NATIONAL IMPLEMENTATION PLAN FOR THE MANAGEMENT OF PERSISTENT ORGANIC POLLUTANTS

LIST OF ACRONYMS & ABBREVIATIONS

BAT	Best Available Techniques
BEP	Best Environmental Practices
BFS	Barbados Fire Service
BNSI	Barbados National Standards Institution
BPI	Barbados Port Inc.
CERO	Central Emergency Relief Organisation
CSTWG	Chemical Substances Technical Working Group
DDT	Dichlorodiphenyltrichloroethane
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EPD	Environmental Protection Department
FAO	Food and Agriculture Organization of the United Nations
GAS	Government Analytical Services
GEF	Global Environment Facility
GHS	Global Harmonised System
GIS	Government Information Service
g TEQ	grammes of toxic equivalents
HCB	Hexachlorobenzene
IFCS	Inter-Governmental Forum on Chemical Safety
MARD	Ministry of Agriculture and Rural Development
MEAs	Multilateral Environmental Agreements
NGO	Non-Governmental Organisations
NIP	National Implementation Plan
PCBs	Polychlorinated Biphenyls
PCDD	Polychlorinated dibenzo-p-dioxin
PCDF	Polychlorinated dibenzofurans
PIC	Prior Informed Consent
POPs	Persistent Organic Pollutants
PRTR	Pollutant Release and Transfer Register
SSWPU	Sewerage and Solid Waste Project Unit
QA/QC	Quality Assurance and Quality Control
uPOPs	Unintentionally-produced persistent organic pollutants
UNEP	United Nations Environment Programme

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1. INTRODUCTION

Just over a decade ago, the Governing Council of the United Nations Environment Programme (UNEP) took action to initiate the development of an international course of action for the management and control of a group of highly toxic chemicals known as persistent organic pollutants, or POPs. Approximately nine years later, in May 2004, the Stockholm Convention on Persistent Organic Pollutants, a multilateral environmental agreement (MEA) intended to protect human health and the environment from the harm posed by POPs, came into force. Barbados is one of over 100 countries that, by becoming Parties to the Stockholm Convention, have indicated their commitment to the elimination of these dangerous and ubiquitous chemicals.

One of the key obligations under the Convention is the development of a national implementation plan (NIP) which describes the measures to be taken to meet the Convention's requirements. NIP development in Barbados was undertaken as part of a UNEP pilot project and funded by the Global Environment Facility (GEF) and the government of Germany. The national focal point and implementing agency for the project was the Environmental Protection Department (EPD), Ministry of Energy and the Environment, which was supported in this work by a multi-sectoral National Coordinating Committee.

The development of the NIP was informed by assessments of the national infrastructure and capacity for chemicals management and of the national POPs situation. Summaries of these assessments are presented in Chapters 2 and 3.

Subsequent to these assessments, national priorities for the implementation of the Stockholm Convention were identified, in consultation with stakeholders, and strategies and interventions to meet these priorities were developed. Chapter 4 outlines the programme of action for the national implementation of the Stockholm Convention in Barbados.

1.1 Persistent Organic Pollutants

Persistent organic pollutants (POPs) are a group of highly hazardous organic chemicals, including pesticides, industrial chemicals and some unintended by-products of chemical and combustion processes. POPs are characterised by the following four properties.

1. **High toxicity:** POPs have been linked to several negative health effects, including cancer, reproductive impairment, immune system changes, and endocrine disruption, in wildlife and human beings.

2. **Persistence:** POPs are slow to degrade and can remain in the environment for decades after they are initially released or unintentionally produced.

3. **Mobility:** because of their semi-volatile nature, POPs can volatilise and be carried long distances through the air and through water, which means that they can end up in locations far from their point of origin.

4. **Bio-accumulation:** POPs can build up to high concentrations in fatty tissue, particularly in creatures at the top of food chains, such as predatory fish, birds and human beings.

There are currently 12 POPs that are subject to control under the Stockholm Convention (see Table 1.A).

Table 1.A: Persistent Organic Pollutants

CHEMICAL	TYPE OF CHEMICAL (i.e. pesticide, industrial chemical or unintentional by-product)	ADDITIONAL INFORMATION (n.b. production/use exemptions are available only to registered Parties)
Aldrin	Pesticide	Used to kill termites, grasshoppers and other insect pests Production exemptions: None Use exemptions: As a local ectoparasiticide or insecticide

Table 1.A: Persistent Organic Pollutants

CHEMICAL	TYPE OF CHEMICAL (i.e. pesticide, industrial chemical or unintentional by-product)	ADDITIONAL INFORMATION (n.b. production/use exemptions are available only to registered Parties)
Chlordane	Pesticide	Used for termite control and as a broad-spectrum insecticide on agricultural crops Production exemptions: Allowed for registered Parties Use exemptions: As a local ectoparasiticide, termiticide and additive in plywood adhesives
DDT	Pesticide	Used for disease vector control, particularly against mosquitoes to control malaria Production and use exemption: As an intermediate in the production of dicofol Acceptable production and use purpose: Production and use for disease vector control allowed for registered Parties
Dieldrin	Pesticide	Used to control termites, textile pests, and insects living in agricultural soil Production exemptions: None Use exemptions: In agricultural operations
Polychlorinated dibenzo-p-dioxins (dioxins)	Unintentional by-product	Produced unintentionally as a result of incomplete combustion and some chemical and industrial processes
Endrin	Pesticide	Used for pest control in crops such as cottons and grains Production exemptions: None Use exemptions: None

Table 1.A: Persistent Organic Pollutants

CHEMICAL	TYPE OF CHEMICAL (i.e. pesticide, industrial chemical or unintentional by-product)	ADDITIONAL INFORMATION (n.b. production/use exemptions are available only to registered Parties)
Polychlorinated dibenzo-p-furans (furans)	Unintentional by-product	Produced unintentionally as a result of incomplete combustion and some chemical and industrial processes. Also found in commercial mixtures of PCBs
Heptachlor	Pesticide	Used to kill soil insects, termites, cotton insect, grasshoppers and other crop pests Production exemptions: None Use exemptions: As a termiticide, for wood treatment, and in underground cable boxes
Hexachlorobenzene (HCB)	Pesticide Industrial Chemical Unintentional Byproduct	Kills fungi that affect food crops; released as a by-product during the manufacture of certain chemicals, and as a result of the processes that give rise to dioxins and furans Production exemptions: Allowed for registered Parties Use exemptions: As a manufacturing intermediate, and as a solvent in pesticides
Mirex	Pesticide Industrial Chemical	Applied to combat ants and termites; has also been used as a fire retardant in plastics, rubber and electrical goods Production exemptions: Allowed for registered Parties Use exemptions: As a termiticide
Polychlorinated biphenyls (PCBs)	Industrial chemical	Used in industry as heat exchange fluids, in electrical transformers and capacitors and as additives in paint, sealants and plastics Production exemptions: None Use exemptions: In articles already in use

Table 1.A: Persistent Organic Pollutants

CHEMICAL	TYPE OF CHEMICAL (i.e. pesticide, industrial chemical or unintentional by-product)	ADDITIONAL INFORMATION (n.b. production/use exemptions are available only to registered Parties)
Toxaphene	Pesticide	Applied to cotton, cereal grains, and other food crops. Also used to control ticks and mites in livestock Production exemptions: None Use exemptions: None

1.2 The Stockholm Convention

In May 1995, the Governing Council of the United Nations Environment Programme adopted Decision 18/32 on persistent organic pollutants. Decision 18/32 invited the Inter-Organization Programme for the Sound Management of Chemicals, working with the International Programme on Chemical Safety and the Inter-Governmental Forum on Chemical Safety (IFCS), to begin a process of assessment of POPs beginning with 12 substances, and to develop recommendations for international action for the management and control of these substances.

In response to this invitation, the IFCS established an *ad hoc* working group on POPs. One of the conclusions presented in the working group's Final Report, in July 1996, was that

> "international action, including a global legally binding instrument, is required to reduce the risks to human health and the environment arising from the release of the 12 specified POPs." (IFCS, 1996)

The UNEP Governing Council took the decision, in 1997, to initiate negotiation of such an instrument. These negotiations commenced in 1998 under the auspices of UNEP and the result was the global treaty known as the Stockholm Convention on Persistent Organic Pollutants. In May 2001, the Convention was adopted by 126 countries and the European Union.

The objective of the Stockholm Convention is to protect human health and the environment from persistent organic pollutants. In order to achieve this goal the Convention aims to

- **Eliminate POPs**, beginning with the 12 most harmful;
- Encourage and support a **transition to safer alternatives** to POPs chemicals;
- Using the precautionary principle, **identify and target additional POPs for control** under the convention;
- **Clean up** old stockpiles and equipment containing POPs; and
- **Encourage a global effort** towards the overall goal of a POPs-free future.

The Convention includes special provisions intended to help Parties that are developing countries or countries with economies in transition to meet their obligations under the Convention.

The Stockholm Convention entered into force on May 17, 2004, 90 days after the fiftieth ratification. Barbados became a Party to the Stockholm Convention by accession on June 7, 2004, and the Convention entered into force for Barbados 90 days later. The first Conference of Parties of the Stockholm Convention was held in May 2005 in Punta del Este, Uruguay, and was attended by 79 Parties, including Barbados, and numerous observer organizations.

1.3 The Development of a National Implementation Plan for the Management of Persistent Organic Pollutants

In May 2002, a national project for the development of a national implementation plan for the management of POPs commenced in Barbados.

The national project was a component of an overall initiative by UNEP and the GEF to facilitate the development of NIPs in developing countries and countries with economies in transition, thus enabling those countries to begin to meet their obligations under the Stockholm Convention. The umbrella pilot project was managed by UNEP and financed by the GEF; Barbados also received co-financing provided by the government of Germany. Twelve countries in total were selected to participate in the pilot project: Barbados, Bulgaria, Chile, Ecuador, Guinea, Lebanon, Malaysia, Mali, Micronesia, Papua New Guinea, Slovenia and Zambia. The selection of countries for participation was based on specific criteris. These included that that the selected countries were widely representative, that they ensured coverage of the

three main groups of POPs (pesticides, industrial chemicals and unintentionally produced contaminants/by-products), that they exhibited a range of development/socio-economic circumstances (least developed countries, industrializing countries, intensive pesticides use/agricultural economies, small island developing states and economies in transition) and that they provided an adequate geographic balance.

The goal of the national NIP development project has been to strengthen national capacity to manage persistent organic pollutants and to assist the Government of Barbados in meeting its obligations under the Stockholm Convention. The primary output of the project is a NIP and specific action plans for POPs management, as required by Article 7 of the Convention.

Key activities to facilitate achievement of the project goal have included an assessment of the national chemicals management infrastructure, the establishment of POPs inventories, and the identification of suitable management options for POPs.

The EPD has been the focal point for the project since inception. The project, which was officially launched in February 2003, was carried out under the supervision of a National Coordinating Committee, headed by a National Coordinator and comprising representation as follows:

- Environmental Protection Department
- Barbados Agricultural Society
- Barbados Chamber of Commerce and Industry
- Barbados Water Authority
- Barbados Workers' Union
- Caribbean Conservation Association
- Carter's General Stores
- Counterpart Caribbean
- Environmental Health Department
- Environmental Unit, Ministry of Energy and the Environment
- Government Analytical Services
- Labour Department
- Ministry of Agriculture and Rural Development
- Ministry of Health
- National Council for Science and Technology
- Pan-American Health Organisation
- University of the West Indies

Activities were carried out in five phases, following the guidance provided in the document *Guidance for developing a National Implementation Plan for the Stockholm Convention*, which was adopted at the first Conference of Parties of the Convention.

1.3.1. Phase I – Establishment of Coordinating Mechanism and Process Organisation

The key objectives of this phase of the project included:

- Raising awareness within government departments, ministries and agencies about POPs issues, the Stockholm Convention and the need to develop a NIP;
- Raising awareness of POPs issues among stakeholders outside government;
- Achieving political commitment to allow successful NIP development; and
- Establishing a mechanism for planning, managing and supervising NIP development.

Initial activities undertaken comprised:

- Establishment of a multi-sectoral National Coordinating Committee;
- Preparation and submission of an information paper to Cabinet;
- Selection and endorsement of a National Coordinator;
- Project launch, including a sensitization and training workshop for key stakeholders; and
- Meetings of Ministers, Permanent Secretaries and other personnel from the Ministries of Agriculture and Rural Development, Health, and Energy and the Environment with the UNEP Project Manager.

1.3.2. Phase II – Assessment of National Infrastructure and Capacity and Establishment of POPs Inventories

Objectives of this phase were:

- To carry out assessments required to provide the necessary background information and baseline for understanding of the scope of the national POPs issues;
- To identify gaps in resources, capacity, and knowledge that prevent the complete assessment of the status of POPs; and
- To identify country needs in terms of technical expertise.

Activities undertaken included:

- Preparation of the National Profile on Chemicals Management;
- National stakeholder consultation on the National Profile;
- Cabinet endorsement of the National Profile;
- Training in execution of inventories of obsolete pesticides;
- Participation in a workshop on dioxins and furans and the use of the UNEP Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases;
- Execution of a national pesticides inventory and preparation of an inventory report;
- Execution of a national PCBs inventory and preparation of an inventory report; and
- Execution of a national inventory of dioxins and furans and preparation of an inventory report.

1.3.3. Phase III – Priority Assessment and Objective Setting

The objective established for this phase, intended to result in a preliminary assessment of priority issues related to POPs management and the establishment of initial objectives, were:

- Assessment of information from Phase II to identify priority areas for attention;
- Identification of data and other gaps which prevent full priority assessment; and
- Establishment of objectives for the management of POPs in compliance with the Stockholm Convention.

Activities in this phase, which was executed by a consultant with expertise in socioeconomic appraisal and assessment, included:

- Review of previously prepared reports and documents and other relevant literature, including the text of the Convention;
- Information gathering via questionnaires and interviews with stakeholders;
- Holding of focus groups and workshops for POPs stakeholders;
- Stakeholder consultations about priorities and approaches for Convention implementation; and
- Preparation of an appraisal report.

1.3.4. Phase IV – Formulation of the National Implementation Plan

Objectives of this phase were:

- To gather information on possible options for POPs management and implementation of the Stockholm Convention;
- To evaluate the actions necessary to meet the requirements of the Convention and country objectives;
- To develop a draft NIP suitable for the country to meet the needs of the Convention and any country-specific objectives and priorities; and
- To identify requirements for assistance to implement the NIP.

Activities carried out as part of this phase of the project were:

- Review of available guidance on POPs management;
- Review of output from previous phases;
- Preparation of a draft NIP;
- Review of the draft NIP by the National Coordinating Committee; and
- Dissemination to key stakeholders for review and comment.

1.3.5. Phase V – Endorsement and Submission of the National Implementation Plan

Key objective of this phase included

- To communicate clearly the scope, need for and value of the NIP;
- To consult with all appropriate stakeholders on the proposed NIP;
- To finalise the NIP taking account of stakeholder input; and
- To secure political support for the NIP and its implementation.

Activities which took place in this final phase of the project were:

- Distribution of the NIP and an executive summary to stakeholders for their review and comment;
- Consultation workshop to apprise stakeholders of the NIP, its aims, objectives and contents, and to receive comment and feedback;
- Individual consultation with stakeholders on the NIP, collection of feedback, and analysis of capacity to assume responsibilities and carry out functions identified for them in the NIP;
- Review of feedback from stakeholders and amendment of the NIP to reflect comments and recommendations as appropriate;
- Finalisation of the NIP for submission to Cabinet and thence to the Stockholm Convention Secretariat.

The final output of the project is this NIP document, which contains a baseline assessment of chemicals management and POPs issues in Barbados, outlined in Chapters 2 and 3, and the national strategy and action plans for the implementation of the Stockholm Convention, outlined in Chapter 4.

2. COUNTRY PROFILE

This chapter provides a brief summary of the physical, demographic, political and economic conditions in Barbados. It also provides a summary assessment of the chemicals management framework in Barbados, based on the National Profile of Chemicals Management.

2.1 Physical, Political and Demographic Context

Barbados is the most easterly island in the Caribbean, with a land area of approximately 166 square miles (430 square kilometers). It maintains a parliamentary democracy and is an independent sovereign state within the British Commonwealth. The Head of State is Queen Elizabeth II, represented by a Governor General. The country has as its Head of Government a Prime Minister and a Cabinet appointed by the Governor General on the advice of the Prime Minister. English is the official language. However, a local English dialect exists.

Barbados is divided into eleven parishes. There are no divisions into regions or states.

A bicameral system of Parliament exists in the country, consisting of the Senate and the House of Assembly. Members of the Senate are appointed by the Governor General, while members of the House of Assembly are elected by direct popular vote to serve five-year terms. Nationals are eligible to vote from 18 years of age. There is no system of local government.

As of the last Population and Housing Census in May 2000, there were 268,792 persons resident on the island. The average age of the population is approximately 36 years. As at the year 2000, the population of working age, i.e. (15 – 64), was found to number 178,365.

As at the end of 2001, the birth rate was 15.0 births/1,000 persons. Life expectancy at the end of 2000 was, on average, 77 years. The literacy rate has been estimated

at 97.4% overall, with the estimate for males being 98% and for females 97%. Education is free at the primary and secondary levels, and is mandatory for children at these levels.

The unemployment rate at the end of 2001 was 9.9%. The percentage of women employed outside the home in 2001 was 43.8%.

2.2 Economic Sectors

Historically, the Barbadian economy had been dependent on agriculture, mainly sugarcane cultivation and related activities, but has diversified to include the service sector, with an emphasis on tourism and light industry. Data from the year 2004 indicates that the services sector accounts for 88.7 % of the Gross Domestic Product (GDP), with the industrial/manufacturing sector and the agricultural sector contributing 6.9 % and 3.6 % respectively to the GDP.

The major agricultural product is sugar cane. Vegetables and root crops are also cultivated. The agricultural and industrial sectors are dominated by small farms and facilities employing less than 100 persons each.

2.3 Chemicals Production, Import and Export

2.3.1. Production and Formulation

The size of the chemicals formulation sector in Barbados is relatively small. Due to the privacy clauses by which the Barbados Statistical Service is governed, , under the Statistics Act Cap. 192 of Barbados Law, no information may be released in a form that allows for the identification of any individual or business. Accordingly, the statistics for production and formulation cannot be presented in this document.

2.3.2. Import and Exports

2.3.2.1. Pesticides

Table 2.A shows the net mass and value of pesticides imports to and exports from Barbados, based on data from the year 2004.

Table 2.A: Imports and Exports of Pesticides (2004)

	IMPORTS (CIF)[1]		DOMESTIC EXPORTS (FOB) [2]		RE-EXPORTS (FOB)		TOTAL EXPORTS (FOB)	
DESCRIPTION	**NET MASS (KG)**	**VALUE (BDS$)[3]**	**NET MASS (KG)**	**VALUE (BDS$)**	**NET MASS (KG)**	**VALUE (BDS$)**	**NET MASS (KG)**	**VALUE (BDS$)**
Insecticides for agricultural use whether or not in retail packages	121,470	2,611,172	-	-	2,111	55,468	2,111	55,468
Mosquito Coils	93,737	361, 342	375	1,206	60,103	195,698	60,478	196,904
Other insecticides in packages for retail sale	78,133	597,754	715,996	8,020,304	1,233	5,588	717,229	8, 025, 892
Other Insecticides	54,430	1,011,943	1,560,855	9,965,072	401	18,969	1,561,256	9,984,041
Fungicides	6,920	122,803	1,662	8,817	146	7,058	1,808	15,875
Herbicides	464,538	3,396,469	-	-	1,513	15,055	1,513	15,055

Table 2.A: Imports and Exports of Pesticides (2004)

	IMPORTS (CIF)[1]		DOMESTIC EXPORTS (FOB) [2]		RE-EXPORTS (FOB)		TOTAL EXPORTS (FOB)	
DESCRIPTION	**NET MASS (KG)**	**VALUE (BDS$)[3]**	**NET MASS (KG)**	**VALUE (BDS$)**	**NET MASS (KG)**	**VALUE (BDS$)**	**NET MASS (KG)**	**VALUE (BDS$)**
Anti-sprouting products	3,811	14,818	-	-	-	-	-	-
Plant growth regulators	17,735	159,341	-	-	-	-	-	-
Disinfectants, in retail packages	535,072	2,050,146	-	-	702	3,737	707	3,737
Disinfectants, not in retail package	104,759	555,281	4,837	29,968	6,814	39,527	11,651	69,495
Rodenticides, in retail packages	10,171	87,744	-	-	-	-	-	-
Other rodenticides, not in retail packages	36,465	313,708	-	-	441	7,200	441	7,200

Table 2.A: Imports and Exports of Pesticides (2004)

	IMPORTS (CIF)[1]		DOMESTIC EXPORTS (FOB) [2]		RE-EXPORTS (FOB)		TOTAL EXPORTS (FOB)	
DESCRIPTION	**NET MASS (KG)**	**VALUE (BDS$)[3]**	**NET MASS (KG)**	**VALUE (BDS$)**	**NET MASS (KG)**	**VALUE (BDS$)**	**NET MASS (KG)**	**VALUE (BDS$)**
Other pest killers, in retail packs	4,766	35,358	-	-	-	-	-	-
Other pest killers, not in retail packs	17,001	190,711	167,043	1,166,602	561	12,270	167,604	1,178,872
TOTAL	**1,549,008**	**11,508,590**	**2,450,768**	**19,191,969**	**74,025**	**360,570**	**2,524,793**	**19,552,539**

[1]cif: cost, insurance and freight – is equal to the cost of the goods at the port in the country of origin plus the value of insurance and shipping charges incurred in the transport of these goods to the importing country

[2]fob: free on board – is equal to the cost of the goods at the port in the country of origin.

[3] Bds$1 is approximately equal to US$0.51

Source: Barbados Statistical Service

2.3.2.2. Consumer and Industrial Chemicals

Table 2.B shows the net mass and value of imports and exports of consumer chemicals (defined as goods manufactured primarily for household consumption) to and from Barbados, using data for the year 2004. These figures are classified by industry group, using definitions developed by the Barbados Statistical Service to represent the principal sectors of economic activity in Barbados.

Table 2.B: Imports and Exports of Consumer and Industrial Chemicals (2004)

BEC[1]	INDUSTRY GROUP AND DESCRIPTION	NET IMPORTS		DOMESTIC EXPORTS	
		NET MASS (KG)	VALUE (CIF) (BDS $)	NET MASS (KG)	VALUE (FOB) (BDS $)
Consumer Goods	Unassigned Values	88,224	1,003,675	-	-
	0: Agriculture, Hunting, Forestry and Fishing	96	1,462	-	-
	1: Mining and Quarrying	13	-	-	-
	2: Manufacturing[2]	22,061	184,680	100,871	1,418,782
	3: Manufacturing[3]	13,572	242,022	56	1,065
	4: Electricity, Gas and Water Supply	59	5,484	-	-
	5: Construction	6,852	23,804	-	-
	6: Wholesale and Retail Trade	3,840,155	42,261,941	761	9,104
	7: Transport, Storage and Communication	3,317	182,059	-	-
	8: Finance and Business Services	24,641	156,859	-	-
	9: Community, Social and Personal Service Activities	115,106	1,435,856	522	19,953

Table 2.B: Imports and Exports of Consumer and Industrial Chemicals (2004)

BEC[1]	INDUSTRY GROUP AND DESCRIPTION	NET IMPORTS		DOMESTIC EXPORTS	
		NET MASS (KG)	VALUE (CIF) (BDS $)	NET MASS (KG)	VALUE (FOB) (BDS $)
Intermediate Goods	Unassigned Values	1,511,478	(1,602,996)	265,745	39,034
	0: Agriculture, Hunting, Forestry and Fishing	139,611	810,062	116	7,328
	1: Mining and Quarrying	989,568	1,240,882	-	-
	2: Manufacturing[2]	9,315,933	37,682,696	4,884,191	36,899,118
	3: Manufacturing[3]	1,453,242	9,601,952	228,677	365,216
	4: Electricity, Gas and Water Supply	168,895	1,748,664	-	-
	5: Construction	792,988	11,910,286	821	7,780
	6: Wholesale and Retail Trade	25,106,710	127,405,400	1,621,518	3,426,075
	7: Transport, Storage and Communication	8,313	221,412	113	3,300
	8: Finance and Business Services	1,112,676	6,570,976	514,731	160,185
	9: Community, Social and Personal Service Activities	1,785,446	8,429,364	77,908	68,431
TOTAL		**46,498,958**	**249,516,540**	**7,696,029**	**42,425,369**

2.3.2.3. Chemical Wastes

There are no existing inventories of hazardous waste generation in Barbados; therefore it is not possible, based on existing data, to present an estimate of the quantities and types of chemical waste generated annually.

Under the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, Barbados occasionally ships hazