-type: none"> • Ghana Health Service /Ministry of Health (GHS/MOH) • Ghana Education Service (GES), • Ministry of Environment and Science (MES), • Environmental Protection Agency (EPA), • Representatives of Metropolitan, Municipal, and District Assemblies (MMDAs), • Council for Scientific and Industrial Research (CSIR), • the Private Sector and • Non-governmental Organizations
Solid Waste	<ul style="list-style-type: none"> • MLGRD • EPA 	<ul style="list-style-type: none"> • MLGRD supervises the MMDAs • MMDAs collect and dispose solid waste through WMDs and EHSDs • EPA is the regulatory body 	<ul style="list-style-type: none"> • MLGRD <ul style="list-style-type: none"> - MMDAs -WMDs (<i>Waste Management Department</i>) -EHSDs (<i>Environmental Health and Sanitation Department</i>) • EPA
Liquid Waste	-	-	-
Hazardous Waste	EPA	EPA provides guidelines for disposal of hazardous waste	EPA
Radioactive Waste	Ghana Atomic Energy Commission (GAEC)	<ul style="list-style-type: none"> • GAEC provides basic requirement for protection of the population against radiation exposure • RPB disposes radioactive waste 	<ul style="list-style-type: none"> • GAEC • Radiation Protection Board (RPB) 1993 • National Radioactive Waste Management Centre • National Nuclear Research Institute
All waste	Generator of waste	Polluter pays principle	All generators of waste

The purpose of the national environmental sanitation policy is to:

- provide guidelines for MMDAs towards delivery and maintenance of environmental sanitation services and facilities.
- Handle solid and liquid waste, industrial and hazardous waste, storm water drainage, cleaning of public places, food hygiene, environmental and hygiene education, vectors of disease, inspection and enforcement of sanitary regulations, control of rearing and straying of animals, and disposal of the dead.
- Set out technical, cost and legal frameworks for the roles of relevant state institutions.

The National Environmental and Sanitation Policy seeks to score a number of goals such as:

- institutionalizing national environmental sanitation day.
- sustainable management of all generated solid waste.
- achieve improved sanitation facilities for 90 percent of the population inside the place of abode.
- provide hygienic public sanitation for remaining 10 percent of the people.

- standardize landfills for safe and sound disposal of solid waste.
- approve appropriate treatment plants to total treatment and disposal of liquid waste disposal.
- stop the use of pan latrines by 2010.
- proper and thorough sanitary inspection of all premises.
- implement vector control programmes.
- strict enforcement regulations and standards.
- hand over 80 percent of duty of environmental sanitation services to the private sector.

The National Environmental and Sanitation Policy as well as the National Environmental Action Plan are supported by specific legislations. The relevant legislations include:

- The Criminal Code, 1960 (Act 29)
- The Constitution of the Republic of Ghana, 1992
- Food and Drugs Law 305b (1992)
- The Local Government Act, 1993 (Act 462),
- Solid and radioactive waste included in the Local Government Act (1993), Act 462,
- Atomic Energy Act, (Act 204) of 1963 and PNDC Law 308, (LI 1559 of 1993)
- Town and Country Planning Ordinances, 1944 (Cap 84)
- Environmental Protection Agency Act (1994), Act 490,
- Pesticides Control and Management Act (1996), Act 528,
- National Building Regulations, 1996 (LI 1630)
- Mortuaries and Funeral Facilities Act, 1998 (Act 563)
- Environmental Assessment Regulations 1999, (LI 1652),
- Environmental Sanitation Policy of Ghana (1999),
- Guidelines for the Development and Management of Landfills in Ghana, (2000)
- Guidelines for Bio-medical Waste (2000),
- Environmental and Sanitation Policy (Revised 2010),
- Hazardous and electronic waste control and management bill, 2011.
- National Environmental Policy (2012).

So far, Ghana's EPA uses environmental compliance procedure for environmental protection. In this context, compliance is a measure of permits requested for implementation of project infrastructure in the natural or built environment. Non-compliance is faced with statutory notices, site visits and finally legal action (Tamakloe, 2004). With respect to national environmental and sanitation policy, there are high levels of non-compliance to environmental sanitation rules and regulations. Hence, the rebranding of environmental sanitation as essential social service and targeting of environmental health staff for effective and efficient law enforcement (MLGRD, 2010b).

5.2. ARGUMENTS FROM RELEVANT LITERATURE

Ostensibly, local government reforms are often aimed at empowering local authorities to manage government affairs at that level. Such reforms have sought to decrease central government control and supervision. By so doing, the local authorities are empowered to manage local community assets. Hence, the emphasis is often laid upon decentralization and devolution of governmental powers. At such, the role of sanitation and

waste management do not feature prominently in local government reforms as exemplified by the case of Trinidad and Tobago (Ministry of Local Government, 2009).

However, Bisht (2005:5) posits that sanitation and waste management are more related to local governments in sustainable development in terms of sustainable human settlements. And that, development planning and assistance have been provided over the years, yet, rural and urban population of low and middle income countries lack improved facilities to adequately address sanitation and waste management. Hence, the commitments of governments to UN goals to:

- Significantly improve the lives of at least 100 million 'slum' dwellers by 2020.
- Halve by the year 2015, the proportion of people without access to safe drinking water.
- Halve by 2015 the proportion of people who do not have access to basic sanitation.
- Develop waste management systems, with the highest priorities placed on waste prevention and minimization, reuse and recycling, and environmentally sound disposal facilities.

According to Jha and Whalley (2001), in the developing countries, toxic contaminants such as organochlorines, dioxins, pesticides, grease and oil, acid, and caustic metals discharged by industries cause health and other problems. Untreated liquid waste, particularly, untreated sewage discharged into rivers, streams and open ditches results in waterborne disease. According UNDP's HDR 1998 cited by Jha and Whalley (2001:221), in the developing world, about 50 percent of all liquid waste discharges into water sources are untreated. As a result, diarrhea and dysentery account of 20 percent of disease burden. An estimated 2 billion people suffer diarrhea from polluted water. About 5 million people die from diarrhea per year, 3 million of which are children. There are 900 million cases of intestinal worms and 200 million cases of schistosomiasis (bilharzia). Unsustainably managed solid wastes, aside triggering the spread of infectious disease; cause flooding by blocking urban drainage channels. The 1998 HDR further recorded that 20-50 percent of solid wastes are left uncollected.

As per the 2014 Human Development Report, global ecological footprint of consumption and waste generation is presently larger than the capacity of the biosphere to support the provision of materials for consumption and waste digestion (UNDP, 2014:45). The reports state that in every country, there is growing concern over poor sanitation. Unimproved sanitation facilities and poor hygiene have increased the risk of diarrhea. In Ghana, 226 per 100,000 children below age five die per annum from the use of unsafe water, unimproved sanitation and poor hygiene as compare to zero in Norway, one child in Czech Republic and 10 children in United Arab Emirates (UNDP, 2014:212).

The solution to sanitation and unsustainable waste management lies in the administration of environmental protection. The Organization of Economic Cooperation and Development (OECD) has summarised national environmental protection organizational structures into four:

- (1) departments within the office of the head of government;
- (2) separate ministries;
- (3) departments within existing ministries; and
- (4) environmental departments in different ministries (Qui and Li, 2009:10154).

China opted for the second model (separate ministry). In 2008, China converted the State Environmental Protection Administration to Ministry of Environmental Protection. The aim was to increase administrative stability, political will, decision making power and access to resources (Qui and Li, 2009).

Currently, Ghana uses the fourth structure (environmental departments in different ministries). The present paper is advocating for the use of the second structure (separate ministry) for hygiene and sustainable waste management.

5.3. LOGICAL FRAMEWORK FOR THE MAIN SUGGESTION

The goal of the new ministry (hygiene and sustainable waste management) is to achieve good/best practices of hygiene and sanitation for all Ghanaians by 2030. The purpose of the new ministry is to achieve good health for all Ghanaians by completely eradicating cholera and all waste related diseases. Good health is not simply equated to absence of disease; hence, the ministry shall also ensure proper hygiene at all levels. A number of expected outputs are to be engendered by the new ministry such as to achieve:

- (1) separation of solid waste at all levels
- (2) basic hygiene at all levels
- (3) adequate and proper liquid waste facilities for use by all
- (4) sustainable final disposal of all waste by all institutions

In order to attain the various outputs, the new ministry shall undertake a number of activities as including:

- (1) demonstration of waste separation at public places in all districts capitals and on TV channels.
- (2) replication of national hand washing example in basic hygiene education
- (3) public and private provision of adequate and proper liquid waste disposal facilities
- (4) public and private provision of sustainable final disposal sites and facilities

A detailed analysis of the logical framework is shown in Table 2.

