



RETHINKING SOLID WASTE MANAGEMENT

PRIVATISING THE NSWMA?

R163
JULY 2016



CARIBBEAN
POLICY
RESEARCH
INSTITUTE

RETHINKING SOLID WASTE MANAGEMENT

PRIVATISING THE NSWMA?

ACKNOWLEDGMENT

This study was undertaken by the Caribbean Policy Research Institute (CaPRI) through Lead Researcher, Travis Atkinson. We wish to acknowledge Mr. Gary Hendrickson who commissioned this important study, and thank the board of the National Solid Waste Management Authority (NSWMA) for providing valuable feedback which served to enhance the final draft of this report.



CONTENTS

EXECUTIVE SUMMARY.....	5
1.0. THE MANDATE OF THE NSWMA.....	10
1.1. IS THE NSWMA FULFILLING ITS MANDATE?.....	11
1.2. WHAT EXPLAINS THE INEFFICIENCIES OF THE NSWMA?.....	12
2.0. INTEGRATED SUSTAINABLE SOLID WASTE MANAGEMENT (ISSWM) PRINCIPLES.....	14
3.0. PRIVATISATION ISSUES AND PERSPECTIVES.....	18
3.1. ARGUMENTS FOR AND AGAINST PRIVATISATION.....	19
3.2. PREREQUISITES FOR PRIVATE SECTOR PARTICIPATION.....	20
3.3. PRIVATISATION MODELS:.....	21
- 3.3.1. CONTRACTING OUT.....	21
- 3.3.2. FRANCHISE.....	24
- 3.3.3. CONCESSION.....	25
- 3.3.4. OPEN COMPETITION.....	26
- 3.3.5. PRIVATISATION MODELS: DISCUSSION AND CONCLUSION.....	26
4.0. ILLUSTRATIVE CASE STUDIES.....	28
4.1. THE BAHAMAS.....	29
4.2. MALAYSIA.....	30
4.3. EGYPT.....	31
4.4. DISCUSSION.....	32
5.0. CONCLUSION AND RECOMMENDATIONS.....	36
REFERENCES.....	40



EXECUTIVE SUMMARY

MANDATE OF THE NSWMA

The National Solid Waste Management Authority (NSWMA) is tasked with safeguarding public health and the environment through appropriate solid waste management (SWM) practices and governance. However, the NSWMA has largely failed to fulfil its mandate. These failures arise because the NSWMA is under-resourced in terms of physical and financial capital, and in terms of managerial oversight. Some of these issues have been addressed by the new NSWMA board, but many challenges remain. Privatisation has been one option tabled to address some of the NSWMA's problems, but should the NSWMA be privatised? If so, which elements of waste management should the private sector participate in? What should the government keep in mind when seeking private sector participation (PSP) in SWM? What lessons can be learnt from other countries that have privatised solid waste management? These questions are answered in this report.

An integrated sustainable solid waste management (ISSWM) system is the ideal framework for solid waste management in the 21st century. It seeks stakeholder participation, covers waste prevention and resource recovery and takes into account the interactions among other systems. Elements of solid waste management include street-sweeping, waste collection, waste treatment, management of transfer station, and waste disposal. Intrinsic to ISSWM is the 'hierarchy principle' which prioritises waste minimisation and envisions waste disposal as a last resort. The hierarchy principle states that when it comes to solid waste management, the following should be given priority in descending order:

- 1. Avoid the generation of solid waste**
- 2. Reduce the negative impacts of waste that is generated**
- 3. Reuse the materials recovered from waste stream**
- 4. Recycle, compost or recover materials to new products**
- 5. Recover energy by incineration, anaerobic digestion or similar processes**
- 6. Dispose of waste in sanitary landfills**

The idea is therefore to minimise the generation of waste, reuse and recycle waste that is generated, extract energy and other resources from waste, and as a final option, dispose of non-recyclable/non-reusable waste in an environmentally friendly manner.

Global trends indicate a consistent movement towards the privatisation of solid waste management. Privatisation can be broadly defined as relying more on private institutions and less on government to deliver public services. There are various types and degrees of privatisation. In absolute terms, “privatisation” is the sale to private owners of state-owned assets. However, “privatisation” is more loosely used to describe cases where public services have been contracted out to private firms, and where public authorities remain legally responsible for public services. This case is more pointedly referred to as “private sector participation (PSP).”

Given global trends, it is no longer a question of if the private sector should participate in solid waste management. Rather, the question surrounds the extent to which the private sector should be involved and the best way to go about including the private sector. In fact, as is reported in the Public Defenders 2016 report on the March 2015 Riverton fire, the NSWMA was originally established to include the private sector. However, privatisation is not some miracle cure that automatically fixes all problems at the NSWMA.

PRE-REQUISITES FOR PRIVATISATION

Privatisation can lead to greater levels of efficiency and effectiveness in the SWM sector as well as result in a reduction in the overall cost of SWM. The private sector can also mobilise financial resources for investment where local public funds are in short supply. Similarly, the private sector can also draw on international experience in the waste management field. However, opponents of PSP in SWM argue that if the SWM sector is privatised, commercial principles will be given priority, at the expense of other public goods such as the environment and cultural values. Privatisation may also increase the overall cost of SWM services resulting from the companies’ desire to maximise profits. Finally, opponents argue that the private sector never truly assumes risks associated with providing public services. Where costs are greater than revenues, private operators respond by demanding government subsidies, raising charges, cutting necessary investment and maintenance, or leaving the sector all together. Both sets of arguments for and against privatisation have merit.

Privatisation can benefit the SWM sector, but only if certain key prerequisites are met. Otherwise, there can be dire consequences. These prerequisites are:



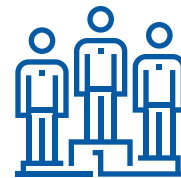
(i) Contestability

Firms have the freedom to enter and leave the market with relative ease.



(ii) Capacity Building

Municipal authorities must be strengthened to manage operators.



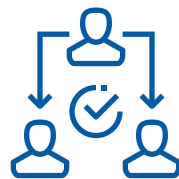
(iii) Competition

Enough players in the market to reduce costs and increase efficiency.



(iv) Provision of Accurate Information

Information and data need to be comprehensive and accurate.



(v) Accountability

Public and Private sector parties need to embrace the principles of responsibility.



(vi) Monitoring

Evaluating efficiency and effectiveness is underpinned by tracking performance.

Contestability means that firms have the freedom to enter and leave the market with relative ease. To create contestability and to ensure a minimum level of managerial capacity of municipalities, it is also recommended that the private sector should service no more than 70 percent of any city, and the remainder should be served by the government. This way, in the event that the private contractor is unable to carry out its contractual obligations, the government retains the capacity to quickly intervene and provide solid waste services to citizens without them being significantly inconvenienced.

To successfully accommodate PSP in SWM, municipal authorities must be strengthened. Municipal managers ought to be able to effectively craft contract details or delegate this activity to private agencies. Municipalities would also have new responsibilities which include monitoring the performance of new private operators, and as such, must build their capacity to carry out these tasks.

Competition ensures an adequate number of players in the market in order to reduce costs and increase efficiency. It is however important to include the costs incurred by cities for contract preparation, bidding, monitoring contractor performance, contract administration, etc. in the cost of the contract work. This is often neglected by municipalities. The comprehensive unbundling of service areas in order to allow several private contractors to provide sweeping and waste collection services, as well as the participation of public service providers in tender procedures, are among the options to facilitate more competition in the SW market.

Adequate information must also be provided. All relevant financial and technical information and data need to be clearly and transparently outlined in the bidding documents. Contracts need to be specified in a comprehensive, fair and objective manner. Inaccurate or inadequate information can lead to cost overruns, low service quality and other externalities.

The principle of accountability needs to be embraced by both parties to the contract (public and private sector). The performance of the contract should also be managed by good inter-organisational relationships, the use of performance bonds, and, as a last resort, the use of penalties.

Finally, evaluating efficiency and effectiveness is underpinned by performance monitoring. Successful monitoring rests significantly on the details of the contract, the capacity of the municipality, and the relationship between the government and the private company.

PRIVATISATION MODELS

Another important principle is what is known as the “user pays” or “polluter pays” principle. [The user pays principle states that those benefiting from a waste disposal service should bear the cost of this service.](#) Otherwise, they have no incentive to abide by the hierarchy principle. However, there are challenges with the user pays principle for low-income communities, and these must be thoroughly assessed when determining a privatisation model for the NSWMA.

To this end, there are four main models of privatisation. The first is “contracting out”. Under this model, tasks are delegated from the public institution to a private firm deemed to have the financial and technical capacity to perform the tasks. The government remains legally responsible for the service and it bears some risk. Limitations of this model include the brevity of time covered by the contract, insufficient information and the chance that the private contractor may suddenly leave the market.

There are challenges with the user pays principle for low-income communities, and these must be thoroughly assessed when determining a privatisation model for the NSWMA.

Second, there is the franchise model. “A franchise is an award of monopoly privileges to a private firm to supply a particular service in a specified area, usually with a price regulation imposed by a government agency.”¹ The private company would collect its own revenues from waste generators within the zone or from the sale of solid-waste by-products removed from the zone. In exchange for this exclusive franchise, the private firms pay a fee to the municipality. The public authorities would remain responsible for monitoring the private firms and would also retain the right to renew or terminate licenses. The main limitation of the franchise model in SWM is that citizens are generally unwilling to pay for the service. Instead, they would improperly dispose of waste or indirectly benefit from those customers who pay.

Third, there are concessions. These are most commonly awarded for landfill management. A concession agreement is a negotiated contract between a company and a government that gives the company the right to operate a specific business within the government’s jurisdiction, subject to certain conditions. Under concession arrangements, the private sector finances and owns SWM facilities during the period contractually agreed on. In return, the municipality would usually grant and enable access to a specified quantity and quality of SWM services and provides some fees. These agreements tend to last from 10 to 45 years.

¹ Dorvil, 2007. Pg. 87.

The international private sector is usually interested in concessions for sanitary landfill operations because they have significant economies of scale and significant environmental spill-over effects, along with greater investment and skills requirements.

A major limitation of this model is that a large quantity of waste is required, compromising the hierarchy principle. Landfill managers would therefore have no incentive to minimise, recycle or treat waste. Careful consideration should therefore be given when employing this model to SWM. Another limitation of this model is that most concessions are on a “take or pay” basis, where fees are paid even if the guaranteed daily quantity of waste is not reached. It would typically take a minimum landfill capacity of 300 tons per day to attract the international private sector.²

Finally, there is open competition. Under this model, each household contracts a private collection firm and pays the removal fees charged by the contractor. However, if several companies are competing in the same community, the collision effect occurs. Such an arrangement is useful for commercial and industrial waste, but could be cumbersome if applied to municipal waste.



ILLUSTRATIVE CASE STUDIES

To answer the question as to whether or not privatisation actually works in practice, [three illustrative case studies](#) are presented in this report. They include PSP in SWM in the Bahamas, Malaysia, and Egypt.

[The Bahamian experience demonstrates that there are clear investment benefits of engaging the private sector which could reduce the financial burden of the government.](#) However, weak government capacity in crafting contracts, evaluating bids and monitoring performance mitigated potential benefits. So too did the lack of accountability and transparency. Furthermore, recycling without encouraging waste separation at the source and engaging privatisation without significant efforts to reduce informational gaps increase the costs of SWM.

[The case of Malaysia demonstrates how competition in the SWM sector can reduce the overall cost of SWM services. It also illustrates the potential for privatisation to create other opportunities such as energy generation.](#) However, the case of Malaysia is an example of how creating a solid waste management plan that is not suited to the unique realities of a region can have negative consequences. Importantly, the low capacity of the Malaysian authority and its weak monitoring framework, had a negative impact on the environment and resulted in many unmet ISSWM goals. Additionally, choosing the incorrect source of funding and inappropriate compensation levels for private contractors can have negative implications. Engaging in recycling without ensuring that waste is separated at the source, will also likely fail. Finally, the case of Malaysia demonstrates that private sector involvement in ISSWM cannot succeed without the awareness and involvement of the public.

[The Egyptian case study demonstrates how private sector involvement can help to improve the effectiveness of solid waste management, extending the service to persons previously excluded.](#) PSP in SWM reaped significant success in Egypt because there was a good monitoring system (which had even the Governor personally involved), strong inter-organisational relationships and the fact that private firms were remunerated from several sources, including the sale of compost, rather than simply from one source. Importantly, the Egyptian case was successful because of the significant and detailed attention placed on building public awareness. However, one flaw in Egypt's case was the decision to charge fees based on electricity consumption. This had no direct correlation with waste generation, and so, many persons refused to pay this fee.

² Ibid.

CONCLUSION AND RECOMMENDATIONS

Ultimately, the NSWMA currently lacks the resources to effectively manage solid waste in the country on its own. It was not established for that purpose. Given the resource constraints of the NSWMA, its failure to create an integrated and sustainable solid waste management system, and the experiences of other countries, engaging the private sector can yield many benefits for Jamaica and should be pursued. However, simply privatising the solid waste sector will not solve the problems that currently exist in Jamaica. The pre-requisites for privatisation must first be put in place. Success relies heavily on a competitive environment and bidding process, a strong regulatory agency and a participatory public.

