

Waste Management: Solid, Liquid, Hazardous, Bio-medical and Electronic Waste

Roles & Functions of the National Solid Waste Management Authority in Jamaica

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Abstract

The management of solid waste in Jamaica is the responsibility of the National Solid Waste Management Authority (NSWMA) a local government agency incorporated in April 2001 through the enactment of the National Solid Waste Management Act of 2001. This NSWMA Act empowers the NSWMA to regulate the processing and disposal of municipal solid waste and the recycling, storage, transportation, treatment and disposal of waste islandwide. The Act also gives the Authority the power to implement various regulations, some of which are: licensing of companies to collect and transport waste; tipping fees structure and rates to be charged at disposal sites; operation of disposal sites and transfer stations; and issues dealing with illegal dumping and littering. Currently the Authority does not undertake all of these functions but anticipates that they will be implemented timely upon the completion of the various regulations. The NSWMA executes its operation through four regional offices island wide registered as Limited Liability Companies. They are Metropolitan Parks and Market (MPM), Western parks and Market (WPM), Southern Parks and Market (SPM) and North Eastern Parks and Market (NEPM). Each of these regional offices is responsible for the management of solid waste within their respective watershed. This includes public cleansing operations such as street sweeping, roadside pickup and residential solid waste collection and disposal. Other activities such as commercial waste collection, special waste disposal, cleaning and maintenance of verge and median strips along major thoroughfares as well as the maintenance of public parks is also undertaken by these regional entities. Through its regional entities the NSWMA regulates the operations and management of 8 disposal Sites Island wide. The disposal sites are Riverton and Church Corner (MPM), Retirement (WPM), Martin's Hill and Myersville (SPM) and Hadden and Tobolski (NEPM). Approximately 1.2 million tonnes¹ of municipal solid waste is generated across the island each year. Of this total an average of 75% is disposed of at the disposal sites within the four watersheds. The remaining portion is either recycled, reused or end up somewhere in the environment, predominantly our waterways² and shoreline. The NSWMA in order to curb and eradicate the illegal disposal of solid waste have embarked on an island wide public relations campaign educating the public on how to properly manage and dispose of their waste. It is our intentions that at the end of this campaign that the attitude and past practices of the populace would have change and that the NSWMA will have a greater impact in contributing to preservation of public health, environmental aesthetic and beauty of Jamaica.

¹ Generation Rate is 1 Kg per person daily.

² Rivers, drains, gullies etc.

1.0 INTRODUCTION

1.1 Solid Waste Management in Jamaica

The management of solid waste in Jamaica is the responsibility of the National Solid Waste Management Authority (NSWMA) a local government agency incorporated in April 2001 through the enactment of the National Solid Waste Management Act of 2001. This NSWMA Act empowers the Authority to regulate the processing and disposal of municipal solid waste. It also regulates the recycling, storage, transportation, treatment and disposal of waste islandwide.

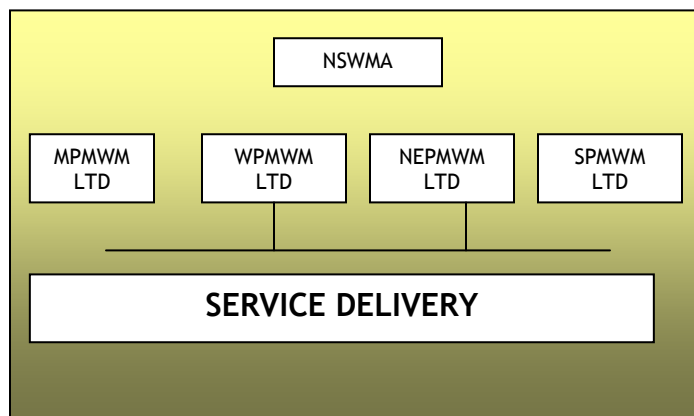
The National Solid Waste Management Authority also has powers to implement regulations;

1. To license companies to collect and transport waste through a programme of compliance with defined best practice criteria;
2. To license trucks to collect and transport waste
3. To regulate tipping fee structure & rates;
4. To set standards for storage containers, collection vehicles, operation of disposal sites and transfer stations;
5. For Illegal dumping and littering;
6. For Recycling.

