

NATIONAL PROFILE

for the

MANAGEMENT of CHEMICALS in JAMAICA



FIRST EDITION

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INTRODUCTION

The Inter-Governmental Forum on Chemical Safety (IFCS), has recommended that each focal points prepares a National Profile which should indicate the current capabilities and capacities for the sound management of chemicals. The main objective of this assignment was to afford the countries the opportunity to conduct a comprehensive assessment of their national infrastructure. This would also allow them to focus attention on the strengths, weaknesses and threats in their approach to chemical management.

The disclosure from this undertaking should provide the basis for the commencement, improvement or strengthening of the national policy, technical and administrative framework. Ultimately, member countries would be able to fulfill their responsibilities under Chapter 19 of "Agenda 21" which speaks to the sound management of chemical as a crucial step in the achievement of sustainable development.

In the preparation of the National Profile for Jamaica, it was vital to have co-ordination and participation among all the relevant government ministries, agencies and stakeholders that were involved at all stages of the chemical lifecycle. This collaboration minimized the communication barriers and facilitated the sharing of information which resulted in:

- a better understanding of the existing and potential problems related to the management of chemicals in Jamaica.
- a disclosure of the initiatives and activities that were being undertaken or proposed by the stakeholders for the management of chemicals
- an alliance that will facilitate the development of integrated activities linking all stages of the chemical life cycle including production, import, export, storage, transport, distribution, use and disposal of chemicals.
- a recognition of the deficiencies in the existing legal, institutional, administrative and technical infrastructure related to sound chemical management.

This National Profile will provide accurate and current information on chemical management in Jamaica. It is expected to function as a key reference document for many different parties and provide guidelines for improved chemical management at the national and community level. In order for it to remain an authoritative national document, periodic reviews and updates will be undertaken.

List of Ministries, Agencies and Stakeholder participating in the preparation of the National Profile on Chemical Management in Jamaica

A multi-stakeholder Committee was established in March 2004 comprising representatives of principal agencies from the public and private sectors and Non-governmental Organizations (NGOs) involved in the Sound Management of Chemicals and Waste as follows:

Ministries

- Ministry of Finance and Planning
- Ministry of Health
- Ministry of Local Government and Environment
- Ministry of Labour and Social Security
- Ministry of Housing, Transport and Works

Government Agencies and Departments

- Office of Disaster Preparedness and Emergency Management
- National Solid Waste Management Authority
- Bureau of Standards
- Planning Institute of Jamaica
- Jamaica Custom Department

Other Institutions (Public Interest Groups, NGO's, Research Sector, etc.)

- Jamaica Agro-chemicals Association
- Joint Confederation of Trade Union
- National Consumers League
- University of the West Indies (Chemistry Department)

CHAPTER 1: National Background Information

1.0 Physical and Demographic Context

Figure 1.A Map of Jamaica



<p>Area: 10,991 sq km (4,244 sq mi)</p> <p>Population: 2,650,900</p> <p>Ethnic groups: black 90.9%, East Indian 1.3%, white 0.2%, Chinese 0.2%, mixed 7.3%, other 0.1%</p> <p>Capital: Kingston 575,000</p> <p>Religion: Protestant, Roman Catholic, other spiritual beliefs</p> <p>Languages: English, English-based patois</p> <p>Literacy <i>definition:</i> age 15 and over has ever attended school <i>total population:</i> 85% <i>male:</i> 80.8% <i>female:</i> 89.1% (1995 est)</p>	<p>Life Expectancy <i>total population:</i> 75.64 years <i>female:</i> 77.73 years (2002 est.) <i>male:</i> 73.65 years</p> <p>GDP Per Capita U.S. \$3,800</p> <p>Economy Industry: tourism, bauxite, textiles, food processing.</p> <p>Agriculture: sugar cane, bananas, coffee, citrus; poultry.</p> <p>Exports: alumina, bauxite; sugar, bananas, rum</p>
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1.1 Geographic Structure

Jamaica is a Commonwealth country that gained independence in 1962. It is an archipelagic state, and part of the Greater Antilles of the West Indies. It is the third largest island of the Caribbean, located south of Cuba and west of Haiti. Jamaica's topography is characterised by a mountainous interior and low coastal plains with scattered hills and plateaux. The country enjoys a Tropical climate with mean annual temperatures at 27°C (80°F). The extremes of heat and humidity are however rendered moderate by the northeastern trade winds at frequent intervals. Temperatures in the plateaux and mountain areas are much less. Rain falls occurs frequently but it varies from region to region.

The Blue Mountain which is the highest point is in the east, with the highest peak reaching 2,260 meters. The island, which is 235 km at its longest point and 80 km at its widest, lies in the earthquake and hurricane belt. Hurricanes threats are frequent in late summer and early autumn. It is also prone to severe earthquakes, but it has not experienced any volcanic eruption.. The coastline is long and irregular and has a number of natural harbours as well as thermal springs and numerous fast-flowing rivers. It is a popular tourist destination as the sun and the sands of Jamaica attract people from all over the world. The island is very aptly named after the Native American word Xaymaca, meaning "isle of springs."

The country has fourteen parishes which are located in three counties, namely: Cornwall, Middlesex and Surrey (see Table 1A) The parish and city of Kingston together cover area of over 25 sq km (10 sq miles) and is the capital of Jamaica. Kingston's large sheltered harbour has made it possible for the city to be a major shipping port for over three centuries. Montego Bay which is the second city is located on the Northwest coast of the country. It is the main tourist destination with the largest amount of hotels and cruiseline terminal at its Freeport. The two international airports in the country are the Norman Manley International Airport (formerly the Palisadoes International Airport) in Kingston and the Donald Sangster International Airport in Montego Bay. They are both equipped to receive the most modern types of aircraft.

Kingston is a modern city built on a plain gently sloping upwards from the shores of the harbour northwards to the hills of St. Andrew. It is the seat of government and the centre of industry, commerce and culture. The City of Kingston embraces the urban centres of St. Andrew, and is administered jointly by the Kingston and St. Andrew Corporation (KSAC).

Table 1.A – Size, Distribution of Parishes and Total Population per County			
Counties	Size	Parishes	Total Population
Cornwall	Western County 4,053 sq km (1,565 sq miles),	St. Elizabeth Trelawny St. James Hanover Westmoreland	609,400
Middlesex	Middle County 5,248 sq km (2,026 sq miles),	St. Catherine St. Mary Clarendon St. Ann Manchester	1,208,000
Surrey	Eastern County 2,124 sq km (820 sq miles),	Kingston St. Andrew St. Thomas Portland	833,400

Source: Economic and Social Survey Jamaica 2004/Geography and History by Gleaner Co.

1.2 Population

The population of Jamaica as at 2004 was estimated at 2,650,900. The country is currently at an advance stage of demographic transition reflected in the longterm pattern of decreasing trends in mortality and fertility rates. The changes in the population have resulted in the aging of the population reflected in a declining 0-14 age group, an increasing working group (15-64), as well as an increasing 'dependent elderly' age group (65+). The annual population growth rate was reported at 0.5 percent for 2004. The effects of high emigration rates continue to impact on the growth rates.

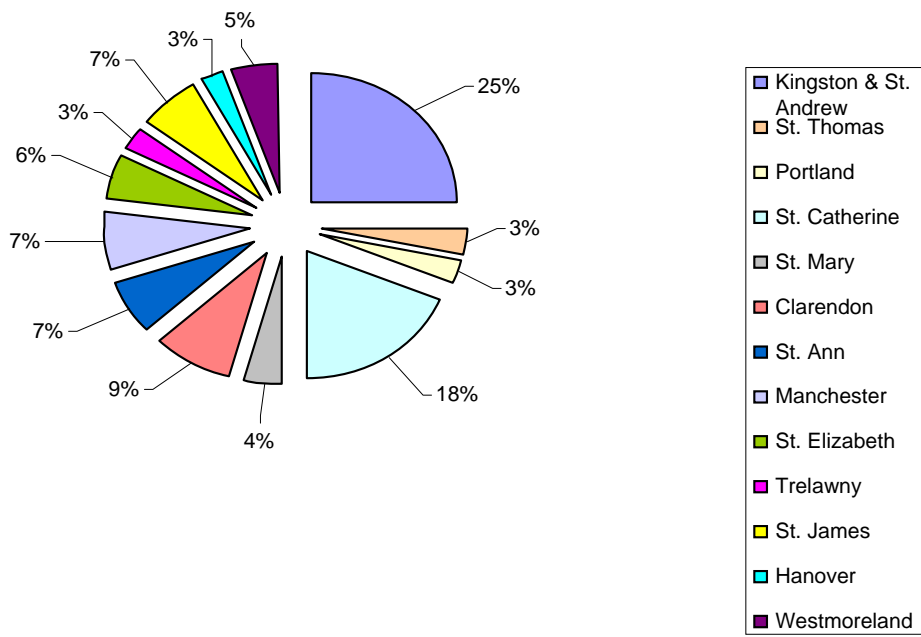
The distribution of the population disaggregated by sex shows 1,307,000 or 49.3% males and 1,343,900 or 50.7% females. This proportion has remained unchanged since 2002, depicting an almost equal sex distribution at 97.2 males per 100 females.

The population distribution by parish over the period 2001-2004 indicated that the largest proportions of the population were found in the two parishes of Kingston and St. Andrew (25%) which has the smallest carrying capacity with a coverage area of 480 sq km combined (see *Table 1B & Fig. 1.0*). This rapid growth in rural/urban migration has resulted in imbalances between population and development which is evident in social and environmental degradation.

Table 1.B: Distribution of Population by Parish		
Parish	Size	Population at 2004
Kingston & St. Andrew	480 sq km	660,600
St. Thomas	750 sq km	92,600
Portland	820 sq km	80,200
St. Catherine	1260 sq km	486,800
St. Mary	634 sq km	112,600
Clarendon	1167 sq km	241,100
St. Ann	1200 sq km	172,700
Manchester	850 sq km	194,700
St. Elizabeth	1185 sq km	145,900
Trelawny	880 sq km	73,000
St. James	600 sq km	181,700
Hanover	442 sq km	66,300
Westmoreland	800 sq km	142,500
TOTAL		2,650,900

Source: Economic and Social Survey Jamaica 2004/Geography and History by Gleaner Co.

Figure 1.1: Percentage Distribution of Population by Parish



Source: Author

1.3 Political Structure

Jamaica is a parliamentary democracy based on a system of representative and responsible government. It has a bicameral legislature made up of a 21-member senate and a 60-member house of representatives. The executive branch consists of a cabinet, which is headed by the prime minister. The official heads of government are the governor-general (appointed by the British sovereign), and the prime minister. Each member of the House of Representative represents a constituency. The parishes are divided into sixty (60) constituencies and further subdivided into Two hundred and Sixty Nine (269) electoral divisions.

Parliament

The Parliament consists of two Houses – the Senate and the House of Representative. The Senate is a nominated House which usually functions as a review chamber, considering bills passed by the House of Representative. In practice, most bills are initiated in the House of Representatives which has control over Government's finances.

Central Government

The Cabinet is the centre of the system of government. It initiates government policies and programmes, and is responsible for the general direction and control of Government. The business of the Government of Jamaica is conducted by a number of ministries, each headed by a minister, who is selected by the prime Minister from the members of the Houses of Parliament. Each minister is allocated a central office, and each ministry is assigned specific departments, statutory boards and agencies. Ministries may name committees as advisors on specialized aspects of their responsibilities. Each ministry is administered by a senior civil servant called a Permanent Secretary who is the accountable officer for the ministry.

Local Government

Local government is organized by parish. Two of the fourteen parishes, Kingston and St Andrew, are amalgamated for local government purposes and administered by the Kingston and St. Andrew Corporation (KSAC). The parochial affairs of the other twelve (12) parishes, are administered by Parish Councils. Membership of the councils varies between thirteen (13) and twenty-one (21) persons (councillors) that are elected by the constituents.

All the parish capitals have mayors, who are elected by their respective parish councillors. The mayor is the chairman of the Parish Council. The council derives their revenue from budgetary loans, grants from central government and parish taxes and rates. Their functions include the administration of road construction, poor relief, recreational programmes, markets and other services on a parochial basis.

Table 1.C: Government Ministries and Regulatory Bodies	
Ministries	Functions
<i>Office of the Prime Minister</i>	The Office of the Prime Minister is responsible for the coordination of all government policies and strategies, as well as the various ministries, departments and agencies responsible for the implementation of these

	<p>policies. Many of this ministry's functions are carried out by the following agencies: The Cabinet Office, The Jamaica Information Service, The Urban Development Corporation</p>
<p>Cabinet Office</p>	<p>The Cabinet Office, which is headed by the Cabinet Secretary, is responsible for the co-ordination, follow-up and implementation of Cabinet decisions by the relevant ministries and public sector companies/ agencies. The Cabinet Secretary is also head of the public service and he is therefore mandated to improve its efficiency through the conversion of some departments into executive agencies.</p>
<p>The Ministry of Industry Commerce, Science and Technology</p>	<p>The major role is to promote business development and job creation, through the establishment of an appropriate legal and regulatory framework. This includes the provision of factory space and the liberalisation and promotion of the commercial, telecommunications, as well as information technology sectors.</p>
<p>Ministry of Agriculture and Land</p>	<p>The Ministry of Agriculture is responsible for the conceptualisation and implementation of government's agriculture policy. This includes the provision of extension services and research capabilities, the results of which are passed on to the members of the agricultural sector. It is also responsible to implement government's land settlement policies.</p>
<p>Ministry of Health</p>	<p>The role of the Ministry of Health is to develop and implement government's health policies and strategies, which is to provide affordable health care to as many people as possible. The ministry also has the responsibility to regulate the sector, while ensuring that its manpower needs met.</p>
<p>Ministry of Finance and Planning</p>	<p>The role of the Ministry is to conceptualise, develop and implement prudent macro economic policies and strategies in conjunction with the multilateral agencies. The ministry is also responsible for the establishment of an appropriate legal and regulatory framework, in order to safeguard the integrity of country's financial system.</p>
<p>Ministry of Education and Youth</p>	<p>The Ministry's main responsibility is to develop and implement an education policy, which will produce a confident, competent and enterprising work force, capable of functioning efficiently in the global economy.</p>
<p>Ministry of Foreign Affairs and Foreign Trade</p>	<p>The Ministry of Foreign Affairs and Foreign Trade is responsible for the management of Jamaica's international relations and the promotion, as well as protection of its interests overseas. This includes the formulation and implementation of foreign and foreign trade policies, in order to contribute to the country's social, economic and cultural development.</p>
<p>Ministry of Local government and the Environment</p>	<p>The mandate of this ministry is to renew the country's inner cities by improving the housing, road, sewerage and intellectual infrastructure. It is also responsible for the control of urbanisation and local government reform</p>

	whilst protecting the environment. Many of this ministry's functions are carried out by the Social Development Commission and the National Environment and Planning Agency.
<i>Ministry of Labour and Social Security</i>	The role of the Ministry of Labour and Social Security is primarily to ensure that the country maintains a stable industrial climate, which is conducive to increased investments, productivity and employment. It is also responsible for the implementation of the process of labour market reform and the management of public sector pension funds
<i>Ministry of Housing, Transport and Works</i>	The Ministry implements the government's transportation policy, the objective of which is to maintain a safe, reliable and efficient land, air and sea transportation system. The ministry must also ensure that the country has an adequate, safe and reliable supply of potable water. It is also mandated to provide affordable housing solutions to the population. Many of this ministry's functions are carried out by the following agencies: National Water Commission Water Resources Authority
<i>Ministry of National Security</i>	The major role of the Ministry of National Security is to develop and successfully implement government's policies and strategies to maintain law and order, as well as national security. The Ministry is also responsible for ensuring that the security forces are properly trained, funded and equipped, in order to achieve this objective. Several of the functions of this ministry are carried out by: The Jamaica Constabulary Force and The Jamaica Defence Force
<i>Ministry of Tourism, Entertainment and Culture</i>	The role of the Ministry is to implement government policies aimed at maximising the country's investment, employment, revenue and foreign exchange earnings potential from the industrial and tourism sectors. The Jamaica Tourist Board

1.4 Economy

Historically, the Jamaican economy has had an agricultural base, dependent on a few staple export crops, primarily sugar and bananas. New economic development began with bauxite mining (after 1952), and the tourism boom in the 1950s and 1960s. Since the 1990s, tourism has become the major earner of foreign exchange.

The international recession which occurred in the mid-1970s, adversely affected economic growth. Jamaica's economic stabilization and adjustment process, which began in the 1980s, advanced significantly during the 1990s as the stages of deregulation and liberalization were accelerated. This included the liberalization of the foreign exchange market, market determined interest rates, removal of price controls on goods, elimination of subsidies in products, lowering of fiscal borrowing requirements, and increasing the pace of privatization of government owned entities.

The main impetus for economic growth has come from expansion in the tourism industry, rehabilitation of export in agriculture, recovery in the bauxite/alumina industry (after a setback in the 1980s) and in the service sector. The economy is dominated by the services sector (including tourism), which in 2004 accounted for 71.8% of GDP. It is followed by the industrial/manufacturing sector with 13.8% and then construction with 9.8%. The mining sector, which produces bauxite and aluminum accounted for 5.8% and agriculture for 5.5% of GDP and. Government policy is targeted on improving the macro-economic environment and encouraging private sector growth in particular in agriculture, industry, manufacturing, and tourism (see Table 1D & Fig. 1.1).

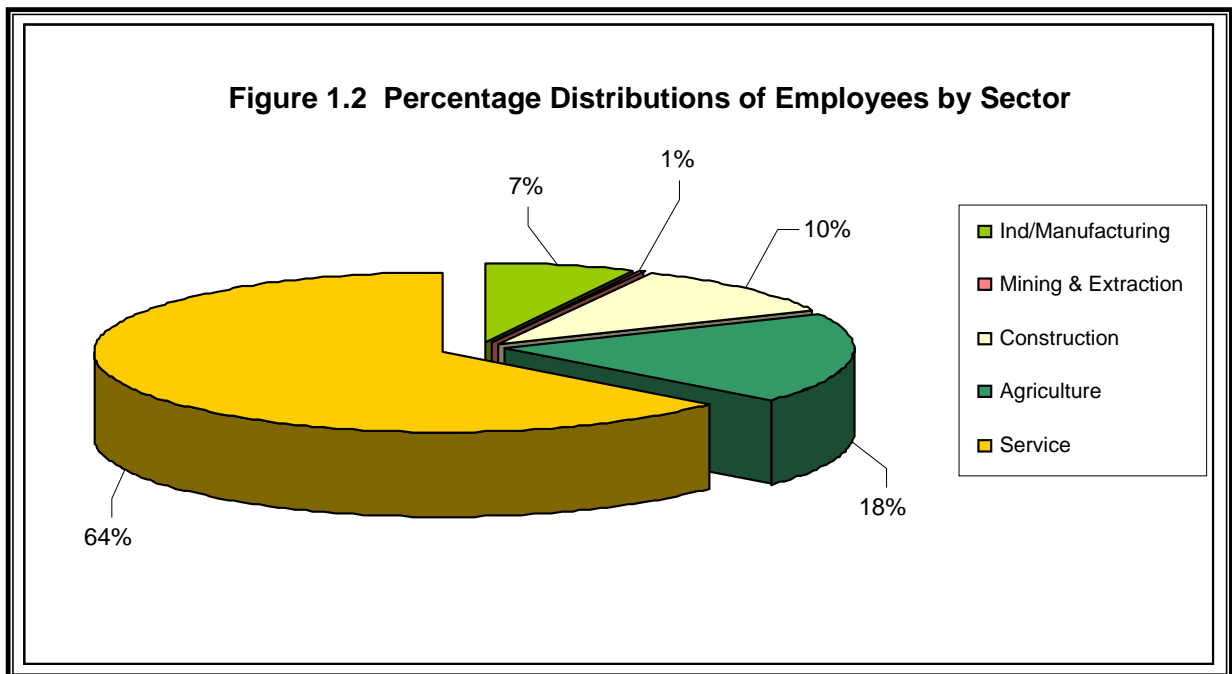
Like many other small developing island states, Jamaica has a fragile ecological systems and complex environmental management problems. The country's geographic location and size contributes for its ecological fragility, particularly to inclement weather (e.g. tropical storms) and geological forces such as earthquakes. Natural disasters, diseases, pests, environmental degradation resulting from inappropriate environmental practices have had a serious effect on the stability of food supply and economic viability in recent years.

The sustainable management of the environment and natural resources are critical issues that must be addressed because the main economic activities such as mining, tourism, agriculture and forestry depend heavily on the natural environment. The efforts for sustainable development are, however, constrained because of the distinct biophysical, socio-cultural and economic characteristics of the island. The capacity to implement sound economic and environmental management is reduced by common disadvantages such as limited natural resources, fragility of ecosystems, vulnerability to natural hazards, peculiar population dynamics and the lack of human and financial resources.

Table 1.D : Percentage Contribution to GDP and Number Employees by Sector			
Sector	Contribution to the Gross Domestic Product (%)	Number of Employees '000	Major Products in each Sector

Industrial/Manufacturing Sector	13.8	72.3	Chemical Production ,Food Sugar, Rum, Molasses, Petroleum Refining, Beverages & Tobacco Non-metallic Minerals
Mining and Extraction	5.8	5.3	Bauxite, Quarry
Construction	9.8	109.2	Residential and Non Residential Buildings
Agricultural Sector	5.5	195.6	Sugar Domestic Crop Meat & Poultry
Service	71.8	675.9	Tourism Transport Finance Retail Trade
TOTAL			

Source: Economic and Social Survey Jamaica 2004



Source: Author

Table 1.E: Breakdown of Industrial and Agricultural Activities by Parish

Parish	Size	Population	Industrial Infrastructure	Agricultural Production
Kingston	25 sq km	660,600	Commercial Centre Major Industrial area	Main Agriculture produce - coffee, vegetables and - ground provision
St Andrew	455 sq km		Major shipping ports Oil refinery Gypsum production	
St. Thomas	750 sq km	92,600	Shipping port Two Sugar factories	Main Agriculture produce - bananas, coffee, - coconuts, sugar
Portland	820 sq km	80,200	Major tourist area Hotels Two harbours	Main Agriculture produce - bananas, coconuts
St. Catherine	1260 sq km	486,800	Five sugar factories One alumina plant Alumina shipping port Food Processing and textile Plants	Main agriculture produce - sugar, coffee, rice - bananas, citrus, tobacco - cocoa - fishing
St. Mary	634 sq km	112,600	Sugar Factory	Main agriculture produce - sugar, coffee, pimento - bananas, citrus, coconuts - cocoa
Clarendon	1167 sq km	241,100	Sugar Factory Alumina Plant	Main agriculture produce - sugar, bananas
St. Ann	1200 sq km	172,700	Major tourist area Alumina Plants Harbour for bauxite shipment and cruise ships	Main agriculture produce - sugar, coffee, pimento - bananas, coconuts - citrus - cattle rearing
Manchester	850 sq km	194,700	Food processing Alumina Plant	Main agriculture produce - coffee, pimento, bananas - irish potato, oranges - ginger
St. Elizabeth	1185 sq km	145,900	Alumina plant Sugar factories Food Processing Plant	Main agriculture produce - vegetable, rice - Fishing
Trelawny	880 sq km	73,000	Sugar Factories	Main agriculture produce - sugar, ginger, pimento - bananas, yam
St. James	600 sq km	181,700	Main tourist area Major industrial and commercial city	Main agriculture produce - sugar, coffee, - bananas
Hanover	442 sq km	66,300	Shipping port Tourist area	Main agriculture produce - sugar, ginger, pimento - bananas, arrowroot - yam - cattle rearing
Westmoreland	800 sq km	142,500	Tourist area Sugar factory	Main agriculture produce - sugar, ginger, pimento - bananas, honey - cattle rearing

1.5 Agricultural Sector

The agricultural sector is important to Jamaica's economy. The sector accounts for 5.5% of total real GDP in 2004 and directly employed approximately 19% of the total employed labour force in the said year. The sector currently accounts for over one tenth of all merchandise exports.

The challenge facing the sector is how to increase efficiency, productivity and competitiveness in order that planned contribution to GDP will be realized. The key threats result from the level of reliance on imports, use of inappropriate technologies, high cost of capital and inadequate research and development. The Ministry of Agriculture is seeking to address these and other problems facing the sector through a programme geared at transformation of the sector. This transformation includes the provision of institutional and other support framework for the development of a viable agricultural sector, improvements in the production and marketing of agricultural produce, the adoption of appropriate technologies and promotion of agro-industrial development.

In order to increase the contribution of the sector to the economic growth and development of Jamaica a new agricultural development strategy is being formulated which is aimed at transforming the agricultural sector by the year 2020. The main objectives of the strategy are as follows:

- halt the decline of the agricultural sector in order to secure continued contribution to economic and social stability
- contribute to increased employment, export earnings and food security
- restore productivity to the agricultural resources, which have been lost due to deterioration in the cultural practices and reduced investments.
- expand the production of agricultural products, which have viable domestic and export markets and for which Jamaican farmers possess competitive advantage
- promote the development of agro-industry through the development of orchards which can provide raw material for industry on an efficient basis
- ensure that farming communities provide meaningful livelihoods and living environments for persons who rely on the agricultural sector.
- contribute to reduction in rural-urban drift and poverty in rural areas
- actively engage young people in agricultural enterprises.

In order to translate the policy priorities and desired outcomes outlined above into real results, the sector will provide a facilitatory environment. It will ensure the optimal use of available resources; provision of the necessary institutional and regulatory framework and the generation and transfer of appropriate technology.

Farming Practices in Jamaica

Jamaica is particularly susceptible to watershed degradation, as approximately 80 per cent of the land surface is hilly or mountainous with more than 50 percent having slopes of greater than 20 degrees. The two generalised sectors of Jamaican agriculture show distinctive topographical features. Large-scale farmers practice mono-cropping of export crops and occupy the most resource rich lands, that is, the coastal plains and the interior valleys with relatively fertile soils. Small farmers tend to occupy the upland of the central parishes, using the the hilly areas to conduct mainly subsistence farming.

The distinctive spatial inequality that exists in the distribution of fertile agricultural land between the two sectors is one of the features of Jamaican agriculture that has remain deeply ingrained over the years. Land concentration remains among a small number of large farms, while good agricultural land is a scarce commodity among thousands of small farmers. Small farmers continue to operate in a marginalized environmental and socio-economic situation which is often reinforced by the political institutional framework of the country.

The small farm sector continues to be labour intensive. Many agricultural projects aimed at small farmers encourage farmers to change their agronomic practices either by changing their crops, intensifying their production or increasing agro-chemical use. Assessments of sustainability of agricultural technologies are rarely worked out and this sometimes leads to unfavourable repercussions both on the environment and on the quality and quantity of produce. The use of agro-chemicals by Jamaican farmers increased significantly since the 1970s.