Below is a summary of recommendations that can help to better ensure the success of private sector participation in solid waste management.

1. Engage the private sector in solid waste management

Waste collection and transportation, as well as landfill management, are the waste elements most urgently in need of privatisation. The NSWMA should contract out waste collection and transportation and either offer concessions for, or contract-out, the management of the Riverton and Retirement landfills. The Riverton disposal facility should also be considered for conversion to a waste-to-energy plant through private sector involvement. PSP should also be pursued for the development of recycling and composting plants.

2. Improve data collection

The NSWMA should expand the type of data collected to include distance to landfills, fuel consumption by vehicles, typology of serviced areas and the number of households served in each community.

3. Build monitoring and regulatory capacity

The NSWMA should also seek assistance from international agencies such as the World Bank and the United Nations Development Programme for technical advice on how to build technical capacity and effectively monitor the solid waste sector. Quarterly and annual reporting mechanisms between private companies and the NSWMA, quarterly meetings between parties and a complementary system of penalties for contractual breaches (backed by clear performance thresholds) will help to improve the NSWMA's monitoring capability.

4. Complete pilot project in Portmore

The NSWMA announced in 2015 a pilot privatisation project in Portmore. The NSWMA should complete the pilot project and use the knowledge and experience gained to inform a broader privatisation process. However, this project will likely not offer significant insight into privatising landfill management.

5. Retain some capacity

Solid waste management should not be completely privatised. The NSWMA should retain some capacity to carry out SWM activities if, for some reason, a private company leaves the market or fails to carry out its duty.

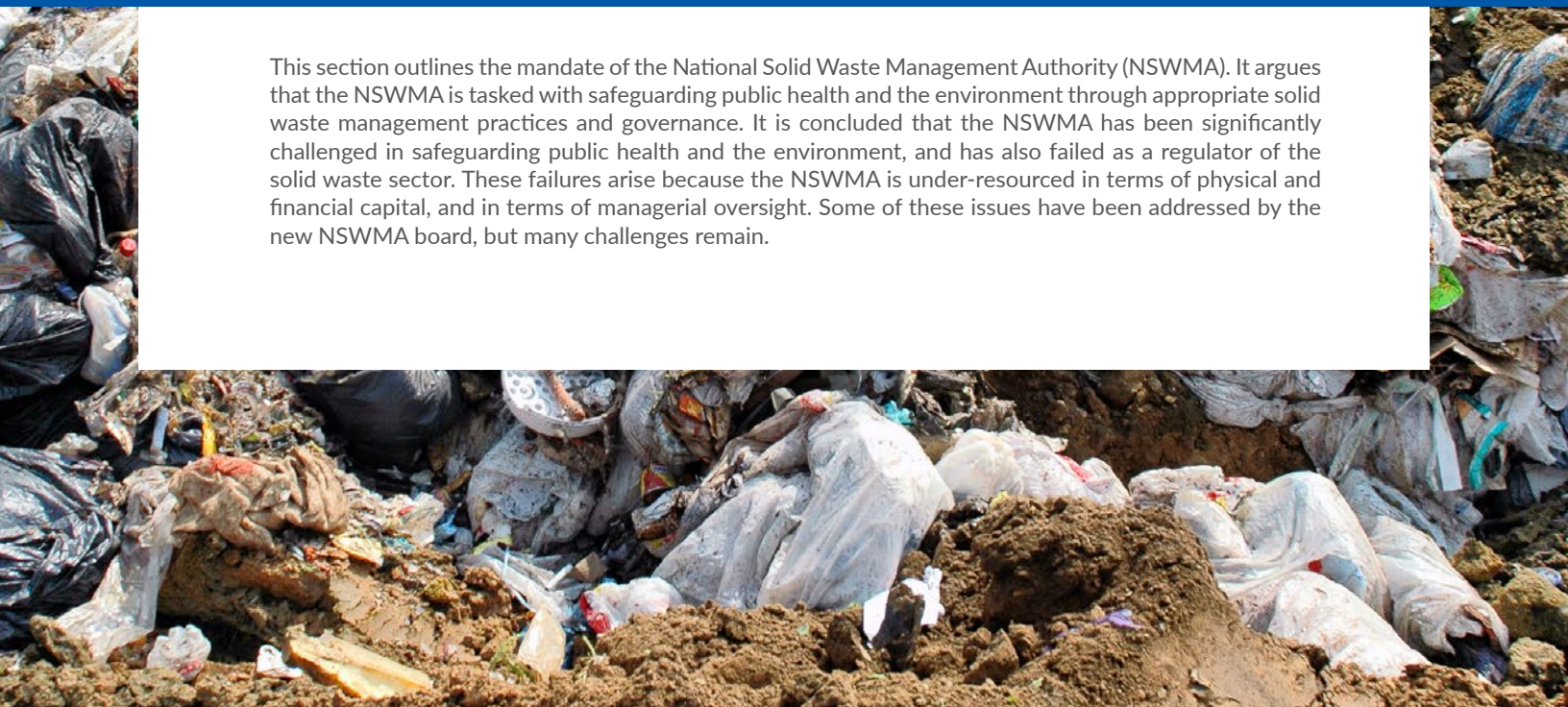
6. Incentivize sustainable waste practices by waste generators

Use policy tools such as taxes and tariffs to accomplish this objective. Consider requiring canteens, hotels, restaurants and supermarkets to have their food waste processed (or segregated for collection) rather than simply discarded. Similarly, tax breaks/penalties should be explored for influencing businesses to separate their waste in specially labelled containers for collection and recycling.



1.0. THE MANDATE OF THE NSWMA

This section outlines the mandate of the National Solid Waste Management Authority (NSWMA). It argues that the NSWMA is tasked with safeguarding public health and the environment through appropriate solid waste management practices and governance. It is concluded that the NSWMA has been significantly challenged in safeguarding public health and the environment, and has also failed as a regulator of the solid waste sector. These failures arise because the NSWMA is under-resourced in terms of physical and financial capital, and in terms of managerial oversight. Some of these issues have been addressed by the new NSWMA board, but many challenges remain.



1.1. IS THE NSWMA FULFILLING ITS MANDATE?

The National NSWMA was established by the National Solid Waste Management Act (2001) to “take all such steps as are necessary for the effective management of solid waste in Jamaica in order to safeguard public health, ensure that the waste is collected, stored, transported, recycled, reused or disposed of, in an environmentally sound manner and promote safety standards in relation to such waste.”³ According to the Office of the Public Defender (OPD), “The authority was established by parliament to regulate the industry of waste disposal and to provide a regime for the collection, disposal, recycling and converting of existing dumps into sanitary facilities.”⁴ The NSWMA’s mandate can therefore be broken down into two areas:



Health and Safety of the population as a result of solid waste management processes and regulations. Indicators such as the number of persons receiving medical attention due to inappropriate treatment of solid waste or ineffective management can be used to evaluate the accomplishment of this objective.



Environmental Safety of solid waste management practices. Air pollution levels, the contamination of water bodies, the frequency of fires, the frequency of garbage collection, etc. are indicators that can be used to measure the accomplishment of this objective.

In 2015, CaPRI published a policy brief - Managing Urban Waste-Sheds: Emphasis on the Riverton Landfill. While the policy brief placed special focus on the Riverton waste-shed (considering that 60 percent of the country’s waste is disposed of in that location), the report indicated that the NSWMA has faced significant challenges in disposing of waste in an environmentally safe manner and has consequently placed the health of Jamaican citizens in jeopardy. The current operation of the Riverton waste-shed for example, located close to mangroves and the Duhaney River, results in water pollution. There has also been heavy metal contamination from cadmium, manganese, lead and pesticides at the dump. Harmful gases such as nitrogen dioxide and sulphur dioxide, as well as volatile organic compounds had been found in high concentration in surrounding areas, with PM10⁵ analyses within one kilometre and two kilometre radii concluding that the air quality was “high risk” and “risky” respectively.

Fires have also plagued NSWMA disposal sites annually, which ultimately result in significant air pollution and risks to public health. Annually, there is at least one fire at the Riverton disposal facility.⁶

**IN 2012
A FIRE
WHICH LASTED
6 DAYS**
cost the Gov't almost
\$25M
to extinguish⁷

IN MARCH 2015
The entire Riverton site was on fire

120 ACRES

63 schools had to be closed in Kingston, St. Andrew and St. Catherine, affecting...

Rescheduling of Grade Six Achievement Test (GSAT) affected

40,000 STUDENTS⁹

The Public Defender's 2016 report stated

1,000 CITIZENS
fell ill and had to seek medical attention

61,447 STUDENTS
3,137 TEACHERS⁸
(not including preparatory or private schools)

The Port of Kingston was forced to close due to health risks and the fire cost over

\$200 MILLION
to extinguish¹⁰

While public health concerns due to fires at The Riverton land-fill are perhaps the most severe of all the NSWMA's landfills, these are not the only incidents.

IN MARCH 2015 & JANUARY 2016

THE RETIREMENT LANDFILL IN ST JAMES WAS SET ABLAZE

³ National Solid Waste Management Act, 2001.

⁴ OPD, March 2016, pg. 26.

⁵ Particulate matter less than 10 microns.

⁶ OPD

⁷ OPD, 2012.

⁸ OPD, 2016.

⁹ OPD, 2016.

¹⁰ Jamaica Observer, May 6, 2015

Infrequent garbage collection has also been an issue for the NSWMA. In 2014, the NSWMA urgently needed \$5 billion to address the matter of uncollected garbage across the island.¹¹ Residents of Portmore complained of the unreliable service of the NSWMA in 2015, forcing them to either burn or bury their garbage, both of which are environmentally harmful.¹² On various occasions, the NSWMA has faced challenges with collecting solid waste.

These examples demonstrate the inefficiencies of the NSWMA in carrying out its mandate. More conclusively, even state agencies have made this pronouncement about the NSWMA. The 2011 report from the Auditor General's Department (AGD) concluded that Southern Parks and Markets (SPM), subsumed by the NSWMA, breached the policy to collect garbage within 24 hours. Garbage remained uncollected from 6-14 days in Clarendon, St. Elizabeth and Manchester. In July 2012, the National Environment and Planning Agency (NEPA) served the NSWMA with a summons for breaching the Natural Resources Conservation Authority (NRCA) Act. These breaches were for operating a solid waste disposal site without an Environmental Permit (contrary to Section 9(2) of the NRCA Act), and failing to provide information requested by the NRCA/NEPA relating to its waste disposal facility at Riverton.¹³ In April 2014, NEPA also served the NSWMA with an Enforcement Notice and a Notice of Intention to Suspend Permit following another major fire.¹⁴ Definitively, the Office of the Public Defender states, "our investigation has revealed that the NSWMA has repeatedly breached its obligations under the [National Solid Waste Management] Act."¹⁵

Finally, another mandate of the NSWMA is to regulate the solid waste sector. [The NSWMA has taken on the role as waste collector but has largely neglected its role as a regulator of an industry, setting standards, and governing the developments that take place within the sector.](#) In fact, "the legislation did not and does not permit the authority itself to engage in garbage collection of waste as its core function."¹⁶ This does not preclude the NSWMA from directly participating in the market. However, its primary function, conceptually, was that of a regulator.

Ultimately, public health, the environment, public finance, education, and commerce have all been compromised by ineffective solid waste management. "Parliament's intention when enacting the NSWMA remains unrealised [and] unfulfilled."¹⁷

1.2. WHAT EXPLAINS THE INEFFICIENCIES OF THE NSWMA?

Dorvil (2007) examines the solid waste management sector in low and middle-income countries (LMIC). The findings of this study resembles the situation in Jamaica. In these countries, the solid waste management sector is usually inadequately structured and staffed by the public sector. The funding system is often outmoded and incapable of covering the total costs of service. Dorvil also notes that legal frameworks addressing environmental issues are often well-designed, but the enforcement of environmental laws tends to be weak. This is often due to, among other things, the regulatory framework, minimal financial capacity and low technical capacity. Public authorities in LMIC are generally unaware of the exact costs of their service.¹⁸ On average, the true costs of municipal services are 30 percent greater than the amounts reflected in the municipal budget.¹⁹ These features of LMIC bear some resemblance with the Jamaican reality.

Additionally, the NSWMA has a resource problem; it lacks sufficient financial resources and appropriate management to effectively carry out its duties. ... 274 trucks were needed to optimally service all 14 parishes. However, the NSWMA owned only 55, most of which were not working, while another 50 were hired.

The poor road conditions in many of Jamaica's informal communities is one factor impeding the effective operations of the NSWMA.²⁰ Narrow, unpaved roads (and sometimes absence of roads entirely) make it difficult for garbage trucks to traverse through certain communities to collect garbage.