1.2 Organizational Structure

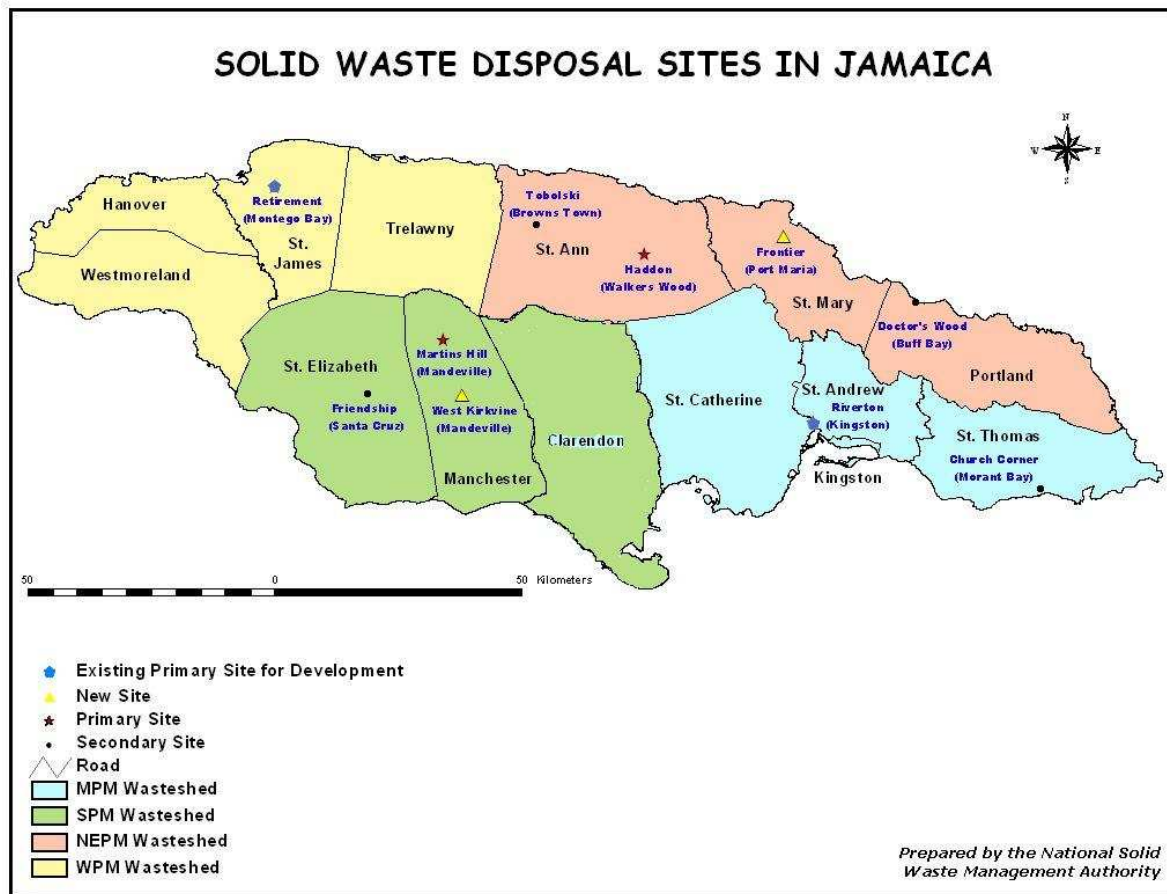
The National Solid Waste Management Authority (NSWMA) executes its operation through four regional offices island wide, each of these regional offices is responsible for the management of solid waste within that particular watershed.

Figure 1. Shows The organizational structure of The NSWMA



Wastesheds are geographic delineated areas based on the optimal and efficient collection and disposal network.

Figure 2. Map of Jamaica Showing the four Wastesheds



1.3 National Solid Waste Management Authority Regional Divisions

With a total population of 2,599,334 (STATIN, 2001) in Jamaica, the NSWMA has demarcated the island into four (4) major wastesheds: *The Riverton, Retirement, Southern and Northeastern Wastesheds.*

- Riverton Wasteshed: comprises the parishes of Kingston, St. Andrew, St. Catherine & St. Thomas and is considered the metropolitan wasteshed, handling 396,285 tonnes of waste per year.
- Retirement Wasteshed: handles waste from the parishes of St. James, Trelawny, Hanover & Westmoreland and accounts for 115,670 tonnes of waste per year.
- The Northeastern Wasteshed: comprises the parishes of St. Mary, St. Ann & Portland and dispose of 120,825 tonnes of waste annually.
- The Southern Wastesheds: consisting of St. Elizabeth, Manchester and Clarendon, disposes of 84,619 tonnes of waste annually.