A survey conducted by Caribbean Environmental Health Institute along with other agencies described the current farming practices and agro-chemical usage in Jamaica as follows:

- In medium and large farms, most crops are grown in monoculture, while in smaller holdings several crops are grown on the same piece of land to enable harvesting all year round.
- In Jamaica, large farms utilise 38% of farmland but represent only 0.1% of registered holdings, whilst 90% of registered holdings relate to small farms and utilise 42% of farmland.
- Thirty two percent (32%) of land is under permanent crops, with sugar cane covering the largest area, followed by bananas.
- Small farms grow, in order of importance: banana, sugar cane, coffee, plantain, and cocoa, whilst large farms grow sugar cane, orange, coconut, banana, and pimento.
- A large part of the land under cultivation is on hillsides, with a high proportion of the farms on steep slopes.
- International agreements (including WTO, CARICOM, CBI, FAO PIC, and Cotonou) regulate trade among Caribbean nations and with other countries, and influence agricultural land practices. These agreements also determine agro-chemical use, and thus potentially affect environmental pollution.
- Widespread use of agro-chemicals (fertilisers and pesticides) by farmers in the islands. Farmers indicated that the use of agro-chemicals increased their

yields and improved the appearance of their produce. The majority of farmers indicated that they would use more agro-chemicals if they had the resources.

- Pest and disease control was done almost entirely through chemical applications in both islands. The control of weeds, however, was done mainly by mechanical means.
- Farmers also indicated that most of their excess chemicals were stored for future use, applied to the soil, or buried. They disposed of containers by burning, and most used some sort of protective clothing while spraying.
- Results show that many of the farmers Jamaica were unaware of the environmental impacts of using agro-chemicals on their farms

1.6 Industrial/Manufacturing Sector

The Manufacturing Sector continues to make a significant contribution to the Gross Domestic Product (GDP) of Jamaica with an average annual GDP share of approximately 16.8% over the last ten years.

The manufacturing sector is a large employer of labour in Jamaica with an estimated labour force of approximately 67,000 persons in 2002 (or about 7% of the total employed labour force) spread across a wide range of industries. The sector is an important source of export earnings, with an average of approximately US\$401.8 million over the last ten years. The main export market is the USA, where processed foods, beverages and apparel are major revenue earners.

Petroleum refining, food processing activities and the carbonated beverages industry performed creditably. The growth in the output of poultry meat resulted from increased capacity by key producers following the acquisition of new machinery, while the rise in petroleum production reflected a return to normal operations at the Petrojam Refinery. These improved performances reflected the results of restructuring processes and retooling efforts by individual plants seeking to improve productive efficiency.

The focus of Government policy in manufacturing has been towards expanding manufacturing through:

- Building international competitiveness
- Facilitating technological upgrading of plant, equipment and operations
- Encouraging export expansion while ensuring that domestic production is strengthened
- Access to government-owned land and factory space
- Fiscal and other manufacturing incentives for retooling and expansion
- Advanced transportation network and telecommunications infrastructure

Manufacturers in Jamaica have been benefiting from significant improvements in transportation and telecommunication infrastructure due to the success of Government's efforts to substantially liberalize these sectors through private sector input.

The road network has been significantly improved through the Highway 2000 Project now underway. Port and shipping facilities in Kingston have also been improved with the addition of new gantry cranes and a sophisticated Global Positioning System (GPS) for handling cargo containers.

Telecommunications facilities include three mobile cellular telephone service providers with a fully digital network providing coverage across Jamaica and the availability of high-speed Internet connectivity. This network has been further enhanced by a fibre-optic submarine ring around the island.

Chapter 2: Chemical Production, Import, Export and Use

The chemical industry is represented by a network of importers / manufacturers, importers/distributors and manufactures distributors. Of the over fifty (50) importers there are six large companies that may be categorized as importers/distributors, serving both the industrial and household chemicals market.

Chemicals are imported into the country as raw materials, intermediaries and as finished products. The imports are mainly for the petrochemical, paint, bauxite mining and agricultural industries and for manufacture of industrial and domestic cleaning compounds (*see Table 2.A*). Presently chemical exports are restricted to finished products such as cleaning/sanitation compounds and paint. The extent of chemical production in the country is considered negligible and is yet to be determined.

Chemicals are imported mainly from the USA into Jamaica. However Europe, United Kingdom and the Far East have supplied these substances to local distributors. Administrative measures for management of chemicals include inspection of facilities, monitoring of personnel and an import permit system. The Standard and Regulation Division in the Ministry of Health, monitors and controls the importation of chemicals through a permit system. The Jamaica Customs Department acts as an agent by facilitating the entry of the chemical products approved on the permit.

There is close collaboration with Jamaica Customs, National Ozone Unit, Trade Board and The Ministry of National Security on strategies to manage the import stage of the chemical life cycle and facilitate trade. However, whilst the importation of some chemicals such as precursors and pesticides are regulated, the export and in-transit controls of chemicals are either limited or non-existent

Table 2.A : Quantity of Selected Chemicals Imports by Industry		
Industry	Chemicals	Quantity (kg)
Agriculture (Fertilizers) There are two companies that import fertilizers in bulk or as raw materials. Chemicals include Magnesium Sulphate, Calcium Phosphate monobasic, Sodium Pyroborate, Diammonium Phosphate, Urea and Fersan Mix.	Urea in aqueous and non-aqueous forms	7,132,915
	Nitrogen + Phosphorus+ Potassium (NPK)	3,129,435
	Other mineral or Chemical fertilizers	381,027
	Other minerals or chemical fertilizer	17,060,739
Bauxite and Cosmetics Most of the chemicals used the bauxite industry are Precursor Chemicals. Substances imported on a large scale include Caustic Soda, Acetone, Methyl Ethyl Ketone Peroxide (MEKP), Sulphuric Acid and Sodium Sulphate	Acetone	633,878
	Caustic Soda and lye	272,829,866
Food Processing	Propane	17,297,678
	Citric Acid	398,433
Sanitation and Water Purification This is the most vibrant sector of the chemical industry. Industrial cleaning compounds, household cleaners.	Chlorine (Gas)	1,454,134
	Hydrochloric Acid	1,020,817
Paint These are four large importers of raw materials for manufacture of household paints. Raw materials include Methyl Isobutyl Ketone (MIBK) Toluene, Xylene, and glacial acetic acid. Products for the automotive and industrial markets are imported as intermediaries or finished products.	Toluene	1,667,126
	Titanium Oxide and Titanium dioxide	1,919,739
	Methylene Chloride	82,879
	Varnishes and lacquers	71,964 litres
Petrochemicals Fuel additives, Toluene, isopropyl alcohol are chemicals imported by the companies in this industry.	Petroleum oils and minerals	38,055 cu. Metres

Chapter 3: Priority Concerns Related to Chemical Production, Import, Export and Use

3.0 Operational Concerns related to Chemical Management

Each stage in the chemical life cycle can make significant contribution to social and economic development of the country but, it also has the potential to negatively impact various areas of development. The main concerns with the activities at the different stages of the life cycle are directly related to the health, environmental and economic implications.

Chemicals are present in all segments of human life, in all stages of the life cycle from production, treatment processing, distribution, storing, transport and use, to chemical waste management and disposal. Chemicals that are produced, traded and used in Jamaica can be placed in three broad categories; industrial, agricultural and consumer/household chemical products. Immediate concerns for the regulators include the transport of hazardous chemicals and the inappropriate labelling of cleaning compounds.

3.1 Chemical Production

Chemical production of household/consumer chemicals have been increasing over the years. This is most evident in paint production which is primarily influenced by the increased activities in the construction industry. However, while the increase in production will stimulate economic development; there are serious concerns in the area of occupational health.

There are several challenges as it related to the enforcement of occupational health safety standards (such as the use of protective gears) which at times are either disregarded, poorly enforced or non existent in some production facilities. In addition, getting conformity to these safety standards through education programmes are difficult when dealing with a working population with low literacy levels. If workers continue to handle toxic chemicals without adequate protection and a clear understanding of the chemical hazards there is the potential risk of chemical exposure.

3.2 Chemical Trade, Use and Distribution

There is widespread concern about the potential dangers of the increasing amounts of toxic chemicals being imported into small island developing states such as Jamaica. The lack of adequate legislation and mechanism to control the importation, distribution and use of these toxic chemicals is a serious concern for Jamaica. . Some pesticides may be imported in bulk and then repackaged without adequate labelling, resulting in accidental poisonings. Chemicals imported for market research or donated, may simply sit in a warehouse until the containers deteriorate and the contents spill out or seep down into the groundwater.

Pesticides have been widely used in campaigns to control mosquitos and other insect pests with no monitoring of possible environmental effects. Accidents with toxic chemicals are potentially more serious within the limited environment of small

islands. The limited expertise and experience in identifying poisoning by toxic chemicals. will probably result in most incidents going undetected and unreported. In addition, monitoring for chemical residues in foods (cultivated and imported) and the environment is not conducted on a large scale.

3.3 Chemical Waste

The intra-island disposal of hazardous waste, including chemical wastes, remains a challenge for the country due to deficiencies in the institutional and regulatory frameworks governing chemicals management.