¹¹ Jamaica Gleaner, September 29, 2014.

¹² Jamaica Gleaner, March 15, 2015.

¹³ This breach contravened Section 17 of the NRCA Act

¹⁴ The Enforcement Notice required that the NSWMA extinguish the fire and cease the discharge of smoke within the three days at the Riverton City Disposal Facility and submit within 14 days of the Notice, a detailed report of the incident which started the fire

¹⁵ OPD, 2012.

¹⁶ OPD, 2016. Pg. 26.

¹⁷ OPD, 2016. Pg. 70.

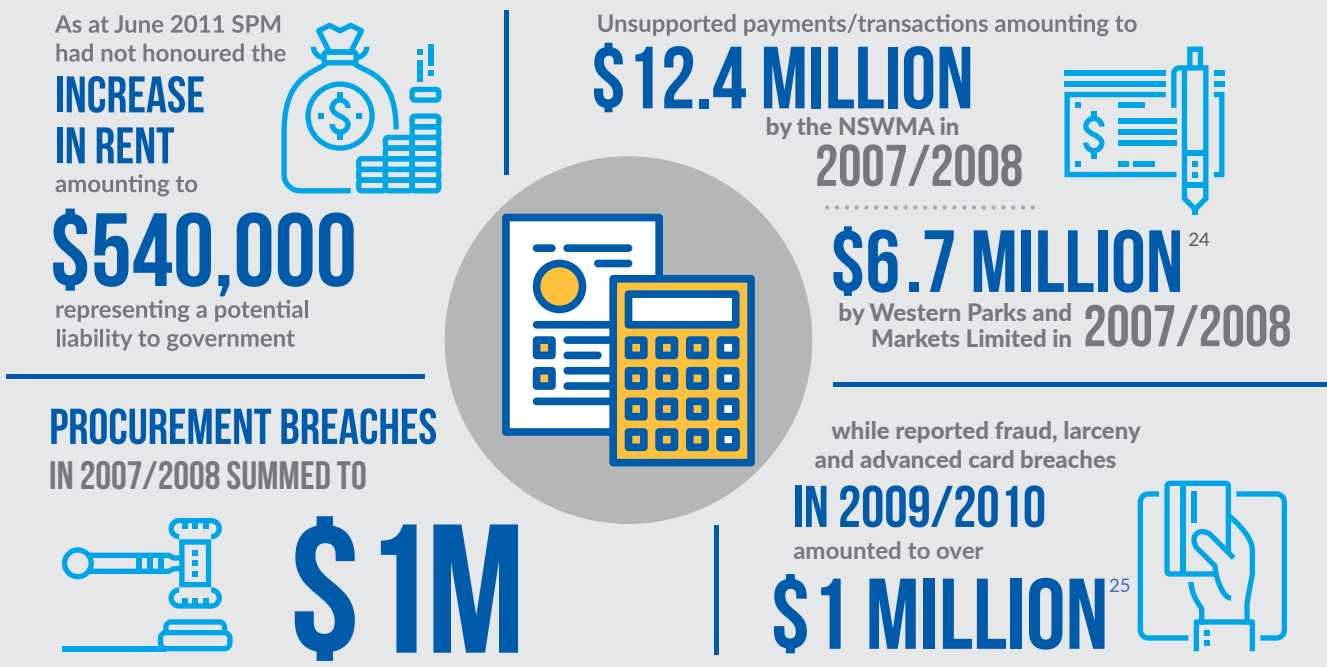
¹⁸ Dorvil, 2007.

¹⁹ Dorvil, 2007 citing Savas, 2000)

²⁰ NSWMA, 2016.

Additionally, the NSWMA has a resource problem; it lacks sufficient financial resources and appropriate management to effectively carry out its duties. According to the Auditor General's Department's 2011 report, Southern Parks and Markets (SPM) concluded that insufficient trucks were assigned to the region and this impaired its ability to effectively service the areas for which it was responsible. Similarly, Jennifer Edwards, then Executive Director of the NSWMA in 2014, noted that 274 trucks were needed to optimally service all 14 parishes. However, the NSWMA owned only 55, most of which were not working, while another 50 were hired.²¹ This means that the NSWMA had less than 20 percent of the fleet required to properly collect garbage. Edwards further stated that the NSWMA was impeded by frequent malfunction of compactors.²² These conclusions were further reiterated in December 2015 by newly appointed chairman of the NSWMA, Dennis Chung, who stated that the NSWMA's fleet was short of 120 trucks.²³ The NSWMA therefore faces significant resource constraints.

However, the number of breaches found by the Auditor General's Department (AGD) may indicate a human resource or managerial problem at the Authority as well. In 2011, the AGD found that SPM failed to renew lease agreements for the rental of two properties it occupied. In one instance, the lease agreement had expired since 2004. It was also found that one of the landlords had increased the rent despite the fact that the lease had expired.



The 2014 AGD report iterated similar management issues. The AGD found that the NSWMA failed to table audited financial statements and annual reports in the House of Parliament for an entire decade, contravening Sections 12 and 13 of the National Solid Waste Management Act. Consequently, the NSWMA's ability to ensure and facilitate proper oversight of its financial activities and assessment of its state of affairs had been impaired. This, according to the AGD, will "prejudice the development of evidence based strategies."

However, some of these issues have been addressed by a new board (of the NSWMA)²⁶ appointed by then Minister of Local Government, Noel Arcsott in April 2015. In December of the same year, the chairman of the new board announced that the NSWMA had completed and uploaded its Corporate Governance Framework to its website and that consultants were working to produce outstanding audited financial statements.

Ultimately, the NSWMA has been characterised by significant and sometimes systemic challenges in executing its mandate. The authority has been under-resourced both in terms of physical and financial capital, and in terms of managerial oversight. Not only does ineffective management result in pollution, but poor financial management results in a lack of transparency and inhibits evidence-based strategic decision making. Poor management also results in significant costs to the government, particularly at a time when the government needs to maintain budget targets while focusing on creating an enabling environment for economic growth. Some of these issues have been addressed by the new board of the NSWMA, but other challenges remain. In light of the resource constraints of the NSWMA, and the government by extension, privatising the authority is a viable option.

²¹ Jamaica Gleaner, September 29, 2014.
²² Jamaica Gleaner, September 29, 2014.
²³ Jamaica Gleaner. December 18, 2015.

²⁴ The NSWMA also subsumed Western Parks and Markets Limited.
²⁵ AGD, 2011.
²⁶ OPD, 2016.



2.0. INTEGRATED SUSTAINABLE SOLID WASTE MANAGEMENT (ISSWM) PRINCIPLES

Conceptually, if not specifically stated by name, the NSWMA was established to address solid waste in an integrated and sustainable way. It is important to explore the principles of ISSWM for two reasons. First, these principles define the ideal outcome of solid waste management in the 21st century. Second, it is by understanding these principles that the best strategies towards effective and efficient solid waste management can be executed. Any consideration of privatising the NSWMA must therefore be done in a way that ensures that privatisation helps to achieve ISSWM rather than become an obstacle to it.

According to the World Bank, a sustainable system is one that is:

- Appropriate to the local conditions in which it operates, from a technical, social, economic, financial, institutional, and environmental perspective, and;
- Capable of maintaining itself over time without reducing the resources it needs.

An integrated system is one that:

- Uses a range of inter-related collection and treatment options, at different habitat scales (household, neighbourhood, city)
- Involves all stakeholders, be they governmental or non-governmental, formal or informal, profit- or non-profit oriented
- Takes into account interactions between the waste management system and other urban systems

According to Dorvil (2007), ISSWM is built on four principles:

- **Equity:** all citizens are entitled to an appropriate waste management system for environmental health reasons.
- **Effectiveness:** the waste management model applied will lead to the safe removal of all waste.
- **Efficiency:** the management of all waste is done by maximizing the benefits, minimizing the costs and optimizing the use of resources, taking account of equity, effectiveness and sustainability.
- **Sustainability:** the waste management system is appropriate to the local conditions and feasible from a technical, environmental, social economic, financial, institutional and political perspective. It can maintain itself over time without exhausting the resources upon which it depends.



The term “hierarchy principle” is also important to this discussion. The hierarchy principle emphasizes that when it comes to waste management, the following should be given priority in descending order:

1. Avoid the generation of solid waste
2. Reduce the negative impacts of waste that is generated
3. Reuse the materials recovered from waste stream
4. Recycle, compost or recover materials to new products
5. Recover energy by incineration, anaerobic digestion or similar processes
6. Dispose of waste in sanitary landfills

Consequently, the hierarchy principle outlines a structure that prioritises waste prevention and minimization, and utilizes waste disposal as a last resort. This is graphically represented in **Figure 1** below.

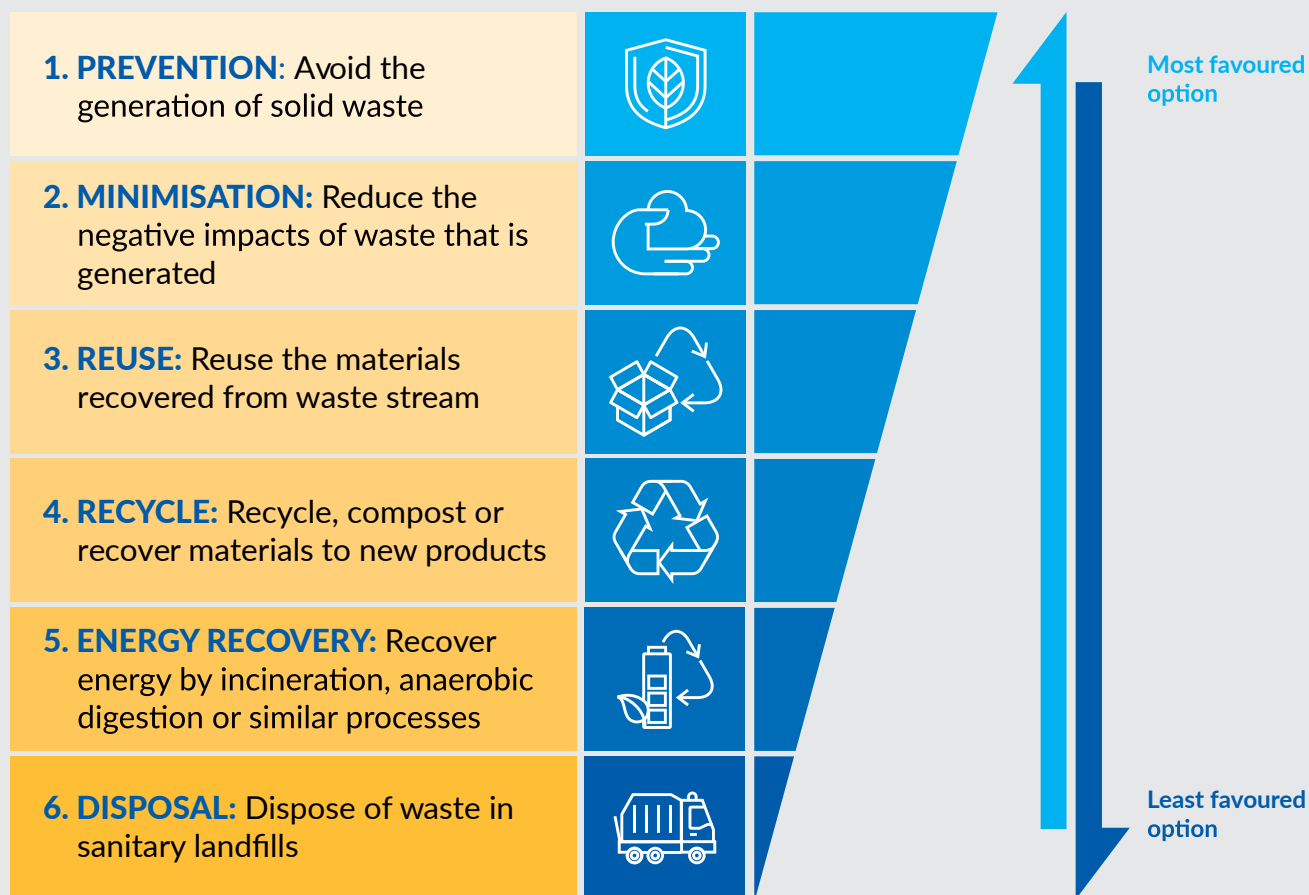


Figure 1: Hierarchy Principle

It is also important at this juncture to highlight another principle relevant to private sector participation (PSP) in the solid waste management sector. This is known as the “user pays” or the “polluter pays” principle. The user pays principle states that those benefiting from a waste disposal service should bear the cost of this service.²⁷ Otherwise, they have no incentive to abide by the hierarchy principle. However, there are challenges with the user pays principle for low income communities. This will be further discussed in [Section 3.3](#) and [4.0](#).