1.4 Solid Waste Generation and Collection Quantities

Approximately 1.2 Million tonnes³ of municipal solid waste is collected across the island each year. This is a average of 72% coverage within the four wastesheds. A sizable portion however, is either recycled, reused or end up somewhere in the environment, predominantly our waterways⁴ and shoreline.

Table 1. Shows the population, generation and collection coverage within the Riverton Wasteshed

Wasteshed Name	Population	Generation (tonnes)	Population Coverage (%)	Total Collected
Retirement	452,724	285,000	70	200,000
Riverton	1,458,155	668,000	75	501,000
Southern	331,190	143,000	70	100,000
North Eastern	357,265	143,000	70	100,000
Waste Arriving after recording hrs	N / A	-	-	100,000
Unaccounted for waste	N / A	-	-	200,000
TOTAL	2,599,334⁵	1,239,000	72	1,200,000

³ Generation Rate is 1 Kg per person daily.

⁴ Rivers, drains, gullies etc.

⁵ Population Census 2003 Report , Jamaica (STATIN)

2.0 Operations of the National Solid Waste Management Authority

2.1 Street Sweeping

Street sweeping is done in all urban town centers at least once daily, except in areas that are heavily trafficked by motorists and pedestrians then sweeping occurs two times per day. The sweeper length ratio is equivalent to 1:1 (one sweeper to each mile on side of the roadway) but this may be shortened based on the quantity of solid waste being generated along the particular roadway being swept. Other areas outside of the urban centers are also swept but depends on; the type of roadway, the use of the route, and the surrounding land-use.

2.2 Roadside Pickup

Where solid waste generation is moderate and sweeping cannot be maintained due to budgetary or other factors, roadside pickup is done. This is usually done by a roving team, consisting of a group of up to 12 laborers, who rake and bag all the solid waste along that roadway. This team of worker moves from one location to another performing similar task, thus the name roving team. After the roving team is complete in cleaning these routes a collection vehicle is then sent to collect the bagged waste from the roadways. In some instances collection vehicles passing these location and have capacity to collect additional waste will collect the waste from these route thus eliminating the need to dispatch additional collection vehicle to perform this tasks.

2.3 Residential Solid Waste Collection

The NSWMA has a mandate to collect residential solid waste. It performs this task on a daily basis through its regional Parks and Markets companies namely Metropolitan Parks & Markets Waste Management Limited, Western Parks & Markets Waste Management Limited, Northeastern Parks & Markets Waste Management Limited and Southern Parks & Markets Waste Management Limited. As a general rule, solid waste is collected from residential communities twice weekly in urban areas and once per week in peri urban and rural communities. This however may vary depending on the location and the generation pattern. Main thoroughfares are collected daily to remove the solid waste which is swept and bagged as well as to service some commercial clients on those routes. Residential areas which are inaccessible to the collection vehicle makes provision to have the waste brought by residents to a central point which is accessible. Most often large skips are placed at a central location for easy access to residents, which is then collected by the collection trucks.



Photo 1. Shows a New Compactor Truck Acquired by the NSWMA

2.4 Commercial Solid Waste Collection

The NSWMA also provides commercial collection services to the public at a fee. Potential clients can enter into a contractual arrangement with the NSWMA to have their solid waste collected. The frequency of collection will depend on the individual client and the type and amount of waste to be collected. The provision of receptacles can also be included but this would be at an additional cost to the client. If the client wishes to provide his/her own receptacle then it is required that they meet certain specifications set out by the NSWMA. Commercial clients are defined as all non residential entities which include schools and educational institutions, government ministries and agencies, penal institutions, manufacturing companies among others.

