

Government of Jamaica

NATIONAL POLICY

FOR THE

ENVIRONMENTALLY SOUND

MANAGEMENT

OF

HAZARDOUS WASTES

(GREEN PAPER)

December 2017

Table of Contents

ACRONYMS	4
EXECUTIVE SUMMARY	6
I. INTRODUCTION	8
1.1 Background	8
1.2 Scope of Policy	9
2. SITUATIONAL ANALYSIS	11
2.1. Policy Framework	13
2.2. Infrastructure for the Management of Hazardous Wastes	14
2.3 Existing Legislative and Institutional Arrangements for Hazardous Wastes Management	19
2.4 Financing of Hazardous Wastes Management Activities	244
2.5 Regional Hazardous Wastes Management Programmes involving Jamaica ..	24
2.6 Systemic Weaknesses in the Management of Hazardous Wastes	25
3. POLICY OBJECTIVES, STRATEGIES AND ACTION	28
3.1 Policy Goal	28
3.2. Policy Objectives	28
3.3 Guiding Principles	28
3.4 Strategies and Actions	31
3.5 Roles and Responsibilities of Policy Stakeholders	37
4. IMPLEMENTATION ROAD MAP.....	39
4.1 Priority Categories of Hazardous Wastes	39
4.2. Activities and measures to be undertaken to effect Policy implementation: ..	39
5. MONITORING AND EVALUATION OF POLICY IMPLEMENTATION	43
GLOSSARY	45
APPENDIX I	47
APPENDIX II	49
APPENDIX III.....	51

List of Tables

Table 1	Principal Hazardous Wastes Generating Sectors	12
Table 2	Policy Instruments informing the development of the National Policy for the ESM of Hazardous Wastes	13
Table 3	Phase-out Schedule for Ozone Depleting Substances (ODS) in Jamaica which have been met	18
Table 4	Ministries, Departments and Agencies (MDAs) involved with hazardous waste management	19
Table 5	Key Policy Implementation Actions with short- medium term timelines	40

ACRONYMS

CFCs	Chlorofluorocarbons
COP	Conference of the Parties
EHU	Environmental Health Unit
EPR	Extended Producer Responsibility
ESM	Environmentally Sound Management
EMS	Environmental Management Systems
HHW	Household Hazardous Waste
ICENS	International Centre for Environmental and Nuclear Sciences
IMDG	International Maritime Dangerous Goods
JBI	Jamaica Bauxite Institute
KHEMP	Kingston Harbour Environmental Management Program
LBS	Land-Based Sources
MEGJC	Ministry of Economic Growth & Job Creation
MET	Meteorological Service
MLGCD	Ministry of Local Government and Community Development
MOH	Ministry of Health
MPPI	Mobile Phone Partnership Initiative
MSET	Ministry of Science Energy and Technology
MTM	Ministry of Transport and Mining
NEPA	National Environment and Planning Agency
NIP	National Implementation Plan
NRCA	Natural Resources Conservation Authority
NSWMA	National Solid Waste Management Authority
ODPEM	Office of Disaster Preparedness and Emergency Management
OECD	Organisation for Economic Co-operation and Development
PBB	Polybrominated biphenyls
PCA	Pesticides Control Authority
PCBs	Polychlorinated biphenyls
PCT	Polychlorinated terephenyls
PDA	Propane Deasphalting
PERC	Perchloroethylene
POPs	Persistent Organic Pollutants
PPE	Personal Protective Equipment
PRAU	Pharmaceutical and Regulatory Affairs Unit

REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
SAICM	Strategic Approach to International Chemicals Management
SAMOA	Small Island Developing States Accelerated Modalities of Action
SIDS	Small Island Developing States
STATIN	Statistical Institute of Jamaica
ULAB	Used Lead Acid Batteries
UNDP	United Nations Development Programme
WEEE	Wastes from Electrical and Electronic Equipment

EXECUTIVE SUMMARY

Hazardous wastes are dangerous to health and the environment and this Policy covers the Environmentally Sound Management (ESM) of this type of waste. It should be noted that the policy adopts the definition of the Environmentally Sound Management (ESM) of Hazardous Wastes as defined under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which is 'taking all practicable steps to ensure that hazardous wastes and other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes'. Following on this, hazardous waste is considered as any substance which by reason of its chemical activity, toxicity, explosivity, corrosivity or other characteristics, causes or is likely to cause, danger to health or the environment, whether of itself or on contact with other waste.

The Policy acknowledges the fundamental right of Jamaicans in keeping with the Charter of Fundamental Rights and Freedoms (Constitutional Amendment) Act, 2011 specifically, Section 13 (3) (l) *the right to enjoy a healthy and productive environment free from the threat of injury or damage from environmental abuse and degradation of the ecological heritage*. In recognition of this right, the goal of this Policy is for the environmentally sound management of hazardous wastes in Jamaica in keeping with international and regional best practices, to ensure the protection of human health and the environment.

The strategic component of the Policy outlines actions to be undertaken and, where possible, the timeframe for their implementation by various stakeholders to ensure that the policy goal and objectives are realized.

The directives stated in the Policy are in accordance with Jamaica's obligations under key multilateral environmental agreements¹ and arrangements related to the management of chemicals and hazardous wastes, including the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the Stockholm Convention on Persistent Organic Pollutants (POPs), the Minamata Convention on Mercury and the Strategic Approach to International Chemicals Management (SAICM).

There are also initiatives at the global or treaty level which can inform the implementation of the Policy, including:

¹ See Appendix 1

- Initiatives developed under the Basel Convention to address priority hazardous wastes streams, for example, the Partnership Action on Computing Equipment (PACE) and the Mobile Phone Partnership Initiative (MPPI).
- The WEEE (Waste Electrical and Electronic Equipment) Directive² which aims to reduce environmental damage and human health problems by minimizing the amount of disposed electronic and electrical equipment that go to landfills; and
- Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) which is a European Union Regulation, EC/2006/1907 which addresses the production and use of chemical substances, and their potential impacts on both human health and the environment.

The Policy is in keeping with Jamaica's National Development Plan-Vision 2030 Jamaica, in particular, Goal 4: *Jamaica has a Healthy Natural Environment*. Under this goal, Jamaica focuses on the effective management of the country's natural resources to ensure the continued provision of essential environmental services. It also focuses on the design of environmental policies that internalize the cost of pollution and environmental damage into the production costs of all economic activities.

² The **Waste Electrical and Electronic Equipment Directive** (WEEE Directive) is the European Law 2012/19EU and 2011/65/EC on waste electrical and electronic equipment including restriction of the use of certain hazardous substances in electrical and electronic equipment).

I. INTRODUCTION

1.1 Background

The development of this **National Policy for the Environmentally Sound Management (ESM) of Hazardous Wastes** arose out of an urgent need to provide a framework within which all stakeholders, including the Government and the private sector, can collaborate to address hazardous waste management issues. This National Policy for the Environmentally Sound Management (ESM) of Hazardous Wastes in Jamaica puts forward an integrated and coordinated approach to safeguard human health and the environment. In 2000, the then Ministry of Environment and Housing implemented a Government of Jamaica/United Nations Development Programme (UNDP) Waste Management Project which had among its deliverables a *“Policy Framework for the Management of Hazardous Wastes in Jamaica”*. This document was later revised in 2003 and resulted in the production of *“A Policy and Policy Framework for the Management of Hazardous Wastes in Jamaica”*. The information and recommendations presented in that document assisted in the formulation of this National Policy for the Environmentally Sound Management (ESM) of Hazardous Wastes.

The Policy is based on an integrated life cycle approach to hazardous wastes management from generation to reuse/recovery/refurbishment/final disposal. It also provides guidance to public sector decision-makers, the private sector, public interest non-governmental organizations and the general public on issues related to the management of hazardous wastes, including the special requirements for labelling, packaging, storage, transportation and treatment.

Additionally, there are several notable global commitments with respect to chemicals and/or hazardous wastes which have informed the overall development of the Policy and/or will influence its subsequent implementation, including:

- The 1999 Basel Convention Ministerial Declaration Environmentally Sound Management which outlines the Convention’s agenda up to 2009 with particular emphasis on the minimization of hazardous wastes
- The tenets outlined in Chapters 19 (Environmentally sound management of toxic chemicals, including prevention of illegal international traffic in toxic and dangerous product) and 20 (Environmentally sound management of hazardous wastes, including prevention of illegal international traffic in hazardous wastes) of Agenda 21
- Paragraph 23 of the Johannesburg Plan of Implementation, particularly the 2020 goal that chemicals will be produced and used in ways that minimize significant adverse impacts on the environment and human health. SAICM was adopted in an effort to facilitate the achievement of this goal

- Bahia Declaration on Chemical Safety and Priorities for Action beyond 2000 of the Intergovernmental Forum on Chemical Safety
- Paragraph 218 of The Future We Want
- Paragraphs 70 & 71 of the SAMOA Pathway outcome document of the Third International Conference on SIDS; and
- Sustainable Development Goal 12- Ensure sustainable consumption and production patterns which includes the following relevant targets, that is:
 - a) By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment; and
 - b) By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

1.2 Scope of Policy

Under this Policy, the definition of hazardous wastes is adopted from the definition of 'hazardous waste' under regulation 2 of the *Natural Resources Conservation (Permits and Licences) Regulations, 1996* which states:

'any substance which by reason its chemical activity, toxicity and explosivity, corrosivity or other characteristics, causes or is likely cause, danger to health or the environment, whether of itself or on contact with other waste',

And is guided accordingly by the interpretation of 'hazardous wastes' pursuant to regulation 2 of the *Natural Resources (Hazardous Wastes) (Control of Transboundary Movements) Regulations, 2002*.