The United Nations Development Programme (UNDP) designed a framework that took into account the fact that industries, commercial entities and households tend to generate different types of waste. For example, while a manufacturing plant might produce chemical waste and an office may generate a lot of waste paper, households would generate much domestic waste such as food peelings. As such, different licenses would be issued based on the point from which waste would be collected. Specific landfills would also be designated for the type of waste collected. So industrial waste, for example, would be disposed of in a one facility, while commercial and domestic would be disposed of in another. Additionally, recyclable material would be transported to the recycling industry. [Figure 2](#) presents a graphical representation of the solid waste management framework.

²⁷ Dorvil, 2007.

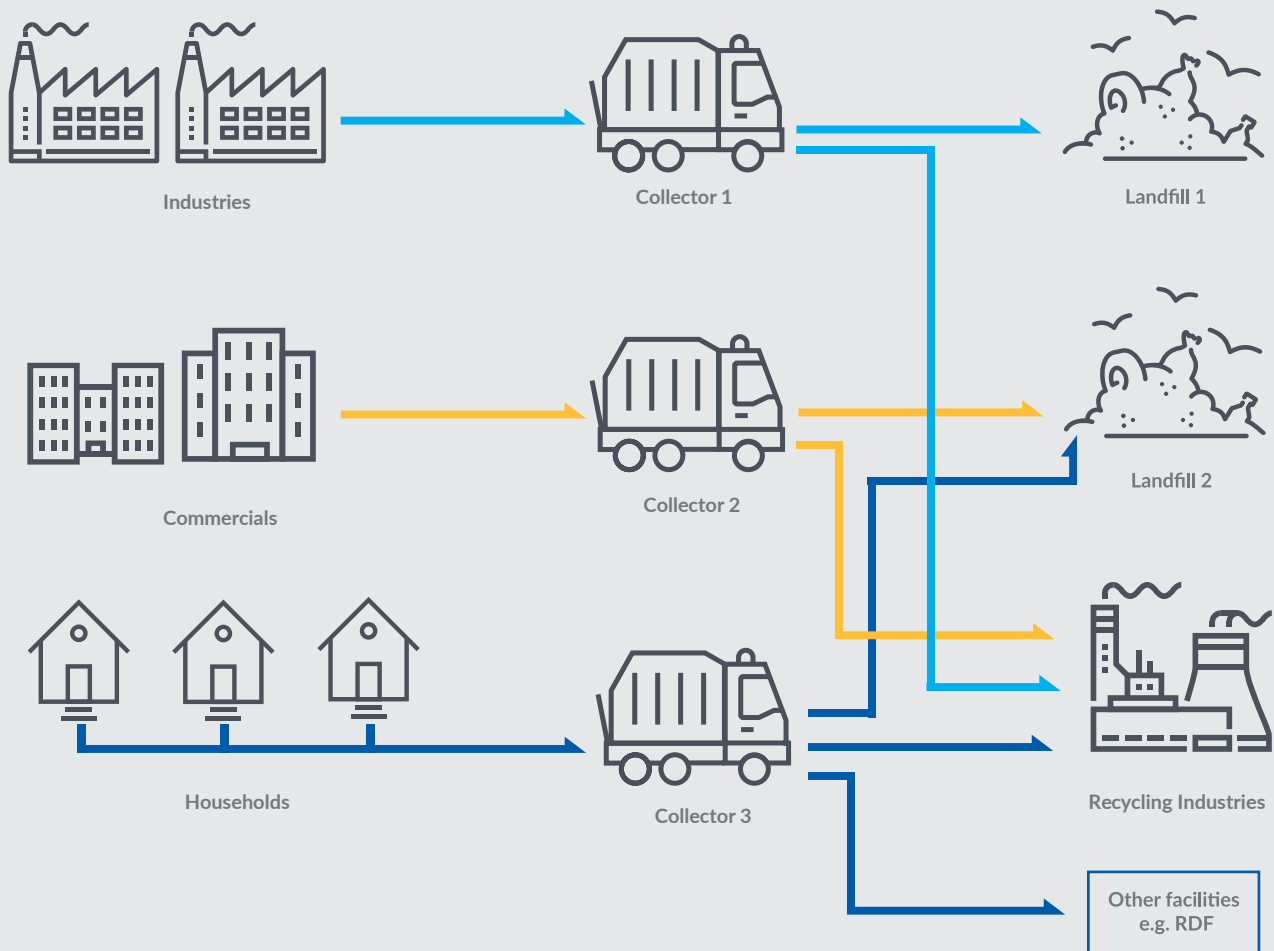


Figure 2: Solid Waste Management Framework

Source: UNDP, 2008

ISSWM ultimately differs from conventional approaches to solid waste management by “seeking stakeholder participation, covering waste prevention and resource recovery, including interactions with other systems and promoting an integration of different habitat scales (city, neighbourhood, household).”²⁸ The idea is to minimise the generation of waste, reuse and recycle waste that is generated, and as a final option, dispose of non-recyclable/non-reusable waste in an environmentally friendly manner. Creating and regulating such a solid waste system is taken in this report as the ideal outcome for the NSWMA.

²⁸ World Bank, 1999.

3.0. PRIVATISATION ISSUES AND PERSPECTIVES

This section explores several issues regarding privatisation in the solid waste management sector. It establishes that private sector participation (PSP) in solid waste management is a global trend and that the NSWMA was originally set up to include the private sector. However, privatisation does not automatically fix solid waste management (SWM) problems. Arguments for and against privatisation are presented in this section. So too are the prerequisites for the successful involvement of PSP in SWM. The features and limitations of various privatisation models are also presented in this section.

R E C Y C L I N G



Privatisation can be broadly defined as relying more on private institutions and less on government to deliver public services. There are various types and degrees of privatisation. In absolute terms, “privatisation” is the sale to private owners of state-owned assets. However, “privatisation” is more loosely used to describe cases where public services have been contracted out to private firms, and where public authorities remain legally responsible for public services. This case is more pointedly referred as “private sector participation (PSP).”

Given global trends, it is no longer a question of if the private sector should participate in solid waste management. Rather, the question surrounds the extent to which the private sector should be involved. In fact, the NSWMA was originally set up to include private sector participation.

Global trends indicate a general movement towards private sector participation in solid waste management. For instance, international firms from France, Spain and the USA are operating in Morocco as well as their home countries.²⁹ Given global trends, it is no longer a question of if the private sector should participate in solid waste management. Rather, the question surrounds the extent to which the private sector should be involved.³⁰ In fact, the NSWMA was originally set up to include private sector participation. In the Public Defender’s 2016 report on the Riverton Fire, excerpts of the parliamentary debate to establish the NSWMA were quoted. One Member of Parliament stated,

“It must be understood, Mr. Speaker, that the law provides, not that it is going to be the National Solid Waste Management Authority itself that is going to be managing and operating these sites but the opportunity that is given here by this piece of legislation, Mr. Speaker, is to have private sector participation and this is important... because you will be now able instead of relying on one authority or Parks and Markets companies to collect waste that is generated, to have private sector participation...you can have persons operating landfills, persons recycling, persons collecting...”³¹

It is therefore clear that the founders of the NSWMA intended to include the private sector in solid waste management in Jamaica, and given the present resource constraints of the NSWMA, the authority has announced a pilot project to privatise the disposal of residential garbage in Portmore.³² With a shortfall of 120 trucks, the NSWMA has sought the help of private contractors to compensate for their low capacity. However, while PSP can lead to improved solid waste management, it is a flawed assumption that including the private sector will automatically solve all solid waste management problems.³³

3.1. ARGUMENTS FOR AND AGAINST PRIVATISATION

Cointreau-Levine summarises the main arguments in support of privatisation well. [Arguments in favour of privatisation include:](#)

- Where existing public service delivery is either too costly or inadequate, private sector participation can enhance efficiency and lowers costs by introducing commercial principles and greater attention to customer satisfaction.
- In situations where local public funds for investment are in significantly short supply, the private sector may mobilise financial resources for investment.
- The private sector is well placed to draw on local and international experience in the waste management field and introduce cost effective technologies along with management expertise.

The main benefits of privatisation therefore surround greater levels of efficiency and less pressure on the government’s budget.³⁴ Indeed, according to the World Bank, surveys conducted in the United States, Canada and the United Kingdom, showed that services provided by government monopolies cost 25 to 41 percent more than competitively contracted services. It further articulates that in a study of five major Latin American cities, private contracting halved service costs through higher labour and vehicle productivity.

However, opponents of privatisation argue that:

- Privatisation tends to weaken the state and its capacity to care for social equity. By weakening the state, privatisation erodes the significance of democratic participation at the national and sub-national level.
- Privatisation negatively impacts other public goods such as environmental and cultural values; commercial principles are instead given priority.
- The need of private firms to make a commercial profit adds to the cost of providing public services. Hence, the cost of services are higher when provided by the private sector when compared to the public sector.

²⁹ Dorvil, 2007.

³⁰ Ibid.

³¹ OPD, 2016

³² Jamaica Gleaner, December 18, 2015.

³³ Dorvil, 2007.

³⁴ United States National Solid Waste Management Association.

- The private sector never truly assumes risks associated with providing public services. Where costs are greater than revenues, private operators respond by demanding government subsidies, raising charges, cutting necessary investment and maintenance, or leaving the sector all together.
- New operators may generally start firing excess employees, and this is one of the most vexing issues facing state-owned utilities in nearly every developing country.

Opponents therefore argue that the private sector's motivation to maximize profits will supersede all other important considerations such as the environment.

Ultimately, privatisation policy debates have largely been little more than competing anecdotal evidence; those favouring privatisation tell their best stories while those opposed tell theirs, often using narrow experiential evidence to describe a general issue. "Hence, the question is not whether privatisation and private sector development should occur, but how it can be done in an optimal way, that is, how to reach social goals through enterprise growth, how to avoid market distortions by supporting enterprises and how to regulate and enter into dialogue with the business sector."³⁵

3.2. PREREQUISITES FOR PRIVATE SECTOR PARTICIPATION

Several issues need to be taken into account when addressing the involvement of the private sector in solid waste management. These include efficiency, accountability, management, legislation, finance and costs.³⁶ Cointreau-Levine argues that cost effective and adequate services can only be reached by creating effective procedures and fair competition; accountability for both contract parties; and the comprehensive monitoring of contract services. She makes the following recommendations:

- The balance between private sector and public management should be maintained;
- Contractual periods that enable economic depreciation of assets and repayment of loans should be developed;
- Develop techniques and facility sizes that are appropriate and economically viable;
- Define private sector service zones that are equitable and comparable for optimum competition and achieve economies of scale and optimum spans of management;
- Rationalize collection and transfer haul distances to minimise costs;
- Seek cooperation with private sector partners for win-win contractual and operational relationships;
- Build government capacity to work as an effective partner in contracting and performance monitoring.
- Encourage private sector joint ventures that bring foreign expertise and optimize the use of local knowledge and skills.

Dorvil (2007) addresses six key prerequisites for the sustainable involvement of the private sector in solid waste management. These are contestability, capacity building, competition, provision of accurate information, accountability, and monitoring.



a) Contestability

Contestability means that firms have the freedom to enter and leave the market with relative ease. This involves ensuring that non-recoverable costs (such as advertising) are low. To achieve this, it is recommended that zones served by public authorities should cover at least 30 percent of the population of the urban area. To create contestability and to ensure a minimum level of managerial capacity of municipalities, it is also recommended that the private sector should service no more than 70 percent of any city, and the remainder should be served by the government. This way, in the event that the private contractor is unable to carry out its contractual obligations, the government retains the capacity to quickly intervene and provide solid waste services to citizens without them being significantly inconvenienced.

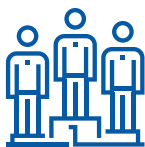


b) Capacity building

The strengthening of municipal authorities is usually required for the introduction of PSP. Municipal managers ought to be able to set up contract specifications or delegate this activity to private agencies. Municipalities would also have new responsibilities which include monitoring the performance of new private operators.

³⁵ Dorvil, 2007. pg 74

³⁶ Cointreau-Levine, 1994.



c) Competition

Competition usually increases efficiency. However, competition depends heavily on the type of services to be provided. Because private sector partnership in ISSWM is not fully developed in lower and middle income countries, all approaches need to consider the current number, capability and interests of private contractors.

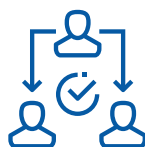
Citing Savas (2000), Dorvil notes that the most thorough studies included the costs incurred by cities for contract preparation, bidding, monitoring contractor performance, contract administration, etc. in the cost of the contract work. These studies concluded that the cost of municipal collection is about 35 percent³⁷ greater than the total cost to the city of contract collection.

