



Assessment of Solid Waste Management in Liberia

United Nations Environment Programme
Post-Conflict and Disaster Management Branch
in collaboration with the Environmental Protection Agency of Liberia

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1 Background

UNEP has been active in Liberia since 2003, initially undertaking a post conflict assessment and later, in 2005, establishing a field office for providing capacity building assistance. During one of the recently concluded capacity building workshops, it became evident that management of solid waste remains a key issue to be addressed in the country. With increasing population, changing consumption patterns and economic growth, it is likely that solid waste generation is going to increase significantly. Already, Liberia's waste management sector faces tremendous difficulties, due to various factors, including: unclear and over-lapping legal mandates and responsibilities; inadequate institutional framework; poor enforcement mechanisms; extremely weak technical and human capacity within the government sector; low level of public awareness on health-waste management linkages; and a complete absence of cost recovery mechanisms.

At the request of the Environmental Protection Agency of Liberia (EPA), UNEP conducted a technical mission to study both the technical and institutional issues associated with solid waste management in Liberia. The mission was hosted by the EPA and undertaken between 17–27 June 2007. This report summarizes its findings.

2 Mission Objectives

The primary task of this exercise was to undertake, in consultation with the EPA, a review of the Solid Waste Management Sector of Liberia, in particular:

- The roles, responsibilities and legal mandates of the key public sector actors throughout Liberia;
- The public institutional framework for waste management;
- Existing operational practices and facilities;
- Participation of local NGOs and CBOs within the waste management sector;
- Existing cost recovery mechanisms, if any;
- Public education initiatives and technologies;
- The capacity of the private sector to deliver waste management services;

- The management of hazardous healthcare waste (HHCW); and
- The identification of the necessary components for long-term, sustainable improvements within the waste management sector.
- Increase awareness by a one-day workshop was conducted for some forty (40) representatives of relevant public and private sector stakeholders within the waste management field.

3 Study Approach

The work was split into three segments:

A) Pre-mission Data Gathering: This included collection of all available information on issues associated with waste management in Liberia as well as similar countries around the world.

B) During the Mission: Throughout the ten day mission and the one day workshop, which was hosted by the EPA, stakeholders from the following organizations were met:

- **Government Departments:** Ministry of Transport; Ministry of Internal Affairs; Ministry of Lands, Mines & Energy; Ministry of Public Works; Ministry of Health and Social Welfare; Ministry of Labour; Grand Bassa County Superintendent.
- **Municipal administrations:** Monrovia City Corporation; Paynesville City Corporation; Buchanan City Corporation; Kakata City Corporation.
- **International Community:** The European Commission, The World Bank; UNICEF; UN-HABITAT; UNMIL; UNOPS; UNDP; UN Country Team.
- **Civil Society:** Genesis Ltd; Global Alliance Ltd; Sanitors & Services Ltd; Liberia Marketing Association (LMA); JKF Hospital; Liberia Government Hospital in Buchanan; DUCOR Ltd; International Rescue (IRC); Jurubbal (NGO, Kakata); MSF; Power TV; Clar TV; Real TV.

In addition, field visits were made to a number of locations with waste management problems, waste management sites, new community and private sector initiatives.

C) Post -Mission: The findings from the mission were consolidated and discussed with technical experts to arrive at useful and appropriate conclusions and recommendations

4 Findings

4.1 Legal and Institutional Setting

Constitutional Provisions: Liberia's environmental laws have a constitutional basis as per article 7¹ of the Constitution (1986), which advocates for the maximum feasible participation of all Liberians in the management of their natural resources, and as per article 20 (a)² promulgating the right to life which, by extension, provides for a right to a clean and healthy environment. This constitutional reference grants to the environment a particularly high status among the values defended by the Liberian people. Further, it binds the state organs – in particular the legislative and executive - to adopt an active environmental policy and to formulate national development plans that are environmentally sustainable.

However, despite the above, Liberia's development strategy is presently oriented primarily towards stimulating and accelerating economic growth. This will inevitably result in an expansion of urban, agricultural and industrial activities. The demands placed on the environment to provide resources for development and to absorb waste will consequently grow, presenting challenges to both the authorities and communities.

Legal Framework: The three main legal dispositions that grant authority in the field of environment, including the waste management sector, are the three acts creating the Environmental Protection Agency (EPA), and adopting the framework Environmental Protection and Management Law and Policy of the Republic of Liberia (all approved on 26 November 2002 and published on 30 April 2003).

These three authoritative documents all mention the waste management sector, taken from different angles. In the Act creating the EPA waste management is approached as a cross-cutting issue as this law deals more with institutional settings than with substantive sectoral activity. Whereas the Act Adopting the Environment

Protection and Management Law of the Republic of Liberia contains specific sections (37, 38 and 39) that specify the role of the EPA regarding waste management in Liberia as the coordinator and monitoring body for setting policies and guidelines³. Section 62 on the "*Prohibition of Solid Waste Pollution*" also penalizes "every person who discharges, discards, dumps or leaves any litter on any land, coastal zone, surface water (...) except in a container or at a place which has been specifically indicated, provided or set apart for such purpose". However, the Act Adopting the National Environmental Policy of the Republic of Liberia is the most extensive on the topic by reserving a whole sub-chapter (5.7) to waste management and sanitation. Numerous strategic policy measures are recommended, including:

- *Identify, designate and establish landfill sites for all urban areas;*
- *Set up a joint monitoring and coordinating unit between agencies and institutions responsible for waste management programmes and involve the local communities (which indirectly acknowledges the existing lack of clarity of the division of responsibilities);*
- *Design and instruct a waste sensitization programme at various levels, especially among women and the youth; and*
- *Empower local communities to dispose of their waste.*

So, clearly the policy document does contain the necessary components to cater for effective solid waste management, although to date they have not been effectively implemented.

Institutional Arrangements: The following section discusses the legal mandates of the key public institutions involved in waste management in Liberia, and identifies the main areas of overlapping roles and responsibilities.

1. **The Environmental Protection Agency (EPA)** is primarily in charge of setting up (develop and publish) national guidelines for solid waste management in Liberia, environmental quality standards (and related penalties and fines), and ensuring compliance for pollution control. It should also provide guidelines for

the preparation of environmental impact assessments (EIAs), audits/inspections and environmental licenses/permits for engineered landfill sites (as articulated in section 64 of the Act Adopting the National Environmental Policy of the Republic of Liberia). The Act creating the EPA also mentions, in section 34, the creation of an Environmental Administrative Court, which, as of today, is still not established.

2. **The Ministry of Health and Social Welfare (MHSW)** has, through its Division of Environmental and Occupational Health, the mandate to assess “*the environmental health of the population*”. This grants this Division the power to conduct sanitary inspections evaluate compliance with the Public Health Law. Nonetheless, as of today, no Hazardous Health Care Waste (HHCW) management guidelines or standards have been established by the Ministry.
3. **The Ministry of Lands, Mines and Energy (MLME)** hosts the Liberian Hydrological Service (LHS) whose responsibility is to evaluate urban sanitation projects, such as to provide guidance for the geotechnical investigation of engineered landfill sites.
4. **The Ministry of Public Works (MPW)** is in principle responsible for the installation of the entire infrastructure required for waste management delivery services, including waste collection and transfer stations, and the construction of engineered landfill sites.
5. **The Municipalities** have been granted, by the Public Health Law of 1975 (still valid), the responsibility of ensuring clean and sanitary environmental conditions on the territory under their respective jurisdictions. They are thus responsible for sanitation activities including the cleaning, collection and disposal of generated solid waste. In theory, they should receive their annual operating budget from the Government, through the Ministry of Internal Affairs, but discussions with various municipal officials in Grand Bassa, Montserrado or Margibi Counties confirmed that these financial transfers are currently non-existent, apparently partly due to the early stage of the decentralization reform process. Internal regulations of the Monrovia City Corporation

(MCC), MCC Ordinances’ Chapters 1 and 7 (1975), designate various departments of MCC as being in charge of municipal waste disposal sites, prohibition of the littering, and requiring residents to clean in front, and around, their properties up to the sidewalk. Furthermore, Chapter 7 of MCC’s Ordinances stipulates that all residents in Monrovia shall pay various monthly fees for solid waste collection and disposal. However, as the charges for the planning, development, operation and maintenance of the solid waste management systems and equipments are largely divided among various MCC departments, this, with other contributing factors discussed later, eventually results in the total paralysis of the waste management in Monrovia.

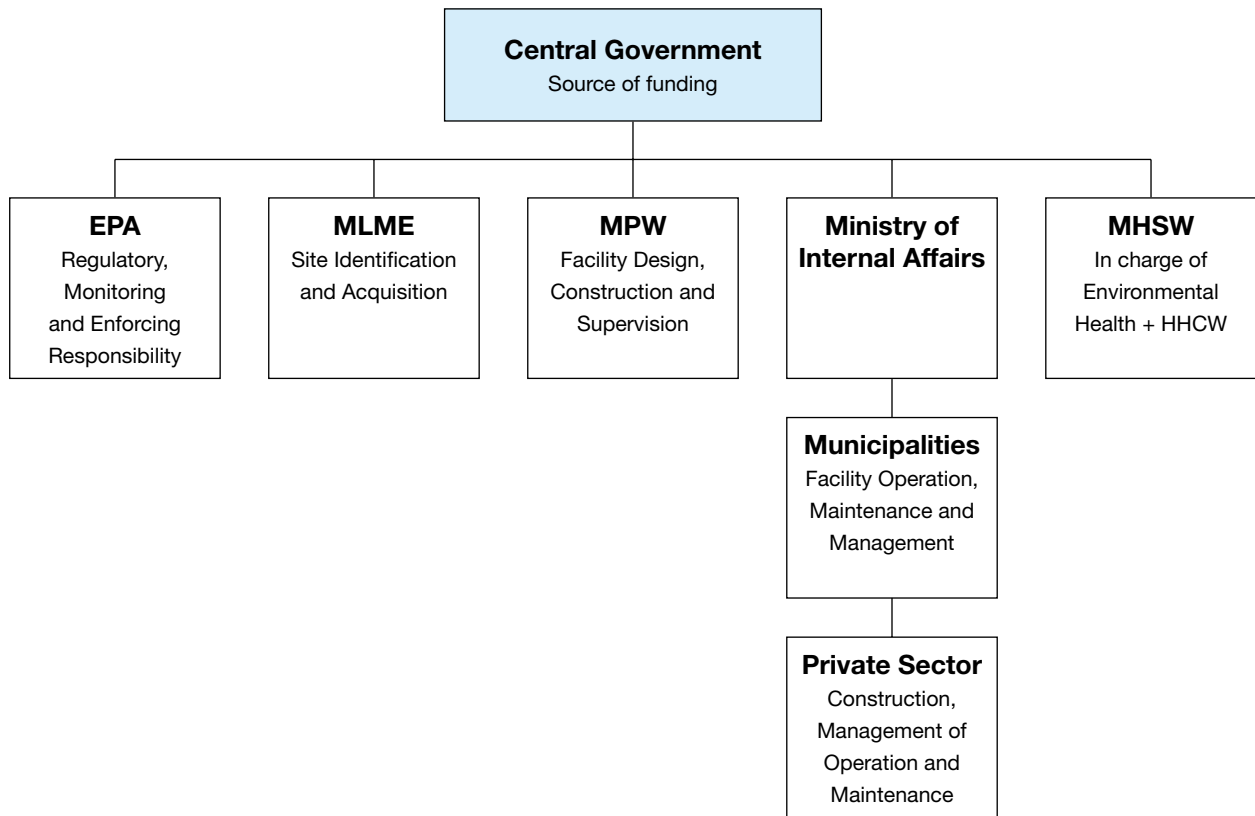
An overview of the above mentioned legal mandates demonstrates clearly the overlap and imprecise division of responsibilities between the various public authorities, as on the one hand between the EPA, the MHSW and the municipalities on the monitoring role, and on the other hand the MLME and the MPW on their respective responsibilities for preparing engineered landfill sites.