The importation of hazardous wastes is prohibited within all areas under Jamaica's jurisdiction in accordance with the provisions of the *Natural Resources (Hazardous Wastes)(Control of Transboundary Movements) Regulations, 2002*.

This Policy does not address radioactive materials which are covered under the Nuclear Safety and Radiation Act 2015 or specific types of medical wastes which will be addressed under policies to be developed by the Ministry with responsibility for Health.

Review of the Policy will be undertaken every five years by the Ministry with portfolio responsibility for the environment and amended where necessary, to ensure that policy directives as well as the implementation strategies employed are in line with Vision 2030 and other stated national sustainable development objectives. The review will also be responsive to those hazardous wastes management issues raised at the sub-regional, regional and international levels which are of importance to Jamaica.

Effective implementation of the Policy is dependent, to a large extent, on the support and cooperation of all stakeholders, including the general public. It will necessitate the institution of comprehensive regulatory, institutional and infrastructural frameworks with mechanisms to monitor compliance and implementation of stated Policy goals, objectives and strategies.

2. SITUATIONAL ANALYSIS

There are several documented cases in Jamaica of the negative impacts of exposure to hazardous wastes on public health and the environment primarily as a result of poor waste management practices. According to a study³ produced by the International Centre for Environmental and Nuclear Sciences (ICENS), one of the main sources of lead exposure in Jamaica has been waste from an abandoned lead mine. The Study highlights, *inter alia*, high lead levels in soils in and around a community known as Kintyre, Papine associated with the abandoned Hope Mine⁴. Lead poisoning of children in an area known as Mona Commons, St. Andrew as a result of exposure to lead contaminated dust from backyard lead smelting is another such example. In this case the lead levels were as high as 30 000 mg/kg in soils near to the smelter, and indoor dust loadings of 373 µg/ft² in residents' homes⁵. Another example, is the case of high lead blood levels of residents in the Fraser's Content community of St. Catherine who were exposed to lead wastes from illicit backyard lead acid battery smelting operations.

These examples represent cases of lead exposure as a result of poor management practices concerning hazardous wastes, in areas across the country.

The principal hazardous wastes generating sectors identified in Jamaica (see Table 1) include:

- Bauxite/alumina sector
- Chemical Industry (paints, solvents, acids and alkalis etc.)
- Lead acid battery distribution sector
- Electronic and Electrical Industry
- Agricultural sector (pesticides etc.)
- Petrochemical sector (used oil, coolant etc.)
- Pharmaceutical Industry
- Power generators
- Household/Domestic and
- Medical sector

³ International Centre for Environmental and Nuclear Sciences , ICENS: Mitigating Lead Poisoning in rural Communities available at <http://www.icens.org/?q=node/94>

⁴ International Centre for Environmental and Nuclear Sciences , ICENS: Mitigating Lead Poisoning in rural Communities available at <http://www.icens.org/?q=node/94>

⁵ LALOR, GC et al. Acute lead poisoning associated with backyard lead smelting in Jamaica. *West Indian med. j.* [online]. 2006, vol.55, n.6 [cited 2015-11-20], pp. 394-398 . Available from: <http://caribbean.scielo.org/scielo.php?script=sci_arttext&pid=S0043-31442006000600005&lng=en&nrm=iso>. ISSN 0043-3144. <http://dx.doi.org/10.1590/S0043-31442006000600005>.

Table 1. Principal Hazardous Wastes Generating Sectors in Jamaica

SECTOR	HAZARDOUS WASTES GENERATED
Chemical Industry Inorganic chemicals	Acids, salts, alum powder, waste oils and alkanes, contaminated packages/containers
Organic chemicals	Pesticide wastes; waste halogenated organic solvents; waste organic phosphorous compounds; waste mineral oils; aromatic hydrocarbons; wastes from production, formulation and use of resins, latex, plasticizers, glues/adhesives; contaminated packages /containers
Pharmaceutical	Wastes from the production and preparation of pharmaceutical products; waste pharmaceuticals, drugs and medicine; waste from the formulation, production and use of biocides and phytopharmaceuticals
Commercial	Waste electronic and electrical assemblies or scrap containing components such as accumulators and other batteries comprising hazardous components, mercury switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors; ballasts from fluorescent lighting fixtures
Electricity Generation	PCB-contaminated oils and transformers
Household	Paints, solvents, used minerals oils, cleaning agents, consumer products, Nickel/Cadmium batteries, waste electronic and electrical assemblies (<i>see above</i>), ballasts from fluorescent lighting fixtures
Manufacturing Bauxite Industry	Red mud, waste oils
Paint Industry	Spent oily residues, flammable sludge/solid waste, paint sludge, solvents, caustic soda, contaminated packages and containers
Tannery	Inorganic and organic acids, inorganic compounds, alkalis, spent solvents, reactive wastes, oil/grease, used lead acid batteries
Petrochemical Industry	Petroleum refining industry wastewater containing benzene and other hydrocarbons; spent catalysts; batteries; sludge from refining process; oily compounds (filters, rags); lube oil sludge, lab-lubricant samples and solvents. Oil and/or petroleum products contaminated sites
Petroleum products Marketing and distribution	Sludge from the storage of petroleum products, batteries, waste oils, grease and lubricants; contaminated sites
Sugar Industry	Used oils and lubricants, used lead acid batteries
Transportation Aviation	Filter monitor, engine oil, water detector capsules, oily saw dust, storage tank sludge; oil contaminated sites, expired firefighting foam.
Marine	Residues and mixtures containing noxious liquid substances. Cargo residues, incinerator ash, operational wastes (cleaning agents, additives, ozone depleting substances, exhaust gas cleaning residues), sludge, batteries, oil or oily mixture.
On and off-road vehicles	Used lead acid batteries, battery casing, vehicle operating fluids (used oils, lubricants and fluid) solvents, thinners, reducers, brake cleaning spray and glycol, CFCs from air conditioning, oil; bituminous material (asphalt waste) from road construction and maintenance, containing tar and petroleum products contaminated sites.

Other	
Hospitals/clinics	Clinical and related wastes; that is, wastes arising from medical, nursing, dental, veterinary, or similar practices and wastes generated in hospitals and other facilities during the investigation or treatment of patients, or research projects.
Asbestos contaminated sites or buildings with friable asbestos	Waste asbestos (dust and fibres)
Laboratories	Used and obsolete chemicals

2.1. Policy Framework

Policy instruments developed across ministries, departments and agencies of government have informed the development of the National Policy for the ESM of Hazardous Wastes. In addition, the Technical Guidelines⁶ adopted by the Conference of the Parties⁷ (COP) of the Basel Convention have informed the development of this Policy as well as national hazardous wastes management plans and programmes. These instruments will influence the implementation of strategies outlined herein, as well as existing programmes of action, guidelines and codes of practice. Table 2 provides a snap shot of these policies.

Table 2 Policy Instruments informing the development of the National Policy for the ESM of Hazardous Wastes

Ministry	Policies
Ministry of Local Government & Community Development (MLGCD)	The National Solid Waste Management Policy of Jamaica (2002)
Ministry of Science Energy and Technology (MSET)	Jamaica's Energy Policy (2009 – 2030)
Ministry of Transport & Mining (MTM)	
Ministry of Industry Commerce Agriculture and Fisheries (MICAF)	The Revised Motor Vehicle Import Policy (2014)
Ministry of Health	The Medical Waste Management Policy (draft)

⁶ The technical guidelines under the Basel Convention can be accessed at <http://www.basel.int/Implementation/TechnicalMatters/DevelopmentofTechnicalGuidelines/AdoptedTechnicalGuidelines/tabid/2376/Default.aspx>

⁷ The Conference of the Parties (COP) of the Basel Convention is the governing body of the Convention, established pursuant to Article 15. It is composed of governments of countries that have accepted, ratified or acceded to the Convention

Ministry	Policies
Ministry of Economic Growth & Job Creation(MEGJC)	National Policy on Environment Management Systems <i>(draft)</i>
	The Emissions Policy Framework <i>(draft)</i>

Some of the Relevant Programmes of Action, Guidelines and Codes of Practice, which will directly impact the ESM of hazardous wastes include the following:

- The State of the Environment Report(2013)
- National Programme of Action for Land-Based Sources of Pollution to the Marine Environment⁸
- Integrated National Programme for the Environmentally Sound Management of Chemicals
- National Implementation Plan for Persistent Organic Pollutants *(2005)*
- Natural Resources Conservation Authority (NRCA) Guidelines for the Loading, Offloading and Transfer of Hazardous Materials (2014)
- NRCA Guidelines for the Management of Asbestos *(2014)*
- NRCA Guidelines for the Secondary Containment of hazardous liquids stored above ground (2011)
- National Polychlorinated Biphenyls Management Guidelines (2000)
- National Chemical Emergency Response Protocol (2014)
- National Oil Spill Contingency Plan (2014)
- National guidelines on ship generated wastes (2012)
- Guidelines for the Management of Biomedical Wastes
- Environmental Codes of Practice for the Motor Vehicle Repairers Association of Jamaica, Coffee Industry, Mining Sector and the Sugar Industry
- International Maritime Dangerous Goods(IMDG) Code
- Development Orders and the National Building Code of Jamaica (draft)

2.2. Infrastructure for the Management of Hazardous Wastes

None of the island's solid waste disposal sites⁹ are engineered or sufficiently equipped to treat or dispose of hazardous wastes in an ESM manner. These sites are

⁸ The National Programme of Action (NPA) for Land-based Sources of Pollution to the Marine Environment is an official document which outlines the Government of Jamaica's commitment to incorporate objectives of the *Global Programme of Action (GPA) for the Protection of the Marine Environment* into national projects and programmes. The goal of the NPA is to protect Jamaica's coastal and marine environments from land-based sources and activities of pollution. There are three priority areas under the NPA: (i) sewage treatment and disposal, (ii) agricultural practices and (iii) collection and disposal of solid waste. The NPA was approved by Cabinet on February 13, 2006 and tabled in the Houses in June 2007.