2.5 Hazardous & Special Collections

The NSWMA offers collection services for hazardous and special waste. The Authority holds an advantage in this regard because very few waste management entity, if any, offers these services. Users and producers of hazardous waste abide in accordance with the standards stipulated by the National Planning & Environmental Agency (NEPA). Other special collection includes but is not limited to ship generated waste, industrial / manufacturing waste, farm waste, and other waste fractions which all required special handling.

2.6 Parks & Gardens Services

The Parks and Garden division of the NSWMA is responsible for the beautification and maintenance of the major gateways, verges and sidewalks and other silverculture activities such as; the maintenance of majors parks and public spaces within the corporate area, the cleaning and maintenance of verges and median strips and the beautification of major places of interest. Most of these activities are undertaken under special projects with the financial assistance of external sources of funding from other public and private entities. The NSWMA also operates a plant nursery and offers landscaping and horticulture services to the public.

2.7 Disposal Services

The NSWMA exclusively provides the disposal of solid waste via landfilling to the public in Jamaica. This landfilling service is available at the eight (8) official solid waste disposal sites across the island (see table 2 below)

Table 2. Disposal Site & Their Regions

DISPOSAL SITE NAME	REGION	WASTESHED
Riverton Church Corner	MPM	Riverton
Retirement	WPM	Retirement
Martins Hill Myersville	SPM	Southern Wasteshed
Haddon Tobolski Doctor's Wood	NEPM	Northeastern Wasteshed

In 2009 approximately 1.2 million tones of solid waste was disposed of collectively from the eight disposal sites islandwide. In addition to landfilling, certain fractions of solid waste can be stored at the disposal site until the appropriate quantities are accumulated after which they are exported.

2.8 Enforcement & Compliance

In order to achieve compliance with the solid waste management legislation effective enforcement and monitoring are important elements. As such the NSWMA maintains an enforcement & compliance division. Collaborative work with Special District Constables assigned to the local Authorities along with the Island's Special Constabulary Force is maintained in order to improve the level of enforcement islandwide. The Environmental Warden Service is also being targeted and members are being trained jointly in issues of solid waste management and the National Solid Waste Management Act. It is anticipated that through these collaborative efforts improvement will be seen in the amount fines issued and the amount of cases that are brought to trial and hence a reduction a reduction in the occurrences of littering and illegal dumping.

Integral to the whole process of enforcement is that of sensitizing the Courts. Currently, many Resident Magistrates are lenient in enforcing environmental law, especially when there is a perception that there are far worse crimes to punish. Therefore, the Authority is aware of the importance of sensitizing them in this regard. Copies of the NSWMA Act have been sent to all local magistrates and a training programmes in this regard has been implemented in conjunction with NEPA to further inform as to the penalties applicable under this Act.

2.9 Public Education / Community Relations

The NSWMA is cognizant to the fact that compliance to the solid waste legislation and other environmental regulations cannot be achieved if the public isn't aware of them. In this regard much of the work being done by the NSWMA needs the public's cooperation and sensitization. The NSWMA has therefore instituted the following steps:

- Public education campaigns and information sharing to sensitize the Jamaican public about solid waste management practices the institution is undertaking and the NSWMA Act.
- Consultations with communities' islandwide to discuss solid waste management issues affecting them and to develop solutions to solve the same.
- Community consultations held with the residents of communities surrounding the disposal sites, to sensitize them about the operation / developments at the site and how this will affect their lives.
- The publication of a quarterly news bulletin to promote technological changes and increase knowledge transfer regarding solid waste management.
- Timely news releases to maintain a media presence.

3.0 Future Involvement

The NSWMA already has plans to expand and diversify its services offered to the public. This will be achieved through collaboration with public and private partnership and include but is not limited to; commercial composting, recycling, scrap metal collection and marketing, waste exchange, hazardous waste storage, incineration and waste to energy. The Authority is also exploring other opportunities which will not only expand its services but also boosts its revenue potential..

LIST OF ACRONYMS

NSWMA	National Solid Waste Management Authority
NSWM Act	National Solid Waste Management Act
NEPM WML	Northeastern Parks & Markets Waste Management Limited
MPM WML	Metropolitan Parks & Markets Waste Management Limited
WPM WML	Western Parks & Markets Waste Management Limited
SPM WML	Southern Parks & Markets Waste Management Limited
STATIN	Statistical Institute of Jamaica
DLG	Dept. of Local Government