Finally, comprehensive unbundling of service areas in order to allow several private contractors to provide sweeping and waste collection services, as well as the participation of public service providers in tender procedures, are among the options to facilitate more competition in the SW market.



d) Provision of accurate information

All relevant financial and technical information and data need to be clearly and transparently outlined in the bidding documents. Contracts need to be specified in a comprehensive, fair and objective manner. Inaccurate or inadequate information can lead to cost overruns, low service quality and other externalities.



e) Accountability

The principle of accountability needs to be embraced by both parties to the contract (public and private sector). The private partners should feel that they are accountable to the beneficiaries of the service and to the contractual authorities. The performance of the contract should also be managed by good inter-organisational relationships, the use of performance bonds, and, as a last resort, the use of penalties.



f) Monitoring

Evaluating efficiency and effectiveness is underpinned by performance monitoring. For municipal authorities to effectively monitor private contractors, substantial capacity building and is required. However, in LMIC, contract specifications or conditions often fail to reflect the actual features of the city in question. The service level is often not affordable by residents living in low-income areas and public management often has no accurate information on the real costs of the service. Adequate and accurate information, technical capacity and a strong inter-organisational relationship are critical for successful monitoring.

Ultimately, contestability, capacity building, competition, provision of accurate information, accountability, and monitoring are essential requirements for any attempt to include the private sector in SWM. Privatising the SWM sector without having these elements in place, will result in dire consequences.

3.3. PRIVATISATION MODELS

This section explores various privatisation models, their features and their limitations. “The selection of an appropriate contract model depends on the type of service to be provided (street-sweeping, waste collection, waste treatment, management of transfer station, waste disposal), service standards, the typology of the district in question, funding ability, and finally the existence of a marketplace with regard to the interests and financial and technical capability of the private firm.”³⁸ It is also worth noting that setting up many of these models is complex. Governments sometimes have to offer explicit guarantees, in which case, the government is left with significant contingent liabilities.³⁹

3.3.1. CONTRACTING OUT

Under this privatisation model, tasks are delegated from the public institution to a private firm deemed to have the financial and technical capacity to perform the tasks. Under this arrangement, the government remains legally responsible for the service and it bears some risk. Private contractors are usually paid based on contract specifications and not their operational efficiency. Noting that waste collection is the most studied solid waste management service, Dorvil (2007) makes the following conclusions:

³⁷ Dorvil, 2007.

³⁸ Dorvil, 2007. Pg. 78.

³⁹ Dorvil, 2007.

Contracting for exclusive collection zones is more efficient than having open private competition along the same route. Having many private companies operate on the same route is cumbersome, leading to what is known as the collision effect. Importantly, comparative costs between the private sector and the public sector should not be the only factors considered when contracting out. There are 3 sets of costs that must be considered when deciding between contracting out, contracting in (public management), and direct public management. These are (i) the direct costs of public management, (ii) the costs of the outside service contractor, and (iii) the internal costs which include personnel, equipment and materials. The cost of the outside service usually include the agreed upon price of the contract. Internal costs include everything related to the bidding process and monitoring of contractual agreements. Transaction costs, incurred whether or not the private sector is determined to be more efficient (by comparative cost analysis), is often not considered when contracting out.

Ideally, when contracting out, the government is a skillful purchaser, well equipped to monitor the services of the private contractor, an efficient collector of taxes and makes proper and timely payments to the contractor. However, for LMIC like Jamaica, this is not the case.

Ideally, when contracting out, the government is a skillful purchaser, well equipped to monitor the services of the private contractor, an efficient collector of taxes and makes proper and timely payments to the contractor. However, for LMIC like Jamaica, this is not the case. Jamaica faces tax collection challenges, and as has been highlighted in [Section 1.0](#), is not always an effective monitor and regulator. As Dorvil (2007) puts it, “the issue is how one can expect a municipal authority to monitor a service properly when it has no experience in what sound SW service should look like.” Another limitation of contracting-out arrangements is that the contract period for some waste elements are short, usually lasting 5 years, and they usually only focus on improving services to existing customers rather than on reaching the urban poor.⁴⁰

Another limitation is the “on again/off again” phenomenon. This refers to the case of governments contracting out solid waste services for a time, following which, some issue would arise causing the arrangement to fail, resulting in the government executing the solid waste services. This would then be privatised again, only to eventually return to being executed by government agencies, and the cycle would continue. This happened in Ghana and the city of Abidjan, Côte d’Ivoire.⁴¹ In the case of Abidjan, one private company provided waste management services from 1953 to 1990. The government resumed direct responsibility for the next two years, following which, another private company, SITAF, was contracted to clear household solid waste and sweep principal streets. The contract was negotiated every 5 years. The monthly fee was based on a calculation of the tonnage of waste transported and the distance covered. The monitoring of the service provider was considered. The escalating costs of service and the fact that the government and SITAF did not have the same information regarding true costs of the service, lead to the contractual arrangement failing.⁴² This demonstrates how a lack of symmetric information (a case where both parties have the same information) or asymmetric information (a situation in which one party in a transaction has more or superior information than the other) can negate the expected benefits of privatisation. This is what characterizes what is known as the “Principal-Agent problem”.

The case of Ghana was similar. Historically, public authorities were responsible for solid waste management. Services were later outsourced, only to have these services executed by the government again. Again, solid waste services were contracted out which led to a private monopoly which charged public authorities US\$12 per ton collection.⁴³ This fee was considered too high for the economic level of the country, and the arrangement eventually failed. The case of Ghana demonstrates that simply turning over public service delivery to the private sector without ensuring that the necessary fundamentals that make such arrangements successful are in place, results in weakening public management capacity.⁴⁴

In tandem with the limitations of the contracting-out model of privatisation, [Table 1](#) describes the limitations of contracting-out various elements of the solid waste management system.

To make contracting out successful, the following are required:⁴⁵

- i. There must be unambiguous service specifications, the availability of several potential providers and a competitive environment.**
- ii. The government should be able to adequately monitor the contractor.**
- iii. It is critical that comprehensive thresholds be included in the contractual agreement.**
- iv. Transaction costs should be taken into consideration when formulating the contract.**

⁴⁰ Dorvil, 2007.

⁴¹ Dorvil, 2007.

⁴² Dorvil, 2007.

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Dorvil, 2007; Cointreau-Levine.

	APPLICATION	DURATION	FEATURES	LIMITATIONS
Street sweeping	Common	6 months to 2 years	<ul style="list-style-type: none"> • Public authorities legally responsible for the service • Low technology required • Unbundling in geographic section • High involvement of national small and medium enterprises (SME) • Low economic risk • Labour intensive 	<ul style="list-style-type: none"> • Challenge in establishing threshold in contractual arrangement • Sound public awareness required • High transaction costs
Waste collection and transport	Common	6 months to 2 years	<ul style="list-style-type: none"> • Low technology required • Unbundling in geographic section • High involvement of national SME • Low economic risk Labour intensive 	<ul style="list-style-type: none"> • Setting up threshold in contract challenges • Sound public awareness required • High transaction costs • Risk “on-again/off again” • Principal-Agent problem • Asymmetric information (Symmetric Lack of Information)
Transfer station	Common	3 years to 10 years	<ul style="list-style-type: none"> • Competition foreclosed after bidding 	<ul style="list-style-type: none"> • Risk “on-again/off again” due to weakness of public management. • No incentive from private sector side to strengthen and develop public managerial capacity • Principal-Agent problem • Asymmetric information (Symmetric Lack of Information)
Recycling treatment plant	Common	3 years to 15 years	<ul style="list-style-type: none"> • Same as above 	<ul style="list-style-type: none"> • Same as above
Composting treatment plant	Common	3 years to 15 years	<ul style="list-style-type: none"> • Same as above 	<ul style="list-style-type: none"> • Same as above
Landfill managemen	Common	3 years to 30 years	<ul style="list-style-type: none"> • Same as above 	<ul style="list-style-type: none"> • Same as above

Table 1: Limitations of the contracting-out model

Source: Dorvil, 2007.

3.3.2. FRANCHISE

“A franchise is an award of monopoly privileges to a private firm to supply a particular service in a specified area, usually with a price regulation imposed by a government agency.”⁴⁶ The private company would collect its own revenues from waste generators within the zone or from the sale of solid-waste by-products removed from the zone. In exchange for this exclusive franchise, the private firms pay a fee to the municipality. The public authorities would remain responsible for monitoring the private firms and would also retain the right to renew or terminate licenses. The most significant concern with franchise arrangements is that customers are generally unwilling to pay for the service, but would instead, improperly dispose of the waste themselves.⁴⁷ Alternatively, persons will utilise waste storage units owned by paying customers, or in some other way, benefit from waste collection without having to pay for it. This is the “free-rider” problem. This would negatively affect those customers who regularly pay their fees. As Table 2 illustrates, the difficulties faced with the franchise model in SWM is establishing clear thresholds for monitoring performance, the fact that many persons do not pay for the service (and are likely to improperly dispose of solid waste), and free-rider problems.

	APPLICATION	DURATION	FEATURES	LIMITATIONS
Street sweeping	Not very common	6 months to 2 years	<ul style="list-style-type: none"> • Exclusive rights to perform in a zone • Private sector pays a fee for the license and charge beneficiaries directly • Low technology required • Unbundling in geographical section • High involvement of national SME 	<ul style="list-style-type: none"> • Difficulties in establishing threshold • Non-payment of beneficiaries
Waste collection and transport	Quite common	6 months to 2 years	<ul style="list-style-type: none"> • Same as above 	<ul style="list-style-type: none"> • Collision effect • Non-payment of beneficiaries • Free-rider problem
Transfer station	Not very common	3 years to 10 years	<ul style="list-style-type: none"> • Competition foreclosed after bidding • Private sector pays a fee for license 	<ul style="list-style-type: none"> • Weakening public management • Free rider problems
Recycling treatment plant	Not very common	3 years to 15 years	<ul style="list-style-type: none"> • See above 	<ul style="list-style-type: none"> • Same as above • Weakening public management Free rider problems
Composting treatment plant	Not very common	3 years to 15 years	<ul style="list-style-type: none"> • See above 	<ul style="list-style-type: none"> • Same as above
Landfill management	Not very common	5 years to 30 years	<ul style="list-style-type: none"> • Same as above 	<ul style="list-style-type: none"> • Same as above

Table 2: Limitations of the franchise model

Source: Dorvil, 2007.

⁴⁶ Dorvil, 2007.

⁴⁷ Dorvil, 2007.

3.3.3. CONCESSION

A Concession agreement is a negotiated contract between a company and a government that gives the company the right to operate a specific business within the government's jurisdiction, subject to certain conditions. Build and Transfer (BT), Build-Lease-Transfer (BLT), Build-Operate-Transfer (BOT), Build-Own-Operate (BOO), Build-Transfer-Operate (BTO), Contract-Add-Operate (CAO), Develop-Operate-Transfer (DOT), Rehabilitate-Operate-Transfer (ROT), Rehabilitate-Own-Operate (ROO), etc. are all variations of contractual arrangements that fall under the concession model. Under concession arrangements, the private sector finances and owns SWM facilities during the period contractually agreed on. In return, the municipality would usually grant and enable access to a specified quantity and quality of SWM services and provides some fees. Performance standards, methods of judging performance, liquidated damages for delay or non-performance, risk assignment, dispute resolution, standards for worker safety, health protection and environmental standards, etc. are usually specified in these arrangements. The agreement would usually last between 10 and 45 years.⁴⁸

The international private sector is usually interested in concessions for sanitary landfill operations because they have significant economies of scale and significant environmental spill-over effects, along with greater investment and skills requirements.⁴⁹ However, as is illustrated in **Table 3**, a high quantity of waste is required for the private landfill manager. This, however, compromises the hierarchy principle outlined in **Section 2.0**. Landfill managers would have no incentive to minimise, recycle or treat waste.⁵⁰ For this reason, this model should not be thoughtlessly applied. Furthermore, most concessions are on a "take or pay" basis, where fees are paid even if the guaranteed daily quantity of waste is not reached. It would typically take a minimum landfill capacity of 300 tons per day to attract the international private sector.⁵¹ Since few communities have this quantity of waste, one can consider bundling the needs of several small to medium-sized communities into one regional facility, particularly if the private company would be required to design, build, own and operate the facility under the concession agreement.⁵²

	APPLICATION	DURATION	FEATURES	LIMITATIONS
Street sweeping	Not very common	6 months to 2 years		
Waste collection and transport	Not very common	6 months to 2 years		
Transfer station	Quite common	3 years to 10 years	<ul style="list-style-type: none"> Private sector provides financing Key driver: Polluter pays principle (user charging) 	<ul style="list-style-type: none"> Weakening public management Competition foreclosed after bidding
Recycling treatment plant	Quite common	3 years to 15 years	<ul style="list-style-type: none"> Key driver: Polluter pays principle (user charging) Generation of fees by selling recycling materials 	<ul style="list-style-type: none"> See above
Composting treatment plant	Quite common	3 years to 15 years	<ul style="list-style-type: none"> Key driver: Polluter pays principle (user charging) Generation of fees by selling compost 	<ul style="list-style-type: none"> See above
Landfill management	Very common	5 years to 30 years	<ul style="list-style-type: none"> Key driver: Polluter pays principle (user charging) Competition foreclosed after bidding 	<ul style="list-style-type: none"> High quantity of waste required Minimum quantity of waste required No incentive in waste treatment Weakening public management Problems with hierarchy principle

Table 3: Limitations of concession model

Source: Dorvil, 2007

⁴⁸ Dorvil, 2007.