⁹ Solid wastes disposal sites: Riverton City (St. Andrew), Retirement (St. James), Tobolski (St. Ann), Haddon (St. Ann), Doctor's Wood (Portland), Church Corner (St. Thomas), Martin's Hill (Manchester), Myersville (St. Elizabeth)

not adequately secured and are not classified as sanitary landfills. The disposal sites also lack appropriate facilities for the collection and management of leachate, landfill gas control including release, capture or treatment as well as vector control. There is also no centralized facility for the interim storage or treatment of hazardous wastes.

Jamaicans exposed to hazardous wastes are at varying risk levels depending on the several circumstances, including gender. Gender concerns the way in which relations between women and men are socially constructed. Men and women play different roles in society, with their gender differences shaped by ideological, historical, religious, ethnic, economic and cultural determinants (Moser, 1993¹⁰). Consequently, decisions taken by an individual are the result of balancing the combination of roles and expectations as such people in certain circumstances consider waste materials as a resource for their family, their livelihood, or their enterprise. In order to minimize the potential risks associated with hazardous wastes, it is important that all persons continuously monitor the use, storage, and disposal of these substances and avoid improper management and disposal such as simply pouring them down the drain, on the ground, into storm sewers, or placing with the regular domestic refuse.

2.2.1 Household Hazardous Wastes

Household hazardous wastes (HHW) are wastes from household products that exhibit one or more hazardous characteristics (flammable, corrosive, toxic, infectious, and eco-toxic) and pose a threat to human health and environment if not managed in an environmentally sound management. Wastes classified as HHW included expired or unwanted (sent for disposal) medications, paints, cleaners, solvents, pesticides, fluorescent lamps, batteries and electrical and electronic equipment. The majority of HHW are disposed of at the island's solid waste disposal sites. These wastes are not segregated and are collected and disposed of with municipal solid wastes. In some instances, household hazardous wastes are disposed of, by some members of the public, directly into the gullies, rivers or other waterways and on open lots. This malpractice increases the risk of public exposure to toxic substances.

As men and women participate in managing waste within the household, their relationship to discarded materials may depend on who they are, as much as or more than on what they do and so waste materials may serve as a crucial resource within households. The inadequacy of appropriate infrastructure contributes also to the setting up of informal sector enterprise for recycling and reusing of wastes which can have critical impact on gender dimensions.

2.2.2 Industrial Hazardous Wastes

a) Hazardous Wastes from the Bauxite Industry

¹⁰ Moser, O.N. Caroline. (1993) *Gender Planning and Development: Theory, Practice and Training*, Routledge, London.

Bauxite residues, more commonly referred to as red mud¹¹, is considered as hazardous waste. Red mud is generated in large volumes in the country, as a by-product from bauxite processing and is stored in various types of containment systems. The most recently constructed red mud ponds use a re-circulation system in which some of the liquid caustic is reused in the plant. However, water balance calculations and groundwater monitoring clearly indicate leaching from red mud ponds into the groundwater or in some cases accidental discharge to surface waters.

b) Other Types of Industrial Hazardous Wastes

Due to the lack of a hazardous waste disposal site, the National Solid Waste Management Authority (NSWMA), which regulates and operates the island's solid waste disposal sites, receives on request, selected hazardous wastes streams such as asbestos and electrical and electronic wastes. Asbestos wastes are put in containment and/ or buried at the Riverton City disposal site. This practice is an interim measure, as it is anticipated that final disposal will take place in the future.

The Permits and Licences Regulations under the NRCA includes, *inter alia*, a prescribed category for the construction and operation of hazardous waste removal, storage, transportation, treatment or disposal facility (mobile and fixed) for which an environmental permit is required. In addition, environmental permits are issued under the Natural Resources (Hazardous Waste) (Control of Transboundary Movement) Regulations for the export and transit of hazardous wastes. To date, the country has exported obsolete pesticides, used lead acid batteries, PCB wastes and spent organic solvents for recycling or treatment and disposal under these Regulations.

It has been observed that some liquid industrial hazardous wastes generated is either disposed of in the municipal sewerage system, which is not designed to treat such wastes, or in nearby streams and gullies as well as Kingston Harbour. Observations such as these led the NEPA to implement the Kingston Harbour Environmental Management Program (KHEMP) which sought to, *inter alia*, identify entities that pose a threat to the Kingston Harbour. Additionally, in an effort to address this problem at the national level, the Natural Resources Conservation (Wastewater and Sludge) Regulations were enacted in 2013 to regulate the discharge of, *inter alia*, trade effluent to the environment. Under these Regulations, wastewater discharges from industries will be subjected to the polluter pays principle of waste management. Increased education and awareness raising, monitoring and enforcement will be required to ensure compliance with these Regulations.

¹¹ The amount of red mud produced from the alumina industry worldwide is estimated to exceed 70 million dry metric tonnes per year. It is estimated that 1 tonne of bauxite yield 1 tonne of red mud in the Jamaican context.

(Ref.: Processing of bauxite ores, Mylona, E., Kalamboki, T., Xenidis, A., National Technical University of Athens (NTUA) Laboratory of Metallurgy, JBI)

2.2.3 Recovery/Reuse/Recycling of Industrial Hazardous Wastes

Several recovery, reuse and recycling programmes/initiatives for select categories of hazardous wastes have been undertaken at varying levels in several parishes across the island, including:

- **Electronic and Electrical Waste (E-wastes):** The Government of Jamaica with the support of the UNEP SAICM Quick Start Programme Trust Fund (QSPTF) under the Project entitled, *“Strengthening the National Capacity under the framework of the Integrated National Programme for the sound management of chemicals in support of the implementation of the Strategic Approach in Jamaica”* conducted a six month pilot project for the sensitization and collection of E-wastes, limited to used and end-of-life computing and mobile equipment in 2015. The pilot focused mainly on three communities and collected, among others, over 500 monitors, almost 700 CPUs and almost 300 telephones.
- **Used Lead Acid Batteries (ULABs):** The Government of Jamaica in partnership with several private retailers of used lead acid batteries developed and implemented a National Used Lead Acid Battery Project in 2006. Under this Project, over 60,000 units of used lead acid batteries were exported for recycling to countries within the Latin America and Caribbean region which possessed facilities to recycle the batteries in an environmentally sound manner.

A number of private companies in the lead acid battery retail sector as well as individuals have been collecting used lead acid batteries for export and recycling since the conclusion of the project.

- **Chlorofluorocarbons (CFCs):** Programmes for the recovery of CFCs and other refrigerants used in air conditioning units were undertaken by the National Ozone Unit with assistance from the Secretariat of the Montreal Protocol for Ozone Depleting Substances. The status of control measures implemented is outlined in Table 3
- **Waste Oils:** Some used oils have been recovered and incinerated at the Caribbean Cement Company Limited (Kingston) and Noranda Bauxite (St. Ann). In addition environmental permits have been issued to used oil recovery and transport facilities. (see Appendix II)

The Motor Vehicle Repairers Association has an Environmental Code of Practice which includes endorsement of a collection programme for waste vehicle fluids from garages for disposal.

Table 3 Phase-out Schedule for Ozone Depleting Substances (ODS) in Jamaica which have been achieved

DATE	Control Measures
July 1, 1999	Freeze of Annex a Chlorofluorocarbons (CFCs at 1995-1999 average levels)
January 1, 2002	Freeze of Methyl Bromide at 1995- 1998 Average levels
July 15, 2002	Phase out of halons
January 1, 2003	Freeze in Methyl Chloroform and carbon tetrachloride at 1995-1998 average levels
January 1, 2006	Phase out of Methyl Chloroform and Carbon Tetrachloride
January 1, 2006	Phase out of Chlorofluorocarbons
January 1, 2013	Freeze of Hydro chlorofluorocarbons (HCFCs) at the baseline figure of 2009 - 2010 average levels
January 1, 2015	Phase out of Methyl Bromide

2.2.4 Impacts of Current Hazardous Waste Generation and Management Practices in Jamaica

The current management practices for hazardous wastes have had serious environmental and economic consequences. These include:

Public health impacts

- exposure to asbestos contaminated sites
- exposure to lead contaminated sites (from illicit backyard lead acid battery smelting operations)
- exposure to dust from uncovered red mud ponds
- adverse health effects from ambient and indoor air pollution

Environmental impacts

- groundwater contamination (including aquifers impacted by infiltration of contaminants from disposal sites)
- contamination of large water bodies, particularly Kingston Harbour
- contamination of fresh and coastal waters
- air pollution and associated health effects
- spills contaminating soil and surface water (caustic, oil spills)
- adverse impact on the health of marine and terrestrial ecosystems

- Land contamination

Impacts on infrastructure functions

- reduced property values
- effectiveness of sewage treatment plants compromised
- public safety & security

Trade and international relations

- competitiveness (local & international)
- International treaty obligations

2.3 Existing Legislative and Institutional Arrangements for Hazardous Wastes Management

The legislative framework addressing hazardous waste management in Jamaica is not centered, rather there are several legislations which cover different areas of management such as disposal, transport and export. The Ministries, Departments and Agencies (MDAs) with primary responsibility for hazardous waste management, are governed by these legislation. Table 4 summarizes the role of these MDAs and their respective legislation.