The origin of the chemical waste and the manner in which they are managed varies. Industrial chemical wastes for example, are mostly stockpiled for indefinite periods. In some instances, this waste is inappropriately stored and as such pose a threat to human health and the environment. Residual household chemicals are not separated from the remainder of domestic waste and is disposed of in the municipal garbage and sent to the island's disposal sites, which are classified as sanitary landfills. The non-segregation of household chemical waste at source or at the island landfill sites poses a potential occupational health and safety as well as environmental risk.

Other key sources of chemical wastes include chemicals which have been detained by the Customs authorities for varying reasons or chemicals which were intended for trans-shipment, but which have remained at the island's ports. These chemicals are presently being stored at the ports in less than ideal conditions. There is also the problem of the interim storage and ultimate disposal of precursor chemicals seized by the local authorities.

3.4 Chemical Disposal

Jamaica does not have any centralized or dedicated hazardous waste storage, treatment or disposal facilities. Hence, the country is constrained in its ability to dispose of its chemical wastes in an environmentally sound manner.

Due to the lack of appropriate facilities for the disposal of chemicals wastes, these substances are either stored at the site of generation or at off-site locations or are indiscriminately disposed of. The storage of such wastes has created stockpiles in several sectors. A key example is the stockpiling of chemical wastes at the island's ports of entry. These stockpiles are as a result of *inter alia*

- 1) the detention of illegally imported chemicals
- 2) chemicals intended for trans-shipment, but which have remained at the ports, and
- 3) importers not claiming chemicals for varying reasons, including the non-payment of customs duties

Most of these chemicals are detained in warehouses at the ports which are not fitted to facilitate the long-term storage of such substances. The inappropriate storage of these chemicals has resulted in some of the packaging being compromised. The labels are either absent or have disintegrated and are illegible. Many carcinogens, irritants and persistent organic pollutants (POPs) are among the waste are identifiable. The absence of proper guidelines or protocols for management of these chemicals after detention has resulted in them being stockpiled at detention centres.

Companies have made requests to the National Solid Waste Management Authority for the disposal of chemical wastes at the municipal landfill sites. These requests are evaluated and only granted in exceptional cases, where the Authority is of the

opinion that it has the competence to manage such wastes. One example is the acceptance of asbestos at the island's main landfill site.

It should be noted however that the National Solid Waste Management Act requires the National Solid Waste Management Authority to provide facilities for the collection, treatment and disposal of solid wastes (*which includes hazardous wastes*) and to institute measures to encourage waste reduction and resource recovery. The Authority presently does not have the necessary technical expertise or infrastructure to dispose of chemical wastes.

There is need for dedicated facilities to store and treat chemicals wastes, particularly the more toxic substances. There is also the need to upgrade the landfill site to a sanitary landfill to include a hazardous waste cell or to develop a sanitary landfill with the requisite infrastructure to manage some categories of the chemical wastes.

Chapter 4: Legal Instruments and Non-Regulatory Mechanism for Managing Chemicals

4.0 National Legislative and Non-Regulatory Framework

The management of chemicals is covered under several Acts (*see Table 4.A*). Pesticides are regulated under the The Pesticides Act, 1975. Pharmaceuticals are governed under the Precursor Chemicals Act, 1999, however all other categories of chemicals, are unregulated. There is an urgent need for legislation, to govern the management of these unregulated chemicals, in order to effectively monitor the operations at the different stages in chemical life cycle. The respective Acts require the enactment of regulations to provide for the storage and disposal of these substances

Regulations have been enacted under the Natural Resources Conservation Authority Act, 1991, to regulate the transboundary movement of hazardous wastes for recovery, recycling and disposal. This is in keeping with the obligations under the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal. In addition, the Natural Resources Conservation (Permits and Licences) Regulations, 1996 provides for the issuance of permits for the establishment of hazardous wastes storage, transportation and disposal facilities.

The National Solid Waste Management (NSWM) Act, 2001 governs the management of solid wastes. This Act includes 'hazardous wastes' in its definition of 'solid wastes'. A deficiency of the present chemical waste disposal framework is the absence of a national policy to provide the overarching framework within which chemical waste management issues, particularly disposal, would be clearly articulated. A national hazardous substances and hazardous wastes management policy is being developed which will, *inter alia*, provide a framework for chemicals management.

4.1 International Agreements

Jamaica is signatory and party to the following protocols and conventions that are geared towards the sound management of chemicals.

- Basel Convention on the Control of the Transboundary Movements of Hazardous Wastes and Disposal
- Stockholm Convention on Persistent Organic Pollutants
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in international Trade
- Montreal Protocol on Ozone Depleting Substances
- Chemical Weapons Convention Organization for Prohibition of Chemical Weapons – Organization for Prohibition of Chemical Weapons

Jamaica supports the World Summit on Sustainable Development (**WSSD**) Plan of Implementation. The link of poverty alleviation to the Sound Management of

Chemicals and the cost of chemicals mismanagement to the health care system cannot be over emphasized. To allow strategic and integrated approach of chemicals management, overarching legislation for the sound management of chemicals in particular hazardous substances, is needed urgently.

While the chemical industry has responded positively to administrative measures the legal mechanism to provide support is inadequate. Jamaica actively supports the efforts and decisions of the international community related to sustainable development and poverty alleviation.. In addition it is an advocate of the efforts by the Inter-Governmental Forum on Chemical Safety (**IFCS**), and endorses the Strategic Approach to International Chemicals Management (**SAICM**).

Jamaica is required to fulfill the relevant obligations under the several international agreements and convention to which it is signatory or state party. Most of these treaties mandate state parties to enact legislation or develop national policy to satisfy the requirements. However, the legislation or national policies to satisfy the obligations of these treaties are at various stages of development.

Table 4.A: Existing Legal Instruments Which Address the Management Of Chemicals	
Legislations/Regulations	Objectives
The Disaster Preparedness and Emergency Management Act, 1993	This Act applies to disasters that result in damage or loss to property, environment, death or injury of persons on a scale that requires emergency intervention by the state. A key feature of the Act is that it makes provision for the identifying and analyzing hazards or emergency situations and conducting related operational research into their effects. (It defines hazard as a natural or manmade phenomenon that may cause physical damage, economic losses or threaten human life and well being, if it occurs in an area of human settlement, agriculture or industrial
The Natural Resources Conservation Authority Act, 1991	The key feature of this Act relates to the discharge or disposal of substances. It sets out that a license is required for the discharge of trade effluent, any poisonous, noxious or polluting matter into waters, on or into the ground. This also applies to the construction or altering of any works for the discharge of any of the above matter. (Trade effluent is any liquid, except domestic sewerage, that is discharged from premises used for trade or industry).
The Food and Drug Act, 1975	There are six key features of this Act: * the restrictions surrounding the importation of food, drugs and cosmetics and devices ; * it prohibits the sale of food that contain any poisonous or harmful substances; * it makes provision for the issue of an order to request the composition or chemical formula of a substance; * it stipulates the preservatives and concentration thereof that are allowed in foods. It also gives strict guidelines on the use of the preservatives; * it requires the registration of a drug before it can be imported, manufactured or sold;

	<p>* it gives a list of drugs that require a prescription to be sold and limits the importation of these drugs to a medical or veterinary practitioner, drug manufacturer, registered pharmacist or public hospital, drug distributors.</p>
The Pesticides Act, 1975	<p>This Act applies to all products, organisms and devices sold or used to control pests. It sets out the requirements for the importation, manufacture, advertisement, or sale of any pesticide. It stipulates that:</p> <ul style="list-style-type: none"> * Every pesticide must be registered. * The importer or manufacturer must be licensed. * Pest control operators must be licensed. <p>The Act gives a list of restricted pesticides that can only be sold by authorized persons on registered premises. It also gives a list of prohibited pesticides, which are not allowed into, or to be used in the island.</p>
Table 4.A: Existing Legal Instruments Which Address the Management Of Chemicals	
Legislations/Regulations	Legislations/Regulations
The Petroleum (Quality Control) Act and Regulations, 1990	<p>This Act governs the exploration, development and management of petroleum resources in Jamaica. It also applies to all aspects of the petroleum industry from the refinery to the sale and distribution of petroleum and petroleum products.</p> <ul style="list-style-type: none"> * It specifies the normal / minimum composition of the various petroleum products. * It requires the registration of retailers, haulage contractors and drivers of the petroleum tanker wagons.
The Trade Act and Regulations, 1955	<p>The key feature of this Act is its application to the importation of the more harmful of hazardous chemicals. If it is viewed that there exist any safety, health, economic risk / hazard associated with a substance, restrictions can be placed on its importation. Under the Trade Act a ministerial order can be established that provides for:</p> <ul style="list-style-type: none"> * prohibiting absolutely the importation or exportation of goods or any class of goods from or into the country; * prohibiting the importation or exportation of goods from or to any country except under the authority of a license granted by the Minister; * regulating the distribution, the purchase or sale of goods or any class or description of goods. <p>The regulations of this Act states a list of restricted chemicals for which import licenses are needed for their importation.</p>
Precursor Chemicals Act, 1999	