⁴⁹ Ibid

⁵⁰ Ibid

⁵¹ Ibid

⁵² Ibid

3.3.4. OPEN COMPETITION

Under the open competition model, each household contracts a private collection firm and pays the removal fees charged by the contractor. However, if several companies are competing in the same community, the collision effect occurs. The government would license private firms to compete with each other in providing solid waste management services. No firm has a monopoly with a zone and price regulation is not required. Each company would collect revenues from its beneficiaries. According to Dorvil (2007), such an arrangement is useful for commercial and industrial waste, but could be cumbersome if applied to municipal waste.

Nigeria provides an example of the limitations of open competition. In 1994, private waste collectors in the Ibadan urban area served an estimated 10,000 households and charged their customers directly.⁵³ No part of the city was designated to any one private collector. They all disposed of waste at dumpsites within the neighbourhood, but these sites were not frequently cleared, which presented an environmental and health hazard to the community and contributed to traffic congestion.⁵⁴

	APPLICATION	DURATION	FEATURES	LIMITATIONS
Street sweeping	Not very common			
Waste collection and transport	Common	6 months to 2 years	<ul style="list-style-type: none"> Waste generator directly contracts private firms 	<ul style="list-style-type: none"> Collision effect Contradiction to the public goods theory
Transfer station	Not very common	Competition foreclosed after bidding Private monopoly/oligopoly instead of public monopoly		
Recycling treatment plant	Not very common	Competition foreclosed after bidding Private monopoly/oligopoly instead of public monopoly		
Composting treatment plant	Not very common	Competition foreclosed after bidding Private monopoly/oligopoly instead of public monopoly		
Landfill management	Not very common	Competition foreclosed after bidding Private monopoly/oligopoly instead of public monopoly		

Table 4: Limitations of open competition model

Source: Dorvil, 2007.

3.3.5. PRIVATISATION MODELS: DISCUSSION AND CONCLUSION

Global trends suggest that it is not a question of whether SWM should be privatised. Rather, the question surrounds the extent to which the private sector should be involved. The solid waste market should be unbundled into segments where proper competition can be created. These segments include street sweeping, waste collection and transport, recycling and compost treatments and landfill managements. Another approach can be to use geographic divisions when engaging the private sector. However, privatisation will not automatically solve all problems and the limitations of all privatisation models must be considered when tailoring the privatisation of an agency to a particular context. This section examined the features and limitations of privatisation models that apply to solid waste management.

The solid waste market should be unbundled into segments where proper competition can be created. These segments include street sweeping, waste collection and transport, recycling and compost treatments and landfill managements. Another approach can be to use geographic divisions when engaging the private sector.

Contracting out is a very common privatisation model. Its main limitations include the low quality of information the government or the contractor may have prior to finalizing the deal. Consequently, there are high contraction costs (often neglected in calculations for the final contract) and requires significant public awareness. To make contracting successful, there must be a highly competitive

⁵³ Dorvil, 2007.

⁵⁴ Ibid

environment, the government should be able to effectively monitor the contractor, clear thresholds should be set and transaction costs must be taken into account.

Concessions are usually offered for large operations such as landfill management. However, a large quantity of waste is usually required to attract contractors, but this is in direct opposition to the priority given to waste minimisation, reuse and recycling principles of sustainable waste management. For this reason, careful thought should be given when considering giving concessions for landfill management. Dorvil (2007) states that a minimum of 300 tons of waste per day is usually required to attract the international private sector. Jamaica's two largest disposal facilities meet this criteria.



Private sector involvement in managing these two facilities is therefore an option for the Jamaican authorities.

Contracting-out and concessions are also quite common for recycling and composting plants. In Jamaica, roughly 57 percent of waste collected by the 4 parks and markets companies subsumed by the NSWMA is compostable.⁵⁷ Similarly, about 39 percent of Jamaica waste recyclable.⁵⁸ There is therefore room to consider private sector involvement in composting and recycling plants in Jamaica. However, like landfill management, there needs to be sufficient recyclable/compostable material to attract private sector investment. This is most feasible in urban areas with a high population and commensurate high quantities of recyclable/compostable materials within a limited geographic region. The smaller populations in rural Jamaica coupled with comparatively poorer road infrastructure will act as a barrier to encouraging private sector recycling and composting in rural communities.

The franchising model shares some of the limitations of the contracting-out model. In addition, the franchising model tends to suffer from a free rider problem and the non-payment of fees by beneficiaries. Finally, open competition, while feasible for the private sector, can be cumbersome for municipal waste collection and disposal.

Contracting-out and concessions may therefore represent the best models of privatisation for municipal and household solid waste management in Jamaica, particularly for urban Jamaica. However, tailoring a privatisation model to the specific realities of the country and the sub-region to be serviced is critical to the success of private sector participation in solid waste management.

⁵⁵ NSWMA, 2015

⁵⁶ Author's calculation based on NSWMA annual data.

⁵⁷ Author's calculation based on NSWMA, 2015 data.⁵

⁵⁸ Ibid

4.0. ILLUSTRATIVE CASE STUDIES

Does privatisation work in practice and what lessons can be learnt from the experiences of other countries? This section provides case studies of the Bahamas, Malaysia, and Egypt to help answer these two questions. These case studies serve merely an illustrative purpose and are not comprehensive reports on these countries. [Table 5](#) at the end of [Section 4.4](#) presents a summary of each case study and lessons that can be learnt from the experience.





4.1. THE BAHAMAS

Caribbean countries share similar features such as geography, income levels, small sizes (which impact the ability of firms to benefit from large scale operations), culture and general socio-economic issues such as informal communities, poverty and high levels of debt. However, a paucity of easily accessible information makes thorough analysis challenging and requires the use of non-traditional methods to access information. Nevertheless, the case of Bahamas below provides useful insights for addressing private sector participation in solid waste management in Jamaica.

In 2013, the Bahamian government issued a request for proposals (RFP) to privatise waste collection and landfill management. Prior to this, the government had been responsible for collecting 80 percent of residential waste; private operators were responsible for the remaining 20 percent. The decision to privatise was largely influenced by frequent fires at the New Providence landfill and the unsanitary condition in which it had become.⁵⁹

In 2014, companies such as Bahamas Waste and Advanced Disposal were awarded contracts for waste collection while Renew Bahamas, a 60 percent foreign-owned company, was granted a 5-year contract to create a recycling plant, carry out landfill remediation, and conduct waste stream characterisation.⁶⁰ Renew Bahamas looked to its recycling plant to finance everything required to upgrade the landfill. Renew Bahamas would keep 95 percent of the revenues when its annual top-line is \$5-\$6 million and the government's share would increase in 5 percent increments as certain benchmarks are achieved. These shares are capped at 50 percent when \$12 - \$14 million is reached.⁶¹ However, the government retains ownership of the landfill. Since then, most waste is collected by the private sector while the government collects from schools and government institutions.

Bahamas has realized some benefits of privatisation. Private sector investment through Renew Bahamas has led to the installation of new weighbridges, allowing for vehicles to be weighed upon entering and exiting the landfill. A new materials recycling facility (MRF) has also been built. Road improvement work leading from the weighbridges have also been done and initial work to clean up the landfill were undertaken. These activities represent infrastructural developments which would have been difficult for the government to finance itself. Additionally, by processing waste cooking oil from restaurants such as Wendy's and KFC, Bahamas Waste has been using a combination of petrol and processed bio-diesel to fuel its fleet of trucks, minimizing their need to rely on imported petroleum.⁶²

However, the privatisation initiative has faced a number of challenges. First, there is a breakdown in government accountability and transparency. There is general uncertainty about the details of Renew Bahamas' contract, with the Free National Movement (FNM), the Democratic National Alliance (DNA) and the media calling upon the government to reveal these details.⁶³ Details surrounding the contract are also not provided on government websites.

Additionally, Renew Bahamas is currently trying to renegotiate its contract with the government. In June 2016, Kenred Dorsett, Minister of the Environment and Housing, confirmed that he hired the Kikivarakis & Co. accounting firm to help the government "better understand" Renew Bahamas' financial model, and whether it was sustainable.⁶⁴ This is two years after Renew Bahamas was awarded the contract in the first place. This suggests that appropriate due diligence was not taken in the initial phase of evaluating bids. In terms of the sustainability of Renew Bahamas' business model, it is worth noting that waste is not separated at the source. This is despite an abundance of literature which states that waste separation at landfill (as opposed to the point of generation) significantly increases operational costs of recycling.⁶⁵ This is important because recycling is Renew Bahamas' primary revenue source. Based on the volume of recycled products, the company earns revenue from payments made by the government and from directly selling recycled products. In 2015, Gerhard Beukes, then CEO of Renew Bahamas,⁶⁶ said that the company would have to export ten to twelve containers of recycled materials daily to break even and recoup its \$8 million investment.⁶⁷

⁵⁹ This is similar to the Jamaican experience with the Riverton Disposal Facility.

⁶⁰ Tribune, Guardian newspapers.

⁶¹ Tribune, April 25, 2016.

⁶² Bahamas Waste

⁶³ Tribune, July 8, 2016.

⁶⁴ Tribune, June 21, 2016.

⁶⁵ Dorvil, 2007.

⁶⁶ Beukes resigned in July, 2016.

⁶⁷ Tribune, April 21, 2016.

This demonstrates the marginal profit of recycling operations and why large volumes of recycled materials are required for making recycling companies profitable.

The ability of the government to adequately monitor and enforce regulations also appears weak. There continues to be fires at the New Providence landfill, and the Minister of the Environment and Housing has stated that Renew Bahamas had yet to meet its contractual obligation to provide it with audited financial statements for the year 2015.⁶⁸

The case of the Bahamas also demonstrates the importance of acquiring sufficient data to inform bidding and pricing decisions. It also demonstrates the need to thoroughly vet companies who bid for government contracts to minimise the likelihood that the selected company is unable to effectively execute the contract. As justification for renegotiating the contract with the Bahamian government, Beukes noted that there were several unknown variables rendering the revenue and costs of the project “difficult for anyone to project”⁶⁹ – a risk of “frontier markets.”⁷⁰ Having developed the project and now discovering what the unknown variables were, “We have a better understanding of what a viable project is,” said Beukes.⁷¹

Ultimately, the case of the Bahamas is a useful example for Jamaica. There are clear investment benefits of engaging the private sector which could reduce the financial burden of the government. However, weak government capacity for crafting contracts, evaluating bids and monitoring performance mitigated potential benefits. So too did the lack of accountability and transparency. Furthermore, recycling without encouraging waste separation at the source makes recycling more expensive. Additionally, engaging the private sector without taking strategic measures to reduce informational gaps (in order to make better decisions) increases the costs of SWM and can have dire consequences for the nation.



4.2. MALAYSIA

In Malaysia, local governments had responsibility for solid waste management but lacked the technical capacity to manage the complex task.⁷² As a part of Malaysia’s “Vision 2020” plan to become fully developed by 2020, the Solid Waste and Public Cleansing Management Act was passed in 2007. The Act brought solid waste management under the jurisdiction of the federal government and privatised the handling of solid waste by contracting three concessionaires through a competitive bidding process. Each Concessionaire would operate in one of the three regions that cover the peninsula. A newly created National Solid Waste Management Department was established to oversee these operations, draft policy, determine strategy, and implement action plans. A corporation was also set up to take over the role of local authorities, supervise the operations of the concessionaires, and carry out enforcement.

With many cities engaged in multiple collection contractors through well-defined competitive tendering procedures, the cost of contractor services averaged 23 percent lower than the cost of service provided by the local authorities.⁷³ Additionally, Malaysia’s Air Hitam Sanitary Landfill, having accumulated 6.2 million metric tons of waste from its decade-old operations, produces 2MW of energy each month from the conversion of methane.⁷⁴ These examples demonstrate the positive cost-saving and energy-generating opportunities that emerge from privatisation.

⁶⁸ Tribune, June 21, 2016

⁶⁹ Tribune, June 21, 2016

⁷⁰ Frontier markets/economies typically describe markets/economies with higher risks such as political instability, poor liquidity, inadequate regulation, substandard financial reporting and large currency fluctuations. – Investopedia.

⁷¹ Tribune, June 21, 2016.

⁷² UNDP, 2008

⁷³ World Bank; United Nations Department of Economic and Social Affairs (UNDESA), 2012.

⁷⁴ Keng and Mohamad, 2013.

However, most landfills remain non-sanitary. Disposal fees/ tipping fees are also highly regulated by local government, and because the government is paying the fees, landfill owners and operators are not able to charge at a rate sufficient to generate additional revenue to upgrade their landfills.⁷⁵ Additionally, waste managers do just enough to pass regulations but not enough to have sustainable landfills.⁷⁶ These demonstrate a weakness in the monitoring and regulatory capabilities of the government. Furthermore, most landfills are a few hectares in size, and so waste to energy (through harvesting methane) was not economically feasible as the government had hoped. This demonstrates the importance of tailoring solid waste management plans to the realities of a particular region. While waste-to-energy generation is feasible for one region, it may not necessarily be feasible for another.