Table 4 Ministries, Departments and Agencies (MDAs) involved with hazardous waste management

Ministries and related Agencies	Roles and responsibilities related to Hazardous Wastes Management	Legislation /International Conventions and Protocols
MINISTRY OF ECONOMIC GROWTH & JOB CREATION(MEGJC)	Policy formulation (chemicals and hazardous wastes) Development and enactment of legislation	The MEGJC is Jamaica’s focal point to the Basel, Stockholm and Minamata Conventions.
Agencies National Environment and Planning Agency (NEPA) / Natural Resources Conservation Authority (NRCA)	Policy implementation, establishment and implementation of Standards and Guidelines	LBS Protocol under the Cartagena Convention Natural Resources Conservation Authority Act, 1991

Ministries and related Agencies	Roles and responsibilities related to Hazardous Wastes Management	Legislation /International Conventions and Protocols
		<ul style="list-style-type: none"> - <i>Natural Resources (Permits and Licences) Regulations, 1996¹²</i> - <i>Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprises, Construction and Development) Order 1996</i> - <i>Natural Resources (Hazardous Wastes)(Control of Transboundary Movements) Regulations, 2002</i> - <i>Natural Resources Conservation Authority (Air Quality) Regulations, 2006</i> - <i>Natural Resources Conservation (Wastewater and Sludge) Regulation, 2013</i> <p>NEPA is Jamaica's Competent Authority under the Basel Convention</p>
<i>National Meteorological (MET) Service</i>	Weather forecasting and measurement data to support planning and response to disasters involving hazardous wastes	The Climate Change Division of MEGJC is Jamaica's focal point to the United Nations Framework Convention on Climate Change and its Kyoto Protocol, this charge was previously held by the MET Service up to 2016.
MINISTRY OF LOCAL GOVERNMENT &	Policy formulation and implementation	

¹² These Regulations were amended in 2015 to include additional prescribed categories related to the ESM of chemicals and hazardous wastes

Ministries and related Agencies	Roles and responsibilities related to Hazardous Wastes Management	Legislation /International Conventions and Protocols
<i>COMMUNITY DEVELOPMENT (MLGCD)</i>		
<i>Agencies – National Solid Waste Management Authority (NSWMA)</i>	Operational activities such as collection of municipal wastes and management of island’s disposal sites	National Solid Wastes Management Act, 2000
<i>Office of Disaster Preparedness and Emergency Management (ODPEM)</i>	ODPEM provides, prepares and maintains mitigation response plans; responds to hazardous wastes disasters; ensure hazard and loss reduction are included in policies, programmes and public education campaigns	The Disaster Preparedness and Emergency Management Act, 1993 The Agency has developed: Hazard Mitigation Plan Hazard Mapping Chemical Response Protocol Oil Spill Protocol Chemical Emergency Risk Management Plan
<i>Jamaica Fire Brigade Kingston and St. Andrew Corporation and the Parish Councils Parks and Markets</i>	These agencies assist to operationalize the plans, programs and protocols	
<i>MINISTRY OF TRANSPORT & MINING (MTM)</i>	Regulation of all modes of transportation of dangerous goods	Road Traffic Act, 1938 Shipping Act, 1998 Port Authority Act,1972
<i>Agencies – National Works Agency</i>	Operational and maintenance of road and works infrastructure	
<i>Port Authority of Jamaica</i>	Regulation of the air and seaports	
<i>Maritime Authority of Jamaica</i>	Full service maritime administration providing both registration and technical services	The International Convention for the Prevention of Pollution from Ships The Jamaica Maritime Authority is Jamaica’s focal point for the MARPOL (73/78) Convention

<i>Ministries and related Agencies</i>	<i>Roles and responsibilities related to Hazardous Wastes Management</i>	<i>Legislation /International Conventions and Protocols</i>
		The International Convention for the Safety of Life at Sea (SOLAS)
<i>Jamaica Civil Aviation Authority</i>	Regulates Jamaica's air transport industry to ensure its safe and orderly operation and development	The Airports (Economic Regulation) Act, 2002
<i>Mines & Geology Division</i>	General supervision over all prospecting, mining and quarrying operations throughout the island	The Mining Act, 1947
<i>Jamaica Bauxite Institute</i>	A Memorandum of Understanding was signed between the JBI and the NRCA in April 1994, which acknowledged the role played by the JBI, and delegated to the JBI responsibility for the environmental management of the bauxite/alumina industry, and the monitoring of the impacts of the local industry on the environment	
<i>MINISTRY OF NATIONAL SECURITY</i>	Security for the entire island, including air and seaports	Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (CWC)
<i>MINISTRY OF JUSTICE</i>	Assist in the formulation of the legal framework	
<i>Agencies – Attorney General's Chambers</i>	Reviews proposed measures for compliance with legal and policy framework	
<i>Office of the Chief Parliamentary Counsel</i>	Drafting of legislation based on policy directives	

Ministries and related Agencies	Roles and responsibilities related to Hazardous Wastes Management	Legislation /International Conventions and Protocols
<i>MINISTRY OF HEALTH</i>	Policy formulation (public and environmental health)	The MOH is Jamaica's focal point to the International Health Regulations The Precursor Chemicals Act, 1999 The Pesticides and Hazardous Chemicals Act (2017 draft)
<i>Pesticides Control Authority (PCA)</i>	Regulation of import, export and manufacture of pesticides.	Pesticides Act, 1987 and its amendment The PCA is Jamaica's focal point to the Rotterdam Convention
<i>Standards and Regulatory Division (SRD)</i>	Regulation of import, export and manufacture of industrial chemicals	Food and Drug Act, 1964 <i>Food and Drug Regulations, 1975</i> The Pharmacy Act, 1975 Pharmacy Regulations
<i>Environmental Health Unit (EHU)</i>	Regulation of environmental health	Public Health Act, 1975 <i>Public Health (Garbage Collection and Disposal) Regulations, 1998</i> <i>Public Health (Nuisance) Regulations, 1995</i> The Quarantine Act, 1951
<i>Government Chemist</i>	Chemical analysis support to the SRD	
<i>Medical Waste Management Unit</i>	Disposal of infectious medical wastes	
<i>MINISTRY OF FINANCE AND THE PUBLIC SERVICE</i> <i>Jamaica Customs Agency (JCA)</i>	Protection of Jamaica's borders against illicit imports and the facilitation of trade	The Customs Act, 1941 JCA is responsible for the enforcement of regulations and guidelines (border protection) developed under International Conventions/ Protocols

2.4 Financing of Hazardous Wastes Management Activities

Although the relevant public sector agencies, including NEPA and NSWMA, generate revenue from the issuance of permits, licences and fees in relation to, *inter alia*, the regulation of hazardous wastes, these funds are not specifically earmarked for hazardous waste management within their respective budgets. Hence, there are no annual dedicated funds from the central budget focused on hazardous wastes management. However, there have been a number of Government-led and public-private sector initiatives, in recent times, which sought to target specific categories of hazardous wastes, including the collection and export of used lead acid batteries, obsolete pesticides, PCB-based oils and equipment, and electrical and electronic wastes.

In addition, the private sector/industrial sector have not always accounted for the cost of managing hazardous wastes in an environmentally sound manner within their operations. It is seen that with the number of regulations increasing worldwide, companies are being held increasingly responsible for the safety of products they manufacture and/or use and therefore have implemented management programs that address all phases of the chemical lifecycle, from cradle to grave. The practice of using the cradle to grave or the cradle to cradle concept and/or the extended producer responsibility (EPR)¹³ is not always clearly evidenced within the private sector.

2.5 Regional Hazardous Wastes Management Programmes involving Jamaica

As a Party to the Basel Convention, Jamaica was involved in the implementation of and has benefitted from the activities related to the Caribbean sub-region outlined in the Strategic Plan for the Implementation of the Basel Convention (2000 -2010).

The Convention's 10-year Strategic Plan built on and uses the framework of the 1999 Ministerial Basel Declaration on ESM, as it identifies and describes those activities considered achievable by the Parties in partnership with all concerned and interested stakeholders within the specified time frame. The Plan takes into account existing regional plans, programmes or strategies, the decisions of the Conference of the Parties and its subsidiary bodies, ongoing project activities and processes of international environmental governance and sustainable development.

Under the Plan, a regional strategy for the design and implementation of a mechanism for the ESM of used lead acid batteries (ULAB) in Central America, Columbia, Venezuela and the Caribbean Island States was adopted in 2006.

One of the critical developments regionally with respect to the ESM of hazardous wastes, is the establishment of the Basel Convention Regional Centre for Training and Technology for the Caribbean Region (BCRC-Caribbean). The BCRC-Caribbean

¹³ See section 3.3 Guiding Principles

operates pursuant to the provisions of the Basel Convention, the strategic framework for its implementation (currently 2012 to 2021), and other related decisions of the COP to the Convention. Its purpose is to assist the Parties within the Caribbean, through capacity building, in their effort to implement and achieve the objectives of the Convention. The development and implementation of the activities of the Centre is advised by a Steering Committee, comprising Parties who are responsible for the development of the Business Plan for the Centre for each biennium and oversee its implementation.