Chapter 5: Ministries and Agencies and Other Institutions Managing Chemicals

5.0 Responsibilities of Different Government Ministries, Agencies and Other Institutions

Table 5.A : Ministries, Agencies with Responsibility for Chemical Management			
MINISTRY	AGENCY	ROLES/RESPONSIBILITIES	LEGISLATION
	Import/Export Control		
Ministry of Finance	Jamaica Customs	To regulate the import and export of goods including hazardous substances and wastes – generally ensures that restrictions on import/export contained within other legislation is enforced	<ul style="list-style-type: none"> • Customs Act, 1941 • The Customs (Amendment) Act 2001
Ministry of Health	Pesticides Control Authority (PCA)	To issue import permits for pesticides	<ul style="list-style-type: none"> • Pesticide Act, 1975 • Pesticide Regulations, 1996 • Pesticide (Amendment) Regulations, 1999
Ministry of Health	Pharmaceutical and Regulatory Affairs Unit (PRAU)	<p>To issue import permits for chemicals (including pharmaceutical and precursor chemicals)</p> <p>To control the authorization, importation, distribution and use of pharmaceuticals. The division ensures that all substances used as food, drugs, and cosmetics are safe and of high quality</p>	<ul style="list-style-type: none"> • Food and Drug Act, 1964 • Precursor Chemicals Act, 1999 • Precursor Chemicals Regulations (draft) 2005 • Public Health Act, 1975
	Maritime Authority of Jamaica (MAJ)	To regulate the labelling, packaging and stowage of dangerous goods on-board ships	<ul style="list-style-type: none"> • Shipping Act, 1998 sections 288-292 • Shipping (Pollution Prevention and Control) draft bill incorporates the provisions of MARPOL 73/78 •
	Port Authority of Jamaica (PAJ)	To regulate the use of Port facilities	<ul style="list-style-type: none"> • Port Authority Act, 1972
Ministry of Land and Environment	National Environment and Planning Agency (NEPA)	<ul style="list-style-type: none"> • To prohibits the import of hazardous wastes • To issue export permits for the transboundary movement of hazardous wastes 	<ul style="list-style-type: none"> • Natural Resources Conservation (Hazardous Wastes) (Transboundary Movement) Regulations, 2002 •
	Quarantine Authority	To inspect air or sea vessels upon their arrival and prohibits the offloading of anything that may be a danger to public health (including hazardous wastes)	<ul style="list-style-type: none"> • Quarantine Act 1951 (Based on the International Health Regulations but more detailed and specific to Jamaica) • International Health Regulations 1969 WHO, Geneva (Applicable to Air and Sea Ports) • MARPOL 73/78

Table 5.A : Ministries, Agencies with Responsibility for Chemical Management			
MINISTRY	AGENCY	ROLES/RESPONSIBILITIES	LEGISLATION
Ministry of Industry Commerce and Technology	Trade Board Limited	To issue import and export licences for specific items that may have a negative impact on the environmental, social or economic conditions of the country. To control the import and export of certain chemicals (including ozone depleting substances)	<ul style="list-style-type: none"> • Trade Act, 1955 • Trade (Prohibition of Importation) (Equipment Containing Chlorofluorocarbons) Order, 1998 • Trade (Restriction of Importation) (Chlorofluorocarbons) Order, 1999 • Trade (Restriction of Importation) (Chlorofluorocarbons) (Amendment) Order, 2002 • Trade (Prohibition of Importation) (Halon) Order, 2002
Transportation			
Ministry of Land and Environment	National Environment and Planning Agency (NEPA)	To issue permits for the transportation of hazardous wastes	Natural Resources Conservation (Permits and Licences) Regulations, 1996
Ministry of Local Government	National Solid Waste Management Authority	To issue licences to haulers of hazardous wastes	Regulations to be promulgated under the NSWM Act, 2001
Ministry of Public Utilities and Transport	Jamaica Civil Aviation Authority	Responsible for the certification, inspection and surveillance of agencies handling dangerous goods carried by aircraft among other things	Civil Aviation Act 1995 Civil Aviation (Amendment) Act, 2004
Emergency Response			
	Jamaica Fire Brigade	To protect life and property from fire or other disasters (including accidents involving hazardous substances and wastes) within the Island and its territorial seas.	Fire Brigade Act, 1988, section 5
Ministry of Land and Environment	Office of Disaster Preparedness and Emergency Management (ODPEM)	To coordinate relevant public sector agencies' response to disasters. to collaborate with relevant agencies in respect of the transportation and disposal of hazardous wastes	Disaster Preparedness and Emergency Management Act, 1993
Production, Use and Storage			
Ministry of Health	PCA	<ul style="list-style-type: none"> • To register all pesticides used in the island • To register premises where restricted pesticides are stored • To regulate the preparation for sale, packaging and sale of all pesticides • To licence pest control operators and manufacturers of pesticides • 	<ul style="list-style-type: none"> • Pesticide Act, 1975 • Pesticide Regulations, 1996 • Pesticide (Amendment) Regulations, 1999
Ministry of Health	PRAU	To monitor the production and distribution of chemicals	<ul style="list-style-type: none"> • Food and Drug Act, 1964 • Precursor Chemicals

Table 5.A : Ministries, Agencies with Responsibility for Chemical Management			
MINISTRY	AGENCY	ROLES/RESPONSIBILITIES	LEGISLATION
			Act, 1999 <ul style="list-style-type: none"> • Precursor Chemicals Regulations (draft) 2005 • Public Health Act, 1975
Ministry of Land and Environment	NEPA	To issues permits for the construction and operation of entities that use, manufacture or and generate as a by product of production chemicals, hazardous substances and wastes: <ul style="list-style-type: none"> • chemical plants • petroleum production and refining • paint manufacturers • tanneries • manufacturing of pesticides or other hazardous or toxic substance To ilssue licences for the discharge of air emissions, trade effluent and sewage and use of wastewater for irrigation with restriction on concentration of hazardous substances and chemicals	Natural Resources (Prescribed Areas)(Prohibition of Categories of Enterprise, Construction and Development) Order, 1996 Natural Resources Conservation (Permits and Licences) Regulations, 1996 Natural Resources Conservation (Permits and Licences) (Amendment) Regulations, 2004 Trade Effluent Standards Sewage Effluent Standards Ambient Air Quality Standards Air Emission Standards
Ministry of Industry, Commerce and Trade	Jamaica Bureau of Standards	To ensure that hazardous substances and wastes are appropriately labelled To ensure that chemically formulated substances for human consumption and use met stipulated standards	National labeling standards
	Disposal		
Ministry of Local Government	NSWMA	To manage and regulate solid waste management (including medical and hazardous wastes)	National Solid Waste Management Act, 2002 section 4(1)(a)
Ministry of Land and Environment	NEPA	To issue permits for the storage, treatment and disposal of solid and hazardous wastes	Natural Resources (Prescribed Areas)(Prohibition of Categories of Enterprise, Construction and Development) Order, 1996 Natural Resources Conservation (Permits and Licences) Regulations, 1996 Trade Effluent Standards Sewage Effluent Standards Ambient Air Quality Standards Air Emission Standards
Ministry of Health	PCA	to regulate the disposal of pesticides	<ul style="list-style-type: none"> • Pesticide Act, 1975 • Pesticide Regulations, 1996 • Pesticide (Amendment) Regulations, 1999 •
	Occupational Health and Safety		
Ministry of Health	PCA	Monitors health and safety systems in place at the offices of pesticide importers, manufacturers and Farm	Occupational Health and Safety Standards (not legislated)

Table 5.A : Ministries, Agencies with Responsibility for Chemical Management			
MINISTRY	AGENCY	ROLES/RESPONSIBILITIES	LEGISLATION
		Stores	
Ministry of Labour and Social Security		Restricts, prohibits and regulates the use of chemicals, physical and biological agents that may be hazardous to human health	<ul style="list-style-type: none"> • Factories Act, 1943 • Factories Regulations, 1961 • The Occupational Safety and Health Act (Draft) •

5.1 Description of Ministerial Authorities and Mandates

Jamaica Customs

Jamaica Customs is a department of the Ministry of Finance and Planning which: Regulates the import and export of goods including hazardous substances and wastes and generally ensures that restrictions on import/export contained within other legislation are enforced.

Pesticides Control Authority (PCA)

The PCA enforces the Pesticides Act and is responsible for the registration of pesticides and issuing licenses to local manufactures, users and repackagers. It also puts out a publication of approved pesticides, prohibited pesticides plus other information. The functions of the PCA are as follows:

- Registers all pesticides used in the island
- Registers premises where restricted pesticides are stored
- Regulates the preparation for sale, packaging and sale of all pesticides
- Licences pest control operators and manufacturers of pesticides
- Issues import permits for pesticides
- Regulates the disposal of pesticides
- Monitors health and safety systems in place at the offices of pesticide importers, manufacturers and farm stores in accordance with Occupational Health and Safety Standards (not legislated).

Pharmaceutical and Regulatory Affairs Unit (PRAU)

The **PRAU** issues import permits for all chemical except pesticides and are responsible for the following:

- Controls the authorization, importation, distribution and use of pharmaceuticals
- Issues import permits for chemicals (including pharmaceuticals, ozone depleting substances and precursor chemicals).
- Ensures that all substances used as food, drugs, and cosmetics are safe and of high quality.
- Monitors the production and distribution of chemicals

Trade Board

The Trade Board Limited is a regulatory agency of government, operating under the legal authority of the Trade Act, 1955 and the auspices of the Ministry of Commerce, Science and Technology. The Trade Board is Jamaica's certifying authority for goods exported under the various trade agreements.