4.2 Institutional Capacity and Infrastructure

In terms of figures, the World Bank Technical Paper No 426, *Solid Waste Landfills in Middle and Low Income Countries*, gives a waste generation rate of 0.5kg/day/cap, plus a further 0.1kg/day/cap for commercial waste, which gives an overall figure of 0.7kg/day/cap⁴. Thus for Monrovia, with an estimated population of 1.3 million, the average generation rate is of some 780/tones/day.

Waste composition in Monrovia	
Component	% by weight
Paper	10.0
Glass, Ceramics	1.2
Metals	2.0
Plastics	13.0
Leather, Rubber	0.2
Wood, Bones, Straw	4.6
Textiles	6.0
Vegetable /Putrescible	43.0
Miscellaneous Items	20.0
Total	100
Density	250 kg/m3

Waste Management Plan for Monrovia, UNICEF-DFID, August 2004



Throughout the mission, the weak nature of institutional capacities and infrastructure within the government sector for waste management became very apparent. This inherent weakness is due, to a large extent, to shortages in both human and financial resources to operate a viable system. The human resources, the technical expertise of the various ministries, including the EPA, are collectively very low, or on occasions non-existent. In all of the government entities visited, there is a serious need for trained and experienced personnel. Failure to address this need will undermine any future waste management initiatives.

For instance, resources of the EPA, which in many respects is the key organization for waste management within Liberia, are particularly low. For example, its budget is only 115 000 USD for 2007, and only one staff member dedicated to waste management issues, on a part-time basis. Clearly, with these resources, EPA is completely unable to execute its legal mandate and presently there appears to be little interest to address this situation.

Further, both the municipalities of Buchanan or Kakata report that they receive between 10 and 12



The Environmental Protection Agency's (EPA) premises in Monrovia

USD/month from the Liberia Marketing Association (LMA) to provide the marketers with a daily waste collection service. Clearly, this is unrealistic.



UN Drive street of Monrovia. Limited waste collection services are provided by MCC via the manual loading of two tipper-trucks, which is time consuming and offers limited pay-loads

In terms of equipment, Monrovia City Corporation (MCC), for example, has only 2 functioning tipper-trucks for waste collection throughout the city of over 1.3 million people, while a further six vehicles have been off the road, on average for over one year, with minor problems. The real problem is MCC's lack of funds which results in an inability to purchase the required spare parts.

Nevertheless, it is reported that MCC does subcontract, with World Bank's funding, two private contractors to operate with 7 more vehicles. It is estimated, however, that this combined capacity results in only 20% of the solid waste generated in Monrovia being collected and disposed off at The *Fiamah* Site (4 kilometers from the city centre). The remainder of the waste is dumped by the road-side, within vacant lots, drains, or is randomly burnt.

The decentralization process, initiated by the Government of Liberia, is intended to give to

deviant behaviors) and of any enforcement forum (court or judge) makes the "polluter pays principle" inapplicable within Liberia today.

As far as infrastructure for waste management is concerned, there is a complete absence of engineered landfill sites throughout the country. Consequently, waste disposal activities are focused on a small number of dump-sites, the majority of which are inappropriately located within wetlands and swamps, such as the *Fiamah* Site that services much of Monrovia, *The Boulevard* in Congo Town, and the dump-site located within the town of Kakata.

The anticipated "temporary" use of the *Fiamah* dump site in Monrovia for the next 18 months will most likely not be sufficient to cope with the amount of waste disposed off over that period. Of greater concern is the fact that no engineering designs, EIA or mitigation plan have yet been undertaken for the proposed new disposal site at *Mount Barclay*. This despite the fact that these essential development steps, in conjunction with site construction works, can be anticipated to take between two to three years. Thus, there is a real risk that, notwithstanding its inappropriate location and limited 'foot-print', the *Fiamah* Site may need to be operated for a considerable period of time yet.



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