There are institutional challenges as well. The 3Rs (reduce, reuse, and recycle) are not mandatory and waste separation is totally absent. The fact that waste is not separated at the source makes resource recovery expensive.⁷⁷ This is further exacerbated by the indifferent attitude among the public towards environmental concerns. Changing the public's attitude therefore remains the most critical challenge for Malaysia. While Malaysians are aware of environmental issues, their concerns for actual environmental impacts are generally low.⁷⁸ A qualitative analysis of 23 developing countries has shown that the two primary factors influencing recycling are: (i) public awareness of recycling (household education) and (ii) public attitudes to recycling (quality and efficiency of waste collection and separation).⁷⁹ The success of a high quality recycling programme, as envisioned in an integrated sustainable solid waste management system, therefore rests heavily on public participation, for without the separation of waste at the household level, recycling and effective waste management becomes significantly more expensive.

The case of Malaysia therefore demonstrates how private sector involvement can make solid waste management more efficient. It also illustrates the potential for privatisation to create other opportunities such as energy generation. Similarly, it demonstrates the need for competition in the solid waste sector if the private sector is to be involved. However, the case of Malaysia is an example of how creating a solid waste management plan that is not suited to the unique realities of a region can have negative consequences. It also demonstrates how a weak monitoring framework and the low capacity of government agencies can have negative consequences on the environment, and also result in unmet ISSWM goals. Additionally, choosing the incorrect source of funding and inappropriate compensation levels for private contractors can have negative implications. Finally, ISSWM including PSP cannot succeed without the awareness and involvement of the public.



4.3. EGYPT

Dorvil (2007) presents a case study of Egypt. The main issues faced by the country were insufficient solid waste collection and a lack of sanitary disposal. Typically, solid waste management services would depend on three main players. These were:

- i. Municipalities responsible for street cleaning and servicing municipal SW containers
- ii. The use of waste pickers who were used to collect household waste in exchange for a monthly fee
- iii. Additional Non-Governmental Organisations (NGOs) who provided limited SW services.

In 1999, the open burning of accumulated waste led to significant pollution, following which, solid waste issues received significant political attention. (This is similar to Jamaica's experience with fires at the Riverton disposal facility). A Ministerial SWM Committee was created, followed by a national programme for waste management. One of the initiatives introduced to address SWM included engaging the private sector. One of the features of this arrangement was the inclusion of solid waste fees in beneficiaries' electricity bills in order to help to finance this undertaking.

⁷⁵ Keng and Mohamad, 2013.

⁷⁶ Keng and Mohamad, 2013.

⁷⁷ Keng and Mohamad, 2013.

⁷⁸ Keng and Mohamad, 2013.

⁷⁹ Keng and Mohamad, 2013 citing Troschinetz and Mihelcic, 2009.

In the city of Qena, solid waste management services were commercialized through the collection of monthly fees from households. About 90 percent regularly pay fees.⁸⁰ Fees are also collected with the issue of car and business licenses. Consequently, almost 50 percent of revenue comes from private sources while the remainder is still financed by the public sector.⁸¹ Twenty employees carry out monitoring activities and action is immediately taken in cases of mismanagement. These employees are supported by a committee which represents the Governorate, the City Council and the police. The Governor is also directly involved in the monitoring process.

Egypt's heavily industrialised city of Alexandria was the first to engage the private sector. In October 2000, bids were submitted by 3 companies: SoClean of Lebanon, FCC of Spain and CGEA Onyx of France. All elements of SWM services were contracted out. This included the collection, transportation, treatment and final disposal of varied types of non-hazardous solid waste, such as municipal, healthcare, and industrial non-hazardous waste. Fees were charged to categories of beneficiaries (households; small offices, workshops and commercial shops; commercial, industrial and medical activities; and large consumers, hospitals tourist establishments, hotels, etc.) based on electricity consumption. However, electricity consumption does not reflect the quantity of waste generated. For example, a welding shop may use more electricity than a butcher's shop, but the butcher's shop generates more waste. In this case, the polluter pays principle of ISSWM is violated. Consequently, many beneficiaries refused to pay.

The Egyptian case study ultimately demonstrates how private sector involvement can help to improve the effectiveness of solid waste management, extending the service to persons previously excluded.

According to Dorvil (2007), by using collection fleets appropriate for the type and size of streets, and by expanding services to areas previously unserved, effectiveness was improved in Alexandria. Complaints by residents and visitors consequently decreased. About 4,000 employees joined the international private contractor in addition to around 130 employees by the Alexandria Governorate as monitors. The project was monitored by the Alexandria Governorate.

Success was largely influenced by the public awareness campaign in Alexandria. Prior to the operation phase, a targeted awareness campaign at the start of the project was directed at all residents to be served. The contract had stipulated that at least 60 percent of the families in residential units had to be informed of the provisions for waste collection from the first day of operation.⁸² Additionally, at least 90 percent of all businesses and residential units in the service area had to be made fully aware within 6 months of operation.⁸³

The role of the local private sector was also integral to the success of the project. In terms of inter-organisational relationships, a system of fines for contractual violations was established. There was a fine for each day waste collection was delayed. There was another fine for inappropriate disposal of waste. A smaller fine was implemented for situations in which streets remained in bad condition (eg. dust and waste from workshops and residential units on sidewalks). However, thresholds for non-performance of contracts was ambiguous.

The Egyptian case study ultimately demonstrates how private sector involvement can help to improve the effectiveness of solid waste management, extending the service to persons previously excluded. Strengths of the Egyptian experience also include a good monitoring system (which had even the Governor personally involved), strong inter-organisational relationships and the fact that private firms were remunerated from several sources, including the sale of compost.⁸⁴ Another important element for the success realized in Egypt was the significant attention placed on building public awareness. However, cost recovery through electricity consumption was a poor strategy. There was also no clear mechanism for addressing unforeseen circumstances and key performance thresholds, as noted in the contract, were ambiguous.⁸⁵

4.4. DISCUSSION

The illustrative case studies support the statements made in [Section 3.2](#). For privatisation to be successful, there must be contestability and adequate competition in the market. This helps to reduce the overall cost of solid waste management services, as is demonstrated in the Malaysian experience. The government must have sufficient capacity to administer the privatisation process and significant attention must be placed on crafting unambiguous contracts for private partners. Likewise, there must be a clear and robust monitoring framework. Egypt, for instance, had a strong monitoring framework which helped to ensure the effectiveness of PSP in solid waste management and a comparatively specific contract. Bahamas, on the other hand, suffered from lower capacity and a breakdown in transparency and accountability. Critically, a lack of information or inaccurate information can significantly impair effective and efficient solid waste management. Not only can this lead to cost overruns, but it could also

⁸⁰ Dorvil, 2007.

⁸¹ Ibid.

⁸² Dorvil, 2007.

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ Ibid.

exacerbate existing problems in solid waste management.

Increasing private sector participation in ISSWM will also fail if the public is not adequately informed and a participatory culture is not induced. This was demonstrated in the case of Bahamas and Malaysia. Egypt was most successful in this regard, launching a robust public education campaign.

Another important element of discussion is financing solid waste management. First, governments should not only consider the direct costs of solid waste management, but must also consider the internal and transactional costs associated with the privatisation process. These costs include contract preparation, bidding, monitoring contractor performance, contract administration, etc., but are sometimes overlooked by governments. As was seen with the Bahamas experience, a focus only on the direct costs of solid waste management services will lead to an underestimation of SWM costs and conflict between private companies and the government.

The remuneration of private firms is also important. Egypt provided the best (albeit imperfect) example, financing SWM through a combination of various sources. In contrast, Bahamas did not diversify the revenue channels for private sector companies working in the SWM industry. Governments should also balance the trade-off between incentivizing the private sector to manage landfills and incentivizing the public to minimize waste.

Finally, one of the areas most difficult to address is contract specification. No government can foresee all circumstances, but it is important to set clear thresholds and performance standards by which to hold private contractors to account. Governments should also recognise that privatisation of solid waste management is not a “one size fits all” affair. Contracts with the private sector and the model of privatisation used must be tailored to the specific needs and realities of a particular area. Failing to do this caused Malaysia not to meet its intended targets. Understanding that no contract can account for every possibility, the government should ensure that every effort is made to provide all parties with as much information as possible and that an amicable, transparent working relationship exists to resolve any unforeseen situation which may arise.

[The following table](#) summarises each of the previous case studies and identifies lessons which Jamaica can learn from each experience.



COUNTRY	PRIVATISATION ARRANGEMENT	BENEFITS OF PRIVATISATION	CHALLENGES/WEAKNESSES	LESSONS
Bahamas	<ul style="list-style-type: none"> Contracted private companies to collect waste Contracted Renew Bahamas for 5 years to manage landfill and construct recycling facility Government retained ownership of landfill 	<ul style="list-style-type: none"> Cost savings through private sector-led infrastructural development Less waste was dumped due to recycling plant, extending lifetime of landfills 	<ul style="list-style-type: none"> Lack of transparency in award of contract Weak evaluating and monitoring capacity of government Informational deficiencies contributed to inaccurate projections of costs and revenue. Higher costs due to no waste separation at source 	<ul style="list-style-type: none"> Invest in capacity building for monitoring and evaluation purposes Ensure transparency and accountability in bidding process Be vigilant in selecting private partners Invest in acquiring sufficient information to make more accurate projections of costs If recycling is pursued, encourage waste separation at source
Malaysia	Three concessionaires contracted through competitive bidding process. Each concessionaire operates in 1 of three geographic regions	<ul style="list-style-type: none"> SWM costs fell by 23% 2 MW of energy produced per month from waste 	<ul style="list-style-type: none"> Most landfills remain unsanitary because fees paid by government are too low Government monitoring capabilities weak, so landfills are unsustainable Most landfills too small to benefit from waste to energy conversion Waste separation at source is not mandatory Public indifferent to environmental concerns 	<ul style="list-style-type: none"> Need for capacity building for monitoring and enforcement of regulations Tailor privatisation model to country's reality. Waste to energy won't work for everyone Without public engagement, ISSWM will fail
Egypt	<ul style="list-style-type: none"> All elements of solid waste privatised through competitive bidding Solid waste fees included in electricity Bills and car and business licenses Fees also charged by category of customers Revenue also earned through composting Strong monitoring framework Strong public education campaign Strong inter-organisational relationship 	<ul style="list-style-type: none"> SWM was improved Persons previously unserved now benefitted from SWM services Resources freed up for alternate use by government Significant increase in employment rate 	<ul style="list-style-type: none"> Contract specification was ambiguous with unclear performance thresholds No mechanism for addressing unforeseen circumstances Cost recovery through electricity consumption was a poor strategy 	<ul style="list-style-type: none"> Need for unambiguous contract specification and clear KPIs⁸⁶ Diversification of revenue source important for success of PSP Robust public education can improve ISSWM Investing in building monitoring capacity pays off Need to establish terms of conflict resolution

Table 5: Summary of case studies.

⁸⁶ Key Performance Indicators



5.0. CONCLUSION AND RECOMMENDATIONS

In the final analysis, this report argues that there are significant benefits that can be gained by engaging the private sector in solid waste management. Given that the NSWMA currently lacks the resources to effectively manage solid waste in the country on its own and was originally established with the intent to engage the private sector, PSP in SWM is a feasible option and should be undertaken. However, simply privatising the solid waste sector will not solve the problems that currently exist in Jamaica. The pre-requisites for privatisation must first be put in place. Success relies heavily on a competitive environment and bidding process, a strong regulatory agency with the capacity to monitor and enforce regulations, and a participatory public.



Below are recommendations for the NSWMA.

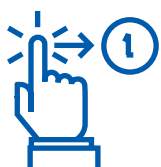
1. ENGAGE THE PRIVATE SECTOR IN SOLID WASTE MANAGEMENT

While the private sector can be engaged in all elements of solid waste management, the NSWMA should privatise elements of solid waste management gradually. This will allow for the NSWMA to gradually build monitoring capacity and learn from each successive experience. The two most urgent areas currently are waste collection and landfill management. These areas should therefore be given priority by the NSWMA.



a. The Model

The contracting-out model should be applied to waste collection. Concession agreements or the contracting-out model can be used for landfill management. The Riverton disposal facility should be given highest priority for PSP in landfill management, followed by the Retirement disposal facility. Concession agreements should mandate that the private contractor convert existing landfills into sanitary landfills, or alternatively, build and operate a new sanitary landfill. The government should also explore the option of converting the Riverton disposal facility to a waste-to-energy plant through private sector involvement.



b. Competitive Bidding

Privatisation must be done through a competitive bidding process. Geographic zones should be created within which private operators will work so as to prevent private operators from operating on the same route. The NSWMA should also account for the various internal and transaction costs involved in the privatisation process and include these costs in the final consideration of the bids offered by private companies. These costs include the cost of contract preparation, bidding, monitoring contractor performance, contract administration, etc.



c. Accurate Information

Every effort should be made to supply bidders with the necessary information needed to submit a feasible bid, including but not limited to a tour of disposal sites. This is to increase the accuracy with which bidders can estimate costs and revenue. Similarly, the NSWMA should contractually oblige the awarded contractor to supply the NSWMA with data on types of waste collected, weight and types of waste collected daily, and fuel consumption to help track developments in the sector.



d. Contract Period

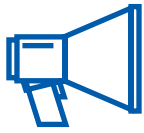
It is unlikely that a private company will be highly efficient or solve most problems in the first one to three years of operation, particularly for landfill management. There is usually a learning curve when entering a new market. Contracts should therefore be long enough to allow for private firms to get accustomed to the new environment (especially in a case where there was inadequate information to begin with). Contract periods should also grant enough time for the economic depreciation of assets and the repayment of loans. This time period would depend on which waste element is being privatised and the privatisation model utilised.



e. Recycling and Composting

The NSWMA should seek to attract the private sector to establish recycling and composting plants. The significant quantities of (especially) compostable materials currently being disposed of can attract the private sector. However, a more detailed feasibility study will need to be conducted to determine the extent to which these two types of waste treatment facilities (recycling and composting) would be viable.

The government should also mandate by law that generators of waste (households, businesses and government agencies) dispose of waste materials in specially marked containers (eg. “recyclable”, “bio-degradable”, “other waste”) prior to being collected. This is a measure to ensure waste is separated at the source. Such a measure would need to be supported by the government installing labelled containers in public spaces. Given the difficulty in changing public attitudes towards environmental issues, the government should also establish public-private partnerships to provide these containers free of cost to households, minimising barriers to public participation in sustainable waste management.



f. Building Public Awareness

Sustainable waste initiatives such as recycling fail without public support. A public awareness (PA) campaign is therefore necessary to complement recommendations listed above. However, there is little evidence that Jamaica's PA campaigns have historically worked.⁸⁷ A study must therefore be undertaken to analyse the PA strategies the government has been using and recommend how these strategies can be improved.

Learning from the Egyptian example, the responsibility for building public awareness should be borne by both the government and the private partner. The government should contractually oblige the recycling or composting contractor to carry out a PA campaign, meeting clear, measurable targets to demonstrate the impact of the campaign. The government should also apply measurable targets to their own strategies to determine the effectiveness of their campaigns.

Recommendation #6 (at the end of this section) suggests some measures to create an incentive/disincentive framework for supporting a public education campaign.

2. IMPROVE DATA COLLECTION

In addition to data on the types of waste collected by the various Parks and Markets companies, the NSWMA should also collect data on the number of households/persons in each geographic region, the length of roads (paved and unpaved), general typology of different communities and resulting challenges, the fuel consumption of the authority's trucks and compactors, the distance to landfills and transfer stations, and the general income levels of residents in various communities. Acquiring this information can help the government and the private sector to better understand the needs of communities, the solid waste challenges they face, and the types of technologies needed to address the issues. Using this data can also help to reduce the difference between the anticipated cost of a service and the actual cost of the solid waste management service. This is also a responsibility that can be shared by both the government and the private sector.

The data should also be uploaded to the NSWMA's website as well as the government's data portal, launched in June 2016. The government faces significant financial and human resource constraints, so by granting external researchers and graduate students access to this data, further research into solid waste management issues and how to solve them could be undertaken with minimal cost to the government.

3. BUILD MONITORING AND REGULATORY CAPACITY

Quarterly and annual reports should be prepared by any contracted private company and shared with the NSWMA. These reports should include statistics on variables listed in Recommendation #2 above, progress on key performance indicators as established by the negotiated contract, a description of challenges being faced and plans to address these problems. The NSWMA, with increased focus on regulating the sector, should also meet frequently, at least quarterly, with private companies for monitoring purposes, and to help to build a strong inter-organisational relationship. Building a strong inter-organisational relationship is particularly important given the untested nature of large scale PSP in SWM in Jamaica and the likelihood that some unforeseen circumstances will arise as PSP in SWM become more mature. In the initial phases of privatisation, the NSWMA should therefore be available to work closely with and assist any contracted company in closing informational gaps which impact the viability of SWM or the company. There must be a sense of partnership.

The NSWMA should also seek assistance from international agencies such as the World Bank and the United Nations Development Programme for technical advice on how to build technical capacity and effectively monitor the solid waste sector.

4. COMPLETE PILOT PROJECT IN PORTMORE

The NSWMA announced in December 2015 a pilot project in Portmore. Pilot projects can serve as proof of concept prior to undertaking an initiative on a large scale. The NSWMA should therefore complete the pilot Portmore project, and use the knowledge and experience gained to inform a broader privatisation process. This pilot will be particularly useful in informing the crafting and fine-tuning of contracts for waste collection. However, the pilot's ability to inform PSP in landfill management will be limited.

5. RETAIN SOME CAPACITY

While waste collection and landfill management are priority areas in the short term, the NSWMA should not fully privatise these elements. The NSWMA should retain some capacity to directly execute solid waste management services in the event that a private company, for some reason, is unable to carry out its contracted obligation, or leaves the market. (Literature suggests retaining at least 30 percent). This is particularly so for waste collection. This would allow for the NSWMA to quickly intervene, minimising the inconvenience to citizens, until another private contractor is given an award to operate in the affected area.

⁸⁷ See CaPRI's report on Mobile PATH Payments as an example.

6. INCENTIVISE SUSTAINABLE WASTE PRACTICES BY WASTE GENERATORS

Changing public behaviour is the most difficult task in creating an ISSWM system. In addition to a robust public education campaign, the government should use policy tools such as taxes and tariffs to accomplish this objective.

It will likely be easier to influence the behaviour of registered companies than the behaviour of households. The government can consider requiring canteens at schools, government and private agencies; hotels; restaurants; and supermarkets to have their food waste processed (or segregated for collection) rather than simply discarded. Creating an institutional culture at the workplace may help to reform behaviour in homes.

Similarly, tax breaks/penalties should be explored for influencing businesses to separate their waste in specially labelled containers for collection and recycling. A database of registered companies and their compliance with these SWM practices should also be made available on the NSWMA's website and the government's open data portal at least annually. The effectiveness of these strategies, however, is predicated on improved data collection and monitoring capabilities of the NSWMA.

Ultimately PSP in SWM in Jamaica can lead to well needed infrastructural developments and improvements in SWM. However, every effort must be made to ensure that the six pre-requisites for privatisation are met: contestability, capacity building, competition, provision of accurate information, accountability, and performance monitoring. Otherwise, there will likely be negative consequences for the country. The above recommendations aim to ensure that these pre-requisites are in place, and also outline some strategic steps to sustainably encourage private sector participation in solid waste management with the view to create an integrated and sustainable solid waste management system as the NSWMA was originally established to create and preside over.

REFERENCES

- Auditor General's Department. (2011). **Auditor General's Annual Report on the Appropriation and other Accounts of Jamaica for the Financial Year ended 31st March 2011**. Retrieved March 1, 2016 from: http://www.auditorgeneral.gov.jm/files/u5/AGD_ANNUAL_REPORT_2011.pdf
- Auditor General's Department. (2014). **Report of the Auditor General on the Financial Transactions and Financial Statements of the Government of Jamaica for the Financial Year ended 31st March, 2014**. Retrieved March 1, 2016 from: http://www.auditorgeneral.gov.jm/files/u5/AuGD_ANNUAL_REPORT_FINAL_2014.pdf
- Dorvil, L. (2007). **Private sector involvement in integrated sustainable solid waste management in low and middle-income countries**. University of St. Gallen. Retrieved April 18, 2016 from: [http://www1.unisg.ch/www/edis.nsf/SysLkpByIdentifier/3381/\\$FILE/dis3381.pdf](http://www1.unisg.ch/www/edis.nsf/SysLkpByIdentifier/3381/$FILE/dis3381.pdf)
- Hartnell, N. (April 25, 2016). **Gov't Hiring 'Only Way' We Returned To Guard Landfill**. Bahamas. Tribune242. Retrieved July 14, 2016 from: <http://www.tribune242.com/news/2016/apr/25/govt-hiring-only-way-we-returned-guard-landfill/>
- Hartnell, N. (June 21, 2016). **Landfill Recycling Resumption 'Still Couple Weeks Away'**. Bahamas. Tribune242. Retrieved July 15, 2016 from: <http://www.tribune242.com/news/2016/jun/21/landfill-recycling-resumption-still-couple-weeks-a>
- Hartnell, N.; McKenzie, N. (April 21, 2016). **Landfill Manager in 'Renewed' Deal**. Bahamas. Tribune242. Retrieved July 14 from: <http://www.tribune242.com/news/2016/apr/21/landfill-manager-renewed-deal>
- Jamaica Gleaner. (May 5, 2015). **"Unreliable NSWMA service leads to burning in Portland."** Retrieved March 14, 2016 from: <http://jamaica-gleaner.com/article/lead-stories/20150515/unreliable-nswma-service-leads-burning-portland>
- Jamaica Gleaner. (September 29, 2014). **"NSWMA: \$5 billion needed to address garbage collection issues."** Retrieved March 14, 2016: <http://jamaica-gleaner.com/article/news/20140929/nswma-5-billion-needed-address-garbage-collection-issues>
- Keng, J., Mohamad, (2012). **Opportunities and Challenges in Sustainable Waste Management Transition in Malaysia: A multi-level socio-technical perspective**. Retrieved March 8, 2016 from: <http://www.globelics.org/wp-content/uploads/2013/03/Zeeda-and-Keng-2013-Malaysia.pdf>
- Ministry of Justice. **National Solid Waste Management Act**. Retrieved March 3, 2016 from: <http://moj.gov.jm/laws/national-solid-waste-management-act>
- National Environment and Planning Agency, Symposia Paper**. Retrieved March 2, 2016 from: http://www.nepa.gov.jm/symposia_03/Papers/ScopepurposeofNSWMA.pdf
- National Solid Waste Management Association. (2015). **Privatization: saving money, maximizing efficiency & achieving other benefits in solid waste collection, disposal, recycling**. Retrieved March 2, 2016 from: <http://rrws.com/wp-content/uploads/2015/03/nswma-privatization-research-white-paper-1.pdf>
- National Solid Waste Management Authority (2015). **Waste Characterisation Studies**. Retrieved May 5, 2015 from: <http://www.nswma.gov.jm/resources/NSWMA%20-%20Waste%20Characterization%20Studies%20-%202015.pdf>
- Office of the Public Defender. **Claim against NSWMA – Fire at Riverton City Disposal Site 2012**. Retrieved March 14, 2016 from: <http://www.opd.gov.jm/news/42-claim-against-nswma-riverton-city-disposal-site-2012>
- Smith, L. (June 8, 2016). **Tough Call: The Trail Of Tears That Sums Up Our Waste Policy**. Bahamas. Tribune242. Retrieved July 14, 2016 from: <http://www.tribune242.com/news/2016/jun/08/tough-call-trail-tears-sums-our-waste-policy/>
- United Nations Department of Economic and Social Affairs (UNDESA). (2012). Chapter 5 – **Municipal Solid Waste Management: Turning Waste into Resources, Shanghai Manual – A guide for sustainable urban development in the 21st century**. Retrieved March 18, 2016 from: http://www.un.org/esa/dsd/susdevtopics/sdt_pdfs/shanghaimanual/Chapter%205%20-%20Waste_management.pdf
- United Nations Development Programme (UNDP), Malaysia. (2008). **Malaysia Developing a Solid Waste Management Model for Penang**. Retrieved March 7, 2016 from: http://www.undp.org/content/dam/malaysia/docs/EnE/43722_WasteMngment/SWM-2008_final.pdf
- Van de Kundert, A. (1999). **Integrated sustainable waste management**. Gouda, Netherlands. World Bank. Retrieved April 28, 2016 from: http://www.worldbank.org/urban/solid_wm/erm/Annexes/US%20Sizes/Annex%204B.3.pdf
- Virgil, K. (July 8, 2016). **DNA Leader Seeks Clarity Over Renew Bahamas**. Bahamas. Tribune242. Retrieved July 14, 2016 from: <http://www.tribune242.com/news/2016/jul/08/dna-leader-seeks-clarity-over-renew-bahamas/>
- World Bank, Private Sector Participation in solid waste management in India and Contracting Mechanisms**. Retrieved March 4, 2016 from: http://siteresources.worldbank.org/ENRPL/Resources/460956-1163449042857/Private_Sector_Participation.pdf

RETHINKING SOLID WASTE MANAGEMENT



**CARIBBEAN
POLICY
RESEARCH
INSTITUTE**

To read any of our published output in full, please visit
capricaribbean.org/publications-page

Contact us at:

info@capricaribbean.org

or by telephone at

(876) 970-3447 or (876) 970-2910