The Trade Board has responsibility for, among other things, issuing import and export licences for specific items that may have a negative impact on the environmental, social or economic conditions of the country. It controls the import and export of chemicals (including ozone depleting substances).

National Environment and Planning Agency (NEPA)

NEPA was formed through a merger of the Natural Resources Conservation Authority (NRCA), the Town Planning Authority and the Land Development and Utilisation Commission (LDUC). It has responsibility for the management of Jamaica's environment. Its functions as it relates to the management of chemicals and hazardous wastes include:

- Prohibiting the import of hazardous wastes
- Issuing export permits for the transboundary movement of hazardous wastes
- Issuing permits for the transportation of hazardous wastes
- Issuing permits for the construction and operation of entities that use, manufacture or and generate as a by product of production chemicals, hazardous substances and wastes:
 - chemical plants
 - petroleum production and refining
 - paint manufacturers
 - tanneries
 - manufacturing of pesticides or other hazardous or toxic substances
- Issuing licences for the discharge of air emissions, trade effluent and sewage and use of wastewater for irrigation with restrictions/limits on the concentration/loading of hazardous substances and chemicals
- Issuing permits for the storage, treatment and disposal of solid and hazardous wastes

NEPA also administers the following standards:

- Trade Effluent Standards
- Sewage Effluent Standards
- Ambient Air Quality Standards
- Air Emission Standards

Maritime Authority of Jamaica (MAJ)

The MAJ regulates the labelling, packaging and stowage of dangerous goods on-board ships and operates under the following legislation:

- Shipping Act, 1998
- Shipping (Pollution Prevention and Control) draft bill incorporates the provisions of MARPOL 73/78

Port Authority of Jamaica (PAJ)

Regulates the use of Port facilities and operates under the Port Authority Act, 1972.

Quarantine Authority

The Quarantine Authority inspects air or sea vessels upon their arrival and prohibits the offloading of anything that may be a danger to public health (including hazardous wastes).

National Solid Waste Management Authority (NSWMA)

This agency is responsible for managing and regulating solid waste (including medical and hazardous wastes) in accordance with National Solid Waste Management Act, 2001. Their scope of work includes establishing the standards for the transportation, storage, treatment and disposal of chemical and hazardous wastes from an operational perspective. Regulations under the NSWMA Act, 2001 to govern licencing of waste haulers are being developed.

Jamaica Fire Brigade

Their responsibility is to protect life and property from fire or other disasters (including accidents involving chemicals, chemical wastes and hazardous wastes) within the Island and its territorial seas. They operate under the Fire Brigade Act, 1988.

Office of Disaster Preparedness and Emergency Management (ODPEM)

This agency administers and enforces the Disaster Preparedness and Emergency Management Act. This Agency's role will be severely tested if a major chemical hazard occurs in an area of human settlement, agriculture or industrial activity. This would result in significant infrastructural damage, economic losses, threat to human life and well being.

Developing a contingency plan for such an occurrence is part of its functions. In its plans the ODPEM coordinates the activities of the several emergency response agencies (such as the police, fire brigade, hospitals, etc) into a national response team to handle the disaster. It has in recent times been looking at and working closely with the emergency agencies at its disposal and the partners involved in the haulage and distribution of petroleum products throughout Jamaica. This effort is to have in place an efficient and appropriate response to a major petroleum spill on our roadways and accidents and fires involving tanker wagons doing the haulage process.

Jamaica Bureau of Standards

This Agency in addition to its many other functions, develop mechanical, physical and chemical standards that are in line with international requirements for substances, machinery or equipment to be used in industry. One of its standards look at the storage containers used for compressed gases such as oxygen, carbon monoxide and liquid petroleum gas. The main function of the JBS:

- Ensures that hazardous substances and wastes are appropriately labelled
- Ensures that chemically formulated substances for human consumption and use meet stipulated standards

- Ensures the there is adherence to national labelling standards
 - JS ISO 14020: 2001 Environmental labels and declarations — General principles
 - JS ISO 14024: 2001 Environmental labels and declarations — type 1 Environmental labelling — Principles and procedures
 - JS 1: Part 1: 1992 The labelling of commodities. Part 1: General principles
 - JS 1: Part 15:1992, The labelling of commodities. Part 15: The labelling of household chemicals
 - JS 1: Part 17:1986, The labelling of commodities. Part 17: The precautionary labelling of hazardous industrial chemicals
 - JS 1: Part 27:1998, The labelling of commodities. Part 27: The labelling of retail packages of pesticides (mandatory)
 - JS 1 Part 29: 1999 The labelling of commodities. Part 29: The labelling of products and equipment containing or manufactured using ozone depleting substances and/or their substitutes.

Ministry of Labour and Social Security (MLSS)

The Ministry of Labour and Social Security is responsible for regulating, restricting and prohibiting the use of chemicals, physical and biological agents that may be hazardous to human health.

The Industrial Safety Division at the MLSS monitors the occupational safety and health of workers employed in factories, on construction sites and docks. A part of its mandate is to monitor the use, storage and disposal of chemicals in the workplace and recommend measures to prevent, minimize or eliminate their effects on workers. At present the department carries out its functions under the Factories Act, 1943, which only give clothing and ventilation or dealing with chemicals. Apart from these generalities there is no provision for more specific aspects of chemical hazard management. There is however a draft Occupational Safety and Health Act which proposes that:

- Every container of a hazardous substance is to be labeled to indicate the nature and properties of its contents and a MSDS kept available for examination by workers
- Limits of exposure for airborne chemical agents are prescribed.

The draft act is now being taken through the legal process to be eventually enacted into law. A number of regulations and codes of practice will accompany it. It is proposed that a regulation be enacted to govern the safe handling of hazardous material. This regulation will set guidelines for importation, manufacturing, distribution, purchasing, transportation, labeling, storage and disposal of all hazardous material including chemicals.

Jamaica Civil Aviation Authority (JCAA)

The Civil Aviation Authority became operational on May 6, 1996 under the former Ministry of Public Utilities and Transport. The Authority is responsible for regulating Air Navigation and all matters relating to safety in Civil Aviation in Jamaica. It operates under the Civil Aviation Act 1995 and the Civil Aviation (Amendment) Act, 2004.

The Flight Operations section of the JCAA is responsible for the certification, inspection and surveillance of agencies handling dangerous goods carried by aircraft among other things.

Government Chemist, Ministry of Health

This department provides laboratory services for the examination of food, pharmaceutical and toxic substances/materials.

Public Health departments, Ministry of Health

The Health Departments of the Ministry of Health implement and enforce the Public Health Act and regulations. Each of the fourteen parishes in Jamaica has a Health Board and by extension a Health Department with public health inspectors as required by the Act. It governs and monitors the health implications of chemical substances used in food, drugs and cosmetics.

Chapter 6: Relevant Activities of industry, Public Interest Groups and the Research Sector

There are several non-government organizations and public interest groups that provide support for the sound chemical management in Jamaica. The activities of these groups are mainly focused on protecting the environment and public health. The two major universities in the island conduct relevant research, analysis and development related to chemical management.

Environmental Groups

National Environmental Societies Trust
Environmental Foundation of Jamaica

Consumer Groups

National Consumers League
Jamaica Confederation of Trade Union

Research Sector

University of the West Indies
University of Technology

Chapter 7: Inter-ministerial Commissions and Co-ordinating Mechanisms

7.0 Inter-ministerial Mechanisms

There are a few interagency committees in existence, some more active than others, which bring many of the stakeholder agencies and Ministries together to develop strategies for the management of chemicals and hazardous wastes among other things.

Some Interagency Committees include:

- (a) The Interagency Action Network, chaired by the NSWMA
- (b) The Technical Review Committee, a subcommittee of the NRCA Board for the review of permit and licence applications and EIAs
- (c) The Central Health Committee, chaired by the Ministry of Health
- (d) Pesticides Control Board
- (e) National Ozone Commission

7.1 Interagency Action Network

The Interagency Action Network was formed by the National Solid Waste Management Authority (NSWMA) in early 2003 and its aim was to bring together agencies that have overlapping and/or complementary functions so that strategies could be developed to improve the efficiency of each agency while making optimum use of scarce resources. Terms of Reference are attached at Appendix 2. The member agencies of the Interagency Action network included:

- National Solid Waste Management Authority
- Environmental Health Unit – Ministry of Health
- National Environment and Planning Agency
- Ministry of Land and Environment
- National Works Agency
- Ministry of Local Government Community Development & Sport

Depending on the subject matter being addressed, additional members from other agencies would be co-opted.

The network successfully addressed the issue of the management of grease from the grease traps of commercial establishments and started to make plans for the development of a Medical Waste Management Policy in collaboration with the Ministry of Health. Due to management and personnel changes in the last quarter of 2004, the Interagency Action Network ceased having meetings and to date they have not re-convened.

7.2 Central Health Committee

The Central Health Committee was established under Section 3 of the Public Health Act, 1985 to advise the Minister of Health and the Local Boards of Health on matters in the realm of public health. It consists of 11 members appointed by the Minister of Health to serve for a period of three (3) years.