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Goal: To achieve good/best practices of hygiene and sanitation for all Ghanaians by 2030	Ghana Living Standard Surveys shall provide quantifiable data and qualitative information on the performance of the national sanitation agenda	Targets set for achievement of SDG 6.2 “by 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations” UN	1. The President of the Republic of Ghana shall lead the agenda to achieve hygiene and sanitation for all Ghanaians. 2. The Council of State shall counsel the President and bring him/her up-to-speed on sanitation agenda. 3. Cabinet shall support the President in meeting the executive functions on the sanitation agenda 4. Parliament shall provide laws and aid provision of by-laws to achieve the sanitation agenda. 5. Judiciary shall enforce sanitation laws to the letter. 6. House of Chiefs and traditional authorities shall enforce customary laws and practices on sanitation 7. Media shall constantly beat the drum for the achievement of basic sanitation for Ghanaians by 2030.
Purpose:	WHO health	WHO regional	1. All generated waste would be

To achieve good health for all Ghanaians by completely eradicating cholera and all waste related diseases	reports on cholera and waste induced diseases	and country targets	collected and properly disposed. 2. Citizens would uphold and maintain proper hygiene standards 3. All people will have access to adequate and proper liquid waste disposal facility.
Output: 1. To achieve separation of solid waste at all levels 2. To achieve basic hygiene at all levels 3. To achieve adequate and proper liquid waste facilities for use by all 4. To achieve sustainable final disposal of all waste by all institutions	Annual itemized allocations from the national budget	1. Visibility of segregated waste containers in demonstration sites. 2. Court cases for non-compliance 3. Visibility of proper liquid waste facilities at homes and in public places 4. Research data on waste management	1. Proper and widespread civic education on sustainable waste management by the citizenry 2. Behavioural and attitudinal change towards better choices for waste management 3. Willingness of the government to provide financial and other logistics for the work of the ministry of hygiene and sustainable waste management 4. Maximum commitment of all staff and institutions of waste management
Activities: 1. Demonstration of waste separation at public places in all districts capitals and on TV channels. 2. Replicate national hand washing example in basic hygiene education 3. Public and private provision of adequate and proper liquid	Auditor General's report on income and expenditure	1. Legislative instrument/Act of parliament legalizing the ministry 2. Government building providing office accommodation for the ministry. 3. Staff of the ministry	Establishment of a separate government ministry to handle hygiene and sustainable waste management

waste facilities 4. Public and private provision of sustainable final disposal sites and facilities			
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Source: Author (2015)

6.0. CONCLUSION

Unsustainable waste management in Ghana is a huge rural as well as urban problem. Hence, the enormity of the problem as seen in Accra-Tema, Kumasi, Sekondi-Takoradi and Tamale is prevalent in other regional capitals and even district capitals. The usual Ghanaian practice where wives, mothers and other female groups sweep the house and compound in the morning, dump the refuse in a basket and carry it to the refuse dump for disposal is no longer sustainable in the remotest villages. The same practice is used in government schools, as the students/pupils sweep the allotted plots of the school compound and send the collection of refuse to the refuse dump. Accumulation of refuse at the dump site forms a hill as the population of the community increases. At the same time community toilet often built through communal labour are not sustainable due to increases in population. As a result, the traditional waste management practices are not compatible with large population. Ghana's population has increased from ... in 1948 to 24.2 million in 2010. The need for a paradigm shift in waste management is felt with the occurrence of cholera outbreaks claiming over 100 lives in three months in 2015, garbage choked drained aggravating flooding, diarrhea, bilharzia and intestinal worm affecting millions of the citizens. The paradigm shift must be supported by demonstrated political will. The best form the paper suggests is the creation of separate ministry to handle hygiene and sustainable waste management. The new ministry confronts the slow, stagnated and sometimes reversed progress in waste management. However, it is argued that the worrying trends can potentially be solved permanently by the separate ministry.

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