The BCRC- Caribbean has been integrally engaged in assisting countries within the region with efforts towards the ratification and early implementation of the Minamata Convention on Mercury. During the year 2017, the BCRC- Caribbean in the capacity of the project executing agency has been coordinating the Regional Project entitled, '*Development of Minamata Initial Assessment in the Caribbean (Trinidad and Tobago, Jamaica, St Kitts and Nevis, St Lucia)*' with its objective to facilitate the ratification and early implementation of the Minamata Convention through the use of scientific and technical knowledge and tools by national stakeholders in the participating countries.

2.6 Systemic Weaknesses in the Management of Hazardous Wastes

At present, there is no formal structured approach to the management of hazardous wastes. Consequently, hazardous wastes are managed in an *ad hoc*, fragmented and compartmentalized manner. Hence, there are several systemic weaknesses in the management of the wastes, including:

1. Inadequate regulatory framework and weak enforcement mechanisms -

- a) absence of an omnibus legislation¹⁴ governing chemicals management as well as legal instruments to address issues such as prevention, response, liability and compensation, safety and the intra-island movement of hazardous waste
- b) some key regulations¹⁵ to support the management of hazardous waste have not yet been finalized and enacted. Measures should be put in place to facilitate the finalising of these regulations, including the National Solid Waste Management (Public Cleansing) Regulations, the National Solid Waste Management (Disposal of Solid Waste) Regulations, and the National Solid Waste Management (Disposal of Hazardous Waste) (Electronic and Electrical) Regulation,
- c) there is further need for additional and ongoing sensitisation programmes for the judiciary and the relevant enforcement agencies with respect to the existing legislative framework related to hazardous waste management, and

¹⁴ Drafting instructions for an omnibus chemicals legislation are being developed under a national Quick Start Programme Trust Fund (QSPTF) Project entitled "Strengthening the National Capacity under the framework of the Integrated National Programme for the sound management of chemicals in support of the implementation of the Strategic Approach in Jamaica".

¹⁵ The Regulations under the National Solid Waste Management Act have been drafted by the Chief Parliamentary Counsel

- d) there is need for the strengthening of existing formal networks among the relevant regulatory agencies to facilitate the sharing of information, best practices, expertise and resources to ensure the effective enforcement of applicable legislation.
2. *Poor governance structures -*
- a) the management of hazardous waste is undertaken by several public sector agencies resulting in cross jurisdictional conflicts and inefficient use of the limited resources. For example, both the NSWMA¹⁶ and the NEPA¹⁷ have regulatory authority for the transportation and disposal of hazardous wastes within the island; and
 - b) the roles and responsibilities of public sector agencies in respect of hazardous waste management, for the most part, are not clearly defined and/or specifically assigned
3. *Unsustainable funding mechanisms -*
- a) funds for hazardous waste management programmes are not normally reflected in the budgets of the relevant public sector agencies; and
 - b) the management of hazardous waste programmes are funded, for the most part, through donor supported technical assistance projects which have finite funds that do not extend beyond the life of these projects
4. *Weak national capabilities and capacities for the management of hazardous waste*
- a) limited equipment, technical, human and financial resources within both the public and private sectors to effectively address issues related to the management of hazardous waste; and
 - b) limited risk assessment and management capabilities and/or resources within key emergency and disaster preparedness agencies (ODPEM, Jamaica Defence Force, Jamaica Fire Brigade, Jamaica Constabulary Force, Meteorological Office, NEPA and the health authorities]
5. *Lack of information/data to facilitate informed decision-making-*
- a) limited statistical data on the type and quantities of hazardous wastes generated per sector per annum as well as information on contaminated sites
 - b) lack of current epidemiological public health data on exposures to hazardous waste
 - c) absence of a central computerized database on chemicals imports, except pesticides
 - d) lack of an information network among the relevant public sector agencies (MEGJC/NEPA, MOH/PCA, PRAU, EHU, MLGCD/NSWMA and Jamaica

¹⁶ The definition of ‘solid waste’ in the National Solid Waste Management Act includes ‘hazardous wastes’. Therefore, all provisions in the Act which apply to solid wastes also relate to the management of hazardous wastes. In addition the definition of hazardous waste under the NSWMA Act is not necessarily consistent with the definitions under the relevant NRCA Regulations

¹⁷ The Natural Resources (Permits and Licences) Regulations stipulates that the transportation, storage or disposal of hazardous wastes within Jamaica’s jurisdiction requires a permit from the Agency.

Customs Agency) to facilitate the exchange and dissemination of information pertaining to hazardous waste data

- e) data related to the management of hazardous wastes (except pesticides) are not readily accessible and/or not recorded in a user friendly format (Jamaica Customs, NEPA, STATIN, NSWMA and PRAU)

6. *Lack of or inadequate infrastructure -*

- a) Limited authorized hazardous waste storage and treatment facilities and disposal site(s) or dedicated cells at existing disposal sites
- b) Lack of adequate storage and disposal facility for hazardous wastes within the public sector
- c) Some personnel involved in the management of, or exposed to hazardous wastes are not trained or have received limited training and may not have access to the requisite equipment (for example, PPE) to deal with such waste
- d) Absence of 'chain of custody' procedures for hazardous waste
- e) Inadequate or absent appropriate standards and technical guidelines for the intra-island management of hazardous waste

7. *Poor public understanding of hazardous waste issues -*

- a) Paucity of knowledge amongst the general populace, particularly at the local level, in respect of hazardous wastes and their effect on human health and the environment.

The Policy will allow for the provision of an integrated management framework within which the challenges related to the management of hazardous wastes can be adequately addressed.

3. POLICY OBJECTIVES, STRATEGIES AND ACTION

3.1 Policy Goal

The environmentally sound management of hazardous wastes in Jamaica in keeping with international and regional best practices, to ensure the protection of human health and the environment.

3.2. Policy Objectives

The Policy objectives outlined set the broad framework within which strategic planning will occur.

Objective 1: To institute effective hazardous waste management frameworks at the national and local levels

Objective 2: To improve information sharing, education and awareness raising at all levels of society to support and facilitate active participation in the decision- making process for the environmentally sound management of hazardous waste

Objective 3: To promote sustainable financing mechanisms for hazardous wastes management

3.3 Guiding Principles

The Policy for the ESM of Hazardous Wastes in Jamaica is guided by several established principles, which are in keeping with the tenets of the waste management hierarchy (see Appendix III). It should also be recognized that considerations for disposal may be different from those for recovery, which, if soundly managed, can provide environmental and economic benefits and should be encouraged.

The **Source Reduction Principle** - by which the generation of waste should be minimized in terms of its quantity and its potential to cause pollution. This may be achieved by using appropriate plant and process designs;

The **Integrated Life-Cycle Principle** - by which substances and products should be designed and managed such that minimum environmental impact is caused during their generation, use, recovery and disposal;

The **Precautionary Principle** - whereby preventive measures are taken considering the costs and benefits of action and inaction, when there is a scientific basis, even if

limited, to believe that release to the environment of substances, waste or energy is likely to cause harm to human health or the environment;

The **Integrated Pollution Control Principle** - which requires that the management of waste should be based on a strategy that takes into account the potential for cross media and multi-media synergistic effects;

The **Standardization Principle** - which requires the provision of standards for the environmentally sound management of wastes at all stages of their processing, treatment, disposal and recovery;

The **Self-sufficiency Principle** - by which countries should ensure that the disposal of the waste generated within their territory is undertaken there by means which are compatible with environmentally sound management, recognizing that economically sound management of some wastes outside of national territories may also be environmentally sound;

The **Proximity Principle** - by which the disposal of wastes must take place as close as possible to their point of generation, recognizing that economically and environmentally sound management of some wastes will be achieved at specialized facilities located at greater distances from the point of generation;

The **Least Transboundary Movement Principle** - by which transboundary movements of hazardous wastes should be reduced to a minimum consistent with efficient and environmentally sound management;

The **Polluter Pays Principle** - by which the potential polluter must act to prevent pollution and those who cause pollution pay for remedying the consequences of that pollution;

The **Principle of Sovereignty** - under which every country shall take into account political, social and economic conditions in establishing a national waste management structure. A country may, for example, ban the importation of hazardous wastes into its territory in accordance with its national environmental legislation;

The **Principle of Public Participation** - under which States should ensure that in all stages, waste management options are considered in consultation with the public as appropriate, and that the public has access to information concerning the management of hazardous wastes (same as the Community-Right-to-Know Principle).

Principle 10 of the Rio Declaration states that:

- i) environmental issues are best handled with the participation of all concerned citizens;

- ii) that each individual shall have appropriate access to information that is held by public authorities concerning the environment; and
- iii) that countries should provide effective access to judicial and administrative proceedings, including redress and remedy.

The **Community-Right-to-Know Principle** which concerns the right of the public to know the risks posed by hazardous materials, including waste. The public should be educated about potential risks. The application of this principle should be consistent with the Access to Information Act.

The policy supports the adoption of the following life cycle approaches to hazardous wastes management:

Product Stewardship is a product-centered approach to environmental protection. It is a principle that directs all participants, that is, manufacturers, retailers, consumers, involved in the life cycle of a product to take shared responsibility for the impacts to human health and the natural environment that result from the production, use, and end-of-life management of the product.

Extended Producer Responsibility (EPR) is a strategy designed to promote the integration of environmental costs associated with products throughout their life cycles into the market price of the products

EPR imposes accountability over the entire life cycle of products and packaging introduced on the market. This means that firms, which manufacture, import and/or sell products and packaging, are required to be financially or physically responsible for such products after their useful life. They must either take back spent products and manage them through reuse, recycling or in energy production, or delegate this responsibility to a third party, a so-called *producer responsibility organization (PRO)*, which is paid by the producer for spent-product management. In this way, EPR shifts responsibility for waste from government to private industry, obliging producers, importers and/or sellers to internalize waste management costs in their product prices (Hanisch, 2000).

Sustainable Consumption and Production (SCP) is about the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of further generations.

3.4 Strategies and Actions

Objective 1: To institute effective hazardous waste management frameworks at the national and local levels

Strategy 1.A. To encourage the environmentally sound management of hazardous wastes through strengthening of the regulatory framework using an integrated -life-cycle approach, that is, strictly regulating the storage, treatment, transportation, reuse, recycling, recovery, export and final disposal of hazardous wastes.

Given the existing policy and regulatory frameworks, to advance the ESM of hazardous wastes the Policy encourages the pursuit of measures that will:

- 1. safeguard human health and the environment*
- 2. utilize economic instruments to finance ESM projects and programmes,*
- 3. address accountability, such as liability and compensation (financial responsibility, including insurance or bonds, should be required of all generators, transporters, treatment facilities, and disposers of hazardous wastes to assure their ability to compensate for any damage/injury to property, human health and/or the environment)*
- 4. facilitate the enforcement of hazardous wastes standards and laws*

Actions

The Government will:

National legislative framework

- a) Facilitate the environmentally sound management of hazardous wastes by, *inter alia*, the provision of comprehensive policy, legislative and institutional frameworks
- b) Partner with the private sector and other interest groups in the development and implementation of National Management Plans and Programmes (*including phase-out programmes for the more toxic categories of hazardous wastes*) for specified categories of hazardous wastes
- c) Encourage industry to utilize less hazardous inputs into production processes with the adoption of cleaner production technologies
- d) Encourage innovation within industry to foster the manufacture/distribution of 'green products' comprising less hazardous components which will result in the generation of less hazardous wastes by-products
- e) Promote the adoption and implementation of environmental management systems (EMS) within the public and private sectors in accordance with the tenets of the National Policy for EMS
- f) Regulate the disposal of hazardous wastes at government owned or operated disposal sites by the institution of tipping fees to utilize specific cells for hazardous waste

International agreements

- g) Facilitate the export and transit of hazardous wastes in accordance with the provisions of the Natural Resources (Hazardous Wastes)(Control of Transboundary Movements) Regulations and the Basel Convention, and
- h) Strengthen existing enforcement regimes to prevent and monitor illegal traffic of hazardous wastes in keeping with the provisions of the Road Traffic Act, Natural Resources (Hazardous Wastes)(Control of Transboundary Movements) Regulations, Basel Convention and the Minamata Convention on Mercury,
- i) Ensure that all instances of illegal traffic of hazardous wastes are prosecuted pursuant to the provisions of National Legislation including the Road Traffic Act, the Natural Resources (Hazardous Wastes)(Control of Transboundary Movements) Regulations and the Basel Convention
- j) Accede to the Basel Protocol on Liability and Compensation
- k) Actively participate in regional and international fora addressing the ESM of hazardous wastes.
- l) Ensure the coordinated and integrated implementation of the international agreements to which the country is a Party related to the management of chemicals/hazardous wastes
- m) Support the implementation of the Basel Convention's Strategic Plan
- n) Actively pursue bilateral and multilateral cooperation on issues related to the hazardous wastes management
- o) Accede to international conventions concerning hazardous waste management

Strategy 1.B. To facilitate the treatment and disposal of hazardous wastes in an environmentally sound manner through the upgrade and institution of infrastructural works

The Policy advocates the institution of the necessary physical infrastructure, that is, properly equipped facilities for the pre-treatment, treatment, interim storage, transport, export and final disposal, to facilitate the ESM of hazardous wastes.

Actions

The Government will:

Storage and disposal of hazardous wastes

- a) Support the utilization of the following recommended options for final disposal in Jamaica as permitted by the relevant authorities, particularly NEPA and the NSWMA:
 - i. deposit into or onto land:
 - a. landfill- it may be necessary to landfill for the irreducible residues derived from the treatment of hazardous wastes. For that reason, these facilities should be sited and constructed to minimize the possibility of surface or groundwater contamination.
 - b. land treatment- this could include biodegradation of liquid or sludge discards in soil, etc.

- c. specially engineered landfills- this could include placement into lined discrete cells which are capped and isolated from one another and the environment etc.
 - d. Underground injection is not acceptable because of the potential for present or future groundwater contamination.
 - ii. Appropriately constructed surface impoundments (e.g. placement of liquid or sludge discards into pits, ponds or lagoons etc.). They should be constructed or retrofitted with double liners, leak detection between the liners, and continuous soil and groundwater monitoring.
 - iii. Incineration
 - iv. Permanent storage (e.g. burial),
 - v. Physico-chemical treatment which results in final compounds or mixtures which are discarded by means of any of the following operations: evaporation, drying, calcination, neutralization, precipitation etc.
 - vi. Disposal at sea in approved designated site in accordance with the waste assessment guidelines
- b) Facilitate the final disposal of hazardous wastes (*only certain categories of hazardous wastes*) locally by the establishment of a hazardous wastes cell at an existing disposal site and/or specially engineered landfill site(s) for hazardous wastes
 - c) Encourage the establishment of privately owned and operated hazardous wastes treatment facilities and/or disposal sites
 - d) Facilitate those private sector entities which possess high temperature incinerators and/or physico-chemical and biological treatment technologies who wish to get involved in hazardous wastes treatment/disposal as a component of the company's operation (*such activities will require the approval as well as ongoing monitoring and regulation by the relevant public sector agencies*)

Treatment and movement of hazardous wastes

- f) Upgrade, where necessary, publicly owned waste treatment facilities to facilitate the treatment and disposal of hazardous wastes (select categories)
- g) Encourage, as much as possible, the treatment and final disposal of hazardous wastes as close to the source of generation as possible (i.e. locally vis-à-vis regionally or internationally) through the enactment or amendment of the requisite legislation, as appropriate
- h) Systematically minimize the transboundary and intra-island movements of hazardous wastes from all areas under Jamaica's jurisdiction by enactment of the national legislation and provision of an enabling environment for the development of infrastructure to facilitate the recycling, recovery and final disposal of hazardous wastes locally
- h) Encourage the recycling of select types of hazardous wastes through the inclusion of such waste as part of the fuel mix of some sectors with high

temperature incinerators and the requisite pollution abatement equipment (for example, co-incineration at cement kilns),

- i) Encourage the recycling of select types of hazardous wastes to manufacture finished products or as raw material for specific activities (for example, the use of used tyres as part of the asphalt mix in road construction).

Objective 2: To improve information sharing, education and awareness raising at all levels of society to support and facilitate active participation in the decision- making process for the environmentally sound management of hazardous waste

Strategy 2.A. To minimize the generation of hazardous waste and risk of exposure to public and environmental health

The policy advocates for the use of scientific and technical knowledge for the generation, collection, and dissemination of qualitative and quantitative information on hazardous wastes to inform decision-making

Actions

The Government will:

Minimization of hazardous wastes

- a) Encourage the development and transfer of cleaner production processes and technologies
- b) Encourage the private sector to adopt Product Stewardship and Extended Producer Responsibility (EPR) as key principles within companies' operations,
- c) Collaborate with the private sector and civil society in identifying new solutions for minimizing the generation of hazardous wastes at source, and
- d) Highlight best practices within industry as examples of effective hazardous wastes management

Risk identification and management of contaminated sites

- e) Collaborate with the private sector and other interest groups on the identification of stockpiles of hazardous wastes and the recycling or final disposal of such wastes
- f) Develop contaminated site criteria using risk assessment techniques
- g) Identify contaminated sites and sites suspected to be contaminated with hazardous wastes (based on historical and current information of activities undertaken at the sites)
- h) Require that testing/monitoring programmes be instituted for all contaminated sites (detailed; ongoing) and suspected sites (initial programme to ascertain whether the site is contaminated; nature and extent of the contamination)
- i) In partnership with the private sector, establish and maintain an up-to-date electronic database of all hazardous wastes contaminated sites locally

- j) Require polluters of sites to bear the full cost of the remediation/ rehabilitation and/or closure of such sites as well as ongoing public health and environmental monitoring, where necessary
- k) Ensure restricted access by the public to contaminated sites

Sensitization, education and training

- l) Promote the ongoing training of key personnel, including customs officers and emergency responders, within both the public and private sectors involved in hazardous wastes management
- m) Encourage educational institutions to develop and implement courses or programmes geared towards increasing the institutional and technical capacity of the country (*increasing the cadre of professionals*) to manage hazardous wastes generated locally in an environmentally sound manner
- n) Further develop the curricula to include material to facilitate increased capacity for ESM of hazardous wastes at the secondary and tertiary levels
- o) Develop training tools for ESM of hazardous wastes and promote the training and certification of transporters of hazardous wastes
- p) Develop and disseminate guideline documents to support the ESM of hazardous wastes
- q) Develop and implement public and sector-specific education and awareness programmes, including campaigns, on the ESM of hazardous wastes and to pro-actively inform individuals and businesses of available hazardous waste collection services, and their obligations
- r) Develop the necessary public education and awareness material and tools to communicate issues related to the ESM of hazardous wastes, including issuance of notices on contaminated sites
- s) Encourage consumers to advocate for and purchase 'green products' in order to minimize hazardous waste generation
- t) Encourage consumers to dispose of household hazardous wastes in an environmentally sound manner
- u) Encourage the public to be vigilant in identifying and reporting hazardous wastes management practices which are not environmentally sound
- v) Actively participate in regional and international fora addressing the ESM of hazardous wastes
- w) Ensure the coordinated and integrated implementation of the international agreements to which the country is a Party related to the management of chemicals/hazardous wastes
- x) Ensure that at all times, the country's position in respect to all matters related to the ESM of hazardous wastes is clearly articulated

Objective 3: To promote sustainable financing mechanisms for hazardous wastes management

Strategy 3.A. To encourage joint ventures and partnerships between or among the public and private sectors and public interest groups in financing national hazardous wastes management initiatives

The Policy supports the institutionalization of financial mechanisms geared towards the ESM of hazardous waste. These arrangements may include a mix of taxes and fees based on the polluter-pays and the user-pays principles in the design of economic instruments for hazardous waste management. Implementation of these instruments will be based on:

- *Consistency with international obligations*
- *Compatibility with other national policies*
- *Enforceability*
- *Measurable outcomes and indicators*
- *Fairness and equity*
- *Cost-effectiveness and*
- *Economic efficiency*

Actions

The Government will:

- a) Institute financing mechanisms, including the utilization of economic and market-based instruments to support the management of hazardous wastes
- b) Encourage financial institutions to provide low interest loans to private sector entities which establish businesses which are focused on the environmentally sound management of hazardous wastes
- c) Provide incentives (including duty concessions, grants, soft loans) to the private sector, where possible, to assist in the re-tooling/restructuring of their production processes to facilitate the minimization of hazardous wastes generation
- d) Apply discharge fees for the discharge of hazardous trade effluent based on the type, volume and loading of the effluent in accordance with the NRCA Wastewater & Sludge Regulations
- e) Enact legislation which will address liability and compensation in relation to any injury to public health and environment as a result of exposure to hazardous wastes,
- f) Enact legislation to include provisions for the requirement of environmental bonds with respect to the establishment and operation of select hazardous wastes management facilities and activities and
- g) Accede to the Basel Convention's Protocol on Liability and Compensation
- h) Provide incentives for private sector entities and civil society groupings to establish national programmes which are geared towards the reuse and recycling of hazardous wastes
- i) Utilize economic and market-based instruments or tools to facilitate the recovery of some categories of hazardous wastes (for example, used lead acid batteries and used or end-of-of life mobile phones) from the domestic market
- j) Encourage the use of the environmental levy for the reuse, recycling and recovery of hazardous wastes

- k) Advocate for the utilization of an existing national financing mechanism (e.g. the Environmental Levy) to support national hazardous waste management initiatives
- l) Encourage voluntary measures taken by the private sector to manage hazardous wastes such as Extended Producer Responsibility, Codes of Practice or Best Management Practices

3.5 Roles and Responsibilities of Policy Stakeholders

To enable the successful achievement of the policy objectives, it is imperative that all stakeholders play their respective roles. The roles and responsibilities of the various stakeholders in the ESM of hazardous wastes are differentiated and varied and so, the successful implementation of the Policy will require coordinated, collaborative, continuous and integrated approach involving all stakeholders. These roles are clarified in this section.

Public Sector

The Government is responsible for creating an enabling environment (regulatory and institutional frameworks) within which the private sector and other stakeholders can conduct business while at the same time ensuring that the environment and the interests of the general populace are safeguarded.

Private Sector

The private sector is required to comply with all policies, standards, guidelines and legislation governing hazardous wastes. The sector is encouraged to exhibit 'corporate social responsibility' by enhancing the livelihood of communities within the vicinity of their operations. The private sector will be encouraged, through legislation and/or incentives, to adopt tools/principles such as cleaner production methods, environmental management systems (EMS), extended producer responsibility (EPR), product stewardship in making their processes/operations more efficient (avoidance/ minimization of wastes generation) and producing environmentally friendly products (utilizing less hazardous inputs or components) for the domestic and international markets.

Private sector entities which generate hazardous wastes should adopt environmentally sound methods of resource recovery by direct reuse, alternative use, reclamation and recycling.

The private sector is encouraged to create business ventures targeted at the environmentally sound management of hazardous wastes. These business ventures could include recycling operations, operation of storage (short- or long-term),

treatment and disposal facilities (including specially engineered landfill sites) for hazardous wastes, utilizing existing infrastructure, for example co-incineration in industrial facilities (e.g. cement, lime, lime and aggregate kilns, industrial boilers and blast furnaces), as disposal options for hazardous wastes. In respect of the latter however, it is important that those industries which pursue this option do so with the requisite approval of the relevant regulatory agencies and have the necessary pollution abatement technologies in place.

Service Providers

These stakeholders provide collection, storage, transportation, treatment and disposal services in accordance with the relevant standards, guidelines and legislation. These include:

- Private and public waste haulers
- Operators of high temperature incinerators
- storage and treatment facility operators
- Operators of disposal facilities

Academia

Academia is critical for research and development, with respect to hazardous wastes. Academia should:

- Undertake research and development programmes in the context of the Jamaican situation, particularly in respect of technologies and systems for treatment, management and disposal of hazardous wastes.
- Conduct research to provide information on the health and environmental impacts of hazardous wastes.
- Ensure that the curricula are in keeping and at pace with the national development strategy, particular in relation to hazardous waste management.

4. IMPLEMENTATION ROAD MAP

The Plan provides a roadmap for effective Policy implementation. Initiatives and measures outlined in this section may be undertaken by an individual, stakeholder group or in partnership, but must be in keeping with the goal and objectives delineated in the Policy. In this regard, the roadmap is flexible and may be amended, where necessary, to respond to shifts in Policy. Accordingly, the roadmap will be reviewed when the Policy is being reviewed through a process of consultations with the relevant regulatory agencies, public sector, civil society, private sector and the general public.

4.1 Priority Categories of Hazardous Wastes

The categories of hazardous wastes identified in Jamaica for priority attention within the short to medium term timeframe include:

- Industrial sludge including red mud
- Used petroleum and synthetic oils
- Used lead acid batteries and other types of batteries
- Waste tyres
- Persistent Organic Pollutant (POPs) chemicals
- Waste pesticides
- Household hazardous wastes
- Electronic and electrical wastes (E-wastes)
- Ship-generated wastes
- Mercury wastes
- Obsolete, spent or unwanted solvents (including dry cleaning solvent, PERC) and
- Medical Wastes (*Policy directive articulated under the Medical Wastes Management Policy*)

It is expected that by 2030, the country will have undertaken sufficient measures to generate data on the outcome of the strategies under this policy and would have made substantive efforts in addressing, in particular, these priority categories of hazardous wastes.

4.2. Activities and measures to be undertaken to effect Policy implementation:

While there are a myriad of activities which may be undertaken to achieve the ESM of hazardous waste in Jamaica, the actions outlined in Table 5 represent the activities which can be undertaken within the short- to medium- term. These will allow for the setting of the necessary framework on which the country will continuously build to ensure that hazardous waste can be managed in an environmentally sound manner through collaboration with all sectors.

Table 5 Key Policy Implementation Actions with short- medium term timelines

Objective	Strategy	Action	Timeline/ year					Key Entities	
			1	2	3	4	5		
1	1 A	Legislation : Enactment of the following legislation							
		<ul style="list-style-type: none"> ▪ The Public Health (Amendment) Bill; ▪ Shipping (Prevention of Pollution from Ships) Act (draft) 					X	MOH	
		<ul style="list-style-type: none"> ▪ The National Solid Waste Management (Public Cleansing) Regulations (<i>draft</i>) 		X				X	MAJ
		<ul style="list-style-type: none"> ▪ The National Solid Waste Management (Disposal of Solid Waste) Regulations (draft) 		X					NSWMA
		<ul style="list-style-type: none"> ▪ The National Solid Waste Management (Disposal of Hazardous Waste) (Electronic and Electrical) Regulation, 2017 		X					NSWMA
		<ul style="list-style-type: none"> ▪ Omnibus legislation on chemicals management. 				X			MOH
1 2	1 A 2 A	Management Plans and Guidance Documents							
		Revise the following : <ul style="list-style-type: none"> ▪ PCB Management Guidance Document ▪ National Asbestos Management Guidance Document 	X			X			NEPA
1 2	1 A 2 A	Develop and implement at least one Management Plan every three years for priority categories of hazardous wastes identified in Section 5.1, including :							
		<ul style="list-style-type: none"> ▪ to facilitate the elimination of PCBs in transmission and distribution systems by 2020, as stipulated in the National Implementation Plan (NIP) for POPs ▪ for the ESM of used oils (including set recovery and reuse targets) 				X			NEPA
						X			NEPA

Objective	Strategy	Action	Timeline/ year					Key Entities
			1	2	3	4	5	
		<ul style="list-style-type: none"> ▪ for the ESM of used and end-of-life mobile phones (including set recovery targets) ▪ For the ESM of Mercury Wastes 		X		X		NSWMA NSWMA/NEPA/ MOH/MEGJC
1	1	Develop codes of practice for generators of industrial sludge such as dry cleaners and garages with high volumes of spray painting, and other chemical use in which the waste is hazardous					X	Private sector/ NEPA
2	2	Develop a Road Map for the phase-out of mercury added products			X			MOH/MEGJC
1	1	Infrastructure <ul style="list-style-type: none"> ▪ Institute a hazardous wastes cell at an existing solid wastes disposal site and/or a hazardous wastes landfill ▪ Institute a centralized hazardous wastes storage facility for the interim storage of hazardous wastes 					X	NSWMA
							X	
2	2	Contaminated sites <ul style="list-style-type: none"> ▪ Identify, inventorize and devise a strategy for the management of all hazardous wastes contaminated sites. Particularly, red mud disposal sites, where all active red mud disposal are to be regulated and closure plans implemented for all previously used red mud disposal sites. ▪ Clean-up select priority hazardous wastes contaminated sites to minimize the risk to human health, the environment and the economy 			X			NEPA
							X	
2	2	Produce a report on the implementation of the mechanism for the handling for the oily wastes from ships as outlined in the guidelines developed to ensure that Jamaica meets its MARPOL Convention obligations.			X			MAJ/MOH/NEPA/PAJ/ NSWMA

Objective	Strategy	Action	Timeline/ year					Key Entities
			1	2	3	4	5	
2	2 A	Produce a database on the quantity of waste oils reused or recycled in Jamaica through approved facilities against imports of such oils into Jamaica					X	NEPA
2	2 A	Development of a National Chemicals Emergency Risk Management Plan	X					ODPEM
2	2 A	Development and Implementation of Public Awareness programme on the management of select types of hazardous wastes			X			MOH/MEGJC/ NSWMA

5. MONITORING AND EVALUATION OF POLICY IMPLEMENTATION

The Ministry with portfolio responsibility for the environment will coordinate the review of the Policy every five (5) years and recommend amendments as necessary.

Critical Elements for the Policy Review

The functional requirements for the National Policy for the ESM of Hazardous Wastes are as follows:

- Strategic Planning, policy development and revision; priority setting and development of strategies (passive, active and mandatory interventions)
- Information inventories (generation and fate {transfers, reuse, recycle, treat, disposal});
- Data compilation and reporting nationally and to satisfy international obligations (treaties, conventions, protocols)
- Public education and outreach
- Coordination among the relevant public sector agencies and between this sector and other stakeholders
- Communication with all stakeholders
- Operational alternatives for avoidance (pollution prevention) and minimization
- Monitoring, Enforcement and Compliance

The Ministry with portfolio responsibility for the environment will be required to communicate and collaborate with stakeholders as identified in section 3.5, in conducting their respective roles to effect these critical elements. It will be necessary for the actions outlined in the policy to be integrated into the Corporate Plans of the respective stakeholders and a reporting mechanism be devised to allow for effective monitoring.

Methodology for the Policy Review

All MDAs with responsibility for specific activities or programmes relating to the policy implementation shall share with the ministry with portfolio responsibility for the environment, all relevant information and reports necessary for effective collaboration, coordination, integration, monitoring and evaluation.

All relevant information should be submitted by the third year after the policy has been approved or revised and as subsequently required by the ministry with portfolio responsibility for the environment in the stipulated format.

The ministry with portfolio responsibility for the environment, will report to such policy review Cabinet Subcommittee as appropriate, after the fifth year of policy

implementation period and after the requisite peer review from relevant stakeholders.

GLOSSARY

“Environmentally Sound Management of hazardous wastes” is defined under the Basel Convention as taking all practicable steps to ensure that hazardous wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes

“Final Disposal” includes operations which do not lead to the possibility of resource recovery, recycling, reclamation, direct re-use or alternative uses, including deposit into or onto land (e.g. landfill), surface impoundment (e.g. placement of liquid or sludge discards into pits, ponds or lagoons etc.), incineration on land, permanent storage (e.g. emplacement of containers in a mine etc.)

“Generator” means any person whose activity produces hazardous wastes, if that person is not known, the person who is in possession and/or control of those wastes

“Hazardous Waste” in the *“Natural Resources (Hazardous Waste) (Control of Transboundary Movements) Regulations, 2002* is classified as:

- i. the waste which exhibits any or all of the following characteristics: explosive, ecotoxic¹⁸, infectious, contagious, corrosive, flammable, poisonous (acute), toxic (delayed or chronic) and oxidizing,
- ii. specific waste streams (e.g. residues arising from industrial waste disposal operations, clinical wastes, waste substances or articles containing or contaminated with PCBs, PBB, and PCTs),
- iii. waste classified as hazardous unless the application of the hazardous characteristics outlined in (i) above demonstrate that they are not hazardous (e.g. waste lead acid batteries, whole or crushed;
- iv. waste containing certain constituents or contaminants (e.g. wastes having as constituent or contaminants: arsenic and arsenic compounds, mercury and mercury compounds, lead and lead compounds), and
- v. waste requiring special consideration (e.g. wastes collected from households and residues arising from the incineration of household wastes)

- vi. waste the Minister may designate as hazardous

“Hazardous Waste” in *The Natural Resources Conservation (Permits and Licences) Regulations, 1996* is defined as ‘any substance which by reason its chemical activity, toxicity and explosivity, corrosivity or other characteristics, causes or is likely cause, danger to health or the environment, whether of itself or on contact with other waste’

¹⁸ Ecotoxic – Substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems (Basel Convention)

“Importer” means any person under the jurisdiction of the State of import who arranges for hazardous wastes or wastes to be imported

”Management” involves “the collection, transport and disposal of hazardous wastes, including after-care of disposal sites” (Article 2 of the Basel Convention)

“Solid Wastes” is the definition of ‘solid wastes’ in the *National Solid Wastes Management Act* which includes hazardous and radioactive wastes.

“Transboundary Movement” is defined as any movement of hazardous wastes or other wastes from an area under the national jurisdiction of one State to or through an area under the natural jurisdiction of another State or to or through an area not under the national jurisdiction of any State, provided at least two States are involved in the movement (the Basel Convention)

“Wastes” is defined in as ‘substances or objects which are disposed of or are intended to be disposed or required to be disposed of by law’ (The “*Natural Resources (Hazardous Waste) (Control of Transboundary Movement) Regulations, 2002*)

APPENDIX I

Select International/Regional Multilateral Environmental Agreements and Arrangements related to the management of Hazardous Wastes

Name of Treaty	Date of Entry into force of Agreement/ Arrangement	Date of Jamaica's Signature (S) Ratification (R) Accession (A)	Entry into force for Jamaica
1. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1989	May 5, 1992	January 1, 2003 (A)	April 23, 2003
2. Stockholm Convention on Persistent Organic Pollutants, 2001	May 17, 2004	June 1, 2007 (R)	September 1, 2007
3. Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Pesticides and Chemicals in International Trade, 1998	February 24, 2004	August 20, 2002 (R)	February 24, 2004
4. Vienna Convention for the Protection of the Ozone Layer, 1990	September 22, 1988	March 31, 1993 (R)	June 29, 1993
5. Montreal Protocol on Substances that Deplete the Ozone Layer, 1987	January 1, 1989	March 31, 1993 (R)	Dec. 22, 2003
6. International Convention for the Prevention of Marine Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78)	October 2, 1983	June 13, 1991 ()	September 12, 1991
7. The Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention)	October 11, 1986	April 1, 1987 (A)	May 1, 1987
8. Land-based Sources (LBS) of Marine Pollution Protocol	June 11, 2010	September 2015	-
9. Strategic Approach to International Chemicals Management (SAICM) ¹⁹	February 6, 2006 (<i>adopted</i>)	-	-

¹⁹ The Strategic Approach to International Chemicals Management (SAICM) was adopted by the International Conference on Chemicals Management on February 6, 2006. SAICM is an international policy framework to foster sound chemicals management. There are three main texts arising out of this

10. International Health Regulations, 2005	June 15, 2007		
11. London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972	August 30, 1975	March 22, 1991	April 21, 1991
12. The Minamata Convention on Mercury	January 19, 2013 (adopted) August 16, 2017	October 10, 2013 (S) July 19, 2017 (R)	October 19, 2017

Arrangement: the High-Level Declaration (describes the reasons for SAICM), Overarching Policy Strategy (describes SAICM's scope, objectives and other key elements) and the Global Programme of Action (over 250 actions to be undertaken by stakeholders towards achievement of the 2020 World Summit on Sustainable Development Goal)

APPENDIX II

NRCA Approved Hazardous Waste (Waste Oil) transporters and end users

Used Oil Transporters and End Users	
Company	Contact Information
EWS Limited (Desmond Henry)	Desmond Henry EWS Limited Porus P.O. Manchester Tel: 904 1416/ 383 2617 Fax: 904 1415 Email: coreporus@live.com
Initial Trading	Calvin Barham Initial Trading 2 Red Hills Road Kingston 10 Tel: 620 5798 424 0875 Fax: 929 8105 Email: b_initial_trading@yahoo.com initial.trading@gmail.com
RYCO	Kevin Mullane RYCO P.O. Box 239 Mandeville Manchester Tel: 987 1891 997 4451 Fax: 987 1629 Email: rycoja@aol.com
Nordia's Cleaning Services	Nordia Stewart Nordia's Cleaning Services 5 East Lot 278 Greater Portmore P. O. Tel: 864 2378 Email: nordistewart@live.com
RE3 Recovery Services	25 Benson Avenue, Kingston 8
C Smith Boating	Christopher Smith C Smith Boating & Launch Services 1C Upper Elleston Road Kingston 16 Tel: 774 7983

	349 9612 Email: csmith94launch_trucking@yahoo.com
Everglades Farms	Andrew Hussey Everglades Farms Ltd. 21 Central Avenue Kingston 10 Tel: 754 9711 926 2211 Fax: 908 1484 Email: evergladesfarms@gmail.com
S & G Road Surfacing Materials Limited	S&G Road Surfacing Materials Ltd. Lot 1 Dunsinane P.O. Box 1310 Mandeville Manchester Tel: 603 4230-1 Fax: 963 0359 Email: sarchibald.sg_road@yahoo.com
Dormaine Trucking	Romaine Mahon Dormaine Trucking Toll Gate Clarendon Tel: 509 7701 Email: dormaine_trucking@yahoo.com

APPENDIX III
Waste Management Hierarchy