Members include representatives from:

- Ministry of Health
- National Environment and Planning Agency
- National Water Commission
- Environmental Health Unit (EHU), Ministry of Health
- Veterinary Services, Ministry of Agriculture
- Ministry of Local Government, Community Development and Sport
- Private sector (Family Physician)

Co-opted members include representatives from:

- Water Resources Authority
- National Solid Waste Management Authority
- PAHO
- Ministry of Land and Environment
- Grace Kennedy

The management of hazardous substances and wastes is a subject of interest for this committee especially as it relates to public health. The management of lead from spent lead/acid batteries and pesticides residues in drinking water are examples of some areas of concern and focus for the CHC. The Environmental Health Unit within the Ministry acts as the secretariat for the CHC.

7.3 Technical Review Committee (subcommittee of NRCA Board)

The Technical Review Committee (subcommittee of the NRCA Board) is another interagency group that has interest in the management of chemicals and hazardous wastes, among other things, based on applications it receives for permits and licences related to these areas. The agencies represented on the committee include:

- National Environment and Planning Agency
- Environmental Health Unit, Ministry of Health
- Regional Health Authorities
- Local Boards of Health
- Jamaica Bauxite Institute
- JAMPRO
- National Works Agency
- Water Resources Authority
- Mines and Geology
- Civil Engineer (Private Sector)

7.4 Pesticides Control Authority (PCA)

By virtue of its mandate to regulate the manufacture, use, sale and importation of pesticides within Jamaica the governing Board of the PCA is a multi-agency group.

The composition of Board includes representatives from the following agencies and Ministries:

- Ministry of Health
- NEPA
- Ministry of Agriculture
- Jamaica Bureau of Standards
- Ministry of Commerce and Technology (Food Storage and Prevention of Infestation)

- Jamaica Environment Trust
- Attorney General's Office

7.5 National Ozone Commission (NOC)

The NOC was established in 1995 as an advisory board for matters related to the phase out of ozone depleting substances. The membership comprises the following entities:

- Ministry of Health (PCA and EHU)
- UWI, Chemistry Department
- Meteorological Service
- Forrest & Associates (Environmental Consultant)
- Jamaica Automobile Association
- Ministry of Land and Environment
- NEPA
- Planning Institute of Jamaica (PIOJ)
- Appliance Traders Ltd.
- Tropical Air Conditioning and Refrigeration Company Ltd.
- Rexham Engineering Company Ltd.
- Jamaica Customs
- Jamaica Bureau of Standards
- Ministry of Labour and Social Security

The advisory board has successfully overseen the phase out of CFCs and halons in Jamaica to date and has functioned very effectively through the cooperation between Ministries, Agencies, industry representatives and the public. The NOC establishes working groups (as required) with the relevant stakeholders co-opted from other entities, to tackle special issues that arise from time to time. This Commission will be entrenched in the soon to be promulgated Ozone Act.

7.6 Composition of Existing Interagency Groups

It is instructive to note that NEPA and the Ministry of Health are represented on all five interagency groups described above indicating that they have a critical role in decision making related to environmental and health related matters. It is therefore imperative that any interagency coordinating mechanism for the management of chemicals and hazardous wastes must include these two agencies.

Chapter 8: Data Access and Use

8.0 Availability of Data for National Chemical Management

Statistical data on activities at the stages of the chemical lifecycle is either limited or non-existent. Getting aggregate data on chemical production, use and trade is also difficult because most of the information available is not in an electronic format. Therefore, the data capture has to be done manually which is time consuming and prone to errors. In addition the data is fragmented and is located in several ministries and agencies. The Table 5 below gives a basic outline of the possible location, source and format of data on different areas of chemical management.

Table 8.A: Location, Source and Format of National Data on Chemical Management					
Type of Data	Location(s)	Data Source	Format	Who Has access	How to Gain Access
Production Statistics	Planning institute of Jamaica (PIOJ)	Production statistics from JCC, JMA, PSOJ	Publication	Public	
Import Statistics	Trade Board STATIN Ministry of Health(MOH) – PRAU Ja. Customs	Import Permits	Paper- based	Public	
Export Statistics	Ja. Customs PIOJ NEPA STATIN	Export Documents	Paper-based		
Chemical Use Statistics	MOH- PRAU STATIN	Import Permits	Paper-based		
Industrial Accident Reports	Min. of Labour & Social Security(MLSS) MOH- Hospitals Joint Fed. Of Trade Unions	Hospital Records Reports	Paper-based		
Transport Accident Reports	Ja. Fire Brigade ODPEM Ministry of Transport & Works(MTW)	Accident Reports	Paper-based		
Occupational Health Data (agriculture)	MLSS MOH – PCA	Accident Reports Hospital Records	Paper-based		
Table 8.A: Location, Source and Format of National Data on Chemical Management					

Type of Data	Location(s)	Data Source	Format	Who Has access	How to Gain Access
Occupational Health Data (Industrial)	MLSS MOH	Accident Reports Hospital Records	Paper-based		
Poisoning Statistics	CARPIN MOH	Hospital Records	Paper-based		
Pollutant Release and Transfer Register	National Environment & planning Agency (NEPA)	Reports	Electronic		
Hazardous Waste Data	NEPA National Solid Waste Mgmt. Authority (NSWMA)	Reports	Paper-based Electronic		
Register of Pesticides	MOH – PCA	Application forms	Electronic		
Register of Toxic Chemicals	MOH – PCA NEPA Trade Board Ja. Customs	Reports Import Permits	Electronic		
Inventory of Existing Chemicals	MOH -PRAU	Import Permits	Paper-based		
Register of Imports	MOH – PRAU Trade Board Ja. Custom	Import Permits	Paper-based Electronic		
Register of Producers	MOH – PCA MOH PRAU JMA	Import Permits	Paper-based		
PIC Decisions	MOH - PCA				

Chapter 9: Technical Infrastructure

9.0: Overview of Laboratory Infrastructure

The financial resources constraints in the government sector have curtailed the functions of the laboratories that are available in the country to support programmes and policies for the management of chemicals. Most of the facilities are under staff and require retooling and as a result they lack the capacity to carry out the level of analytical and monitoring functions of chemicals that are required in the island.

Table 9.A : Overview of Laboratory infrastructure for Regulatory Chemicals Analysis					
Name/Description and Laboratory	Location	Equipment/ Analytical Capabilities Available	Accreditation (yes/no)	Certified GLP (yes/no)	Purpose
Government Laboratory	Ministry of Health (Hope Gardens)				
Forensic Laboratory	Ministry of National Security (Hope Gardens)				
Bureau of Standard	Ministry of Industry, Commerce and Trade (Hope Rd)				
UWI Chemistry Dept.	UWI Mona				

Chapter 10: International Linkages

10.0 Co-operation and Involvement with International Organisation, Bodies and Agreements

Jamaica is signatory to a number of international conventions/treaties which relate to the management of chemicals and/or hazardous wastes. The national focal point for these conventions/treaties is at different ministries and agencies. There are also international organisations and programmes that are specific to some ministries and/or agencies. However, there are situations where international organisations, activities and programmes require the involvement of different ministries and agencies.

Table 10.A: National Focal Points for International Organisations, Bodies and Programmes			
International	National Focal Point (Ministries/Agencies)	Other Ministries/Agencies involved	Related National Activities
Intergovernmental Forum on Chemical Safety (IFCS)	Ministry of Health		
UNEP	Ministry of land and Environment National Environment Planning Agency (NEPA)		
IPCS	Ministry of Health		
PAHO	Ministry of Health		
FAO	Ministry Of Agriculture		
UNIDO	Planning Institute of Jamaica		
ILO	Ministry of Labour and Social Security		
World Bank	Planning Institute of Jamaica		
IAEA	Ministry of Health		

**Table 10.B: National Focal Points for International Agreements,
Conventions and Treaties**

International Agreement, Conventions and Treaties	National Focal Point (Ministries/Agencies)	Other Ministries/ Agencies involved	Relevant National Implementation Activities
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	Ministry of Land and Environment National Environment and Planning Agency (competent authority) ratified		
Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region	National Environment and Planning Agency		
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Dumping (London Convention of 1972)	Maritime Authority of Jamaica		
Chemical Weapons Convention (OPCW)	Standards and Regulations Division of the Ministry of Health (National Authority)		
Inter-governmental Forum on Chemical Safety	Standards and Regulations Division of the Ministry of Health (focal point)		
International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)	Maritime Authority of Jamaica		
International Labour Organization	Ministry of Labour		
Montreal Protocol on Substances that Deplete the Ozone Layer	Ministry of Land and Environment/National Environment and Planning Agency (focal point)		
Rotterdam Convention for the Prior Informed Consent Procedure for Certain Pesticides and Hazardous Chemicals in International Trade	Pesticides Control Authority, Ministry of Health (focal point) ratified		
Stockholm Convention on Persistent Organic Pollutants	National Environment and Planning Agency (focal point) Signed		
United Nations Convention on the Law of the Sea (UNCLOS)	Ministry of Foreign Affairs and Foreign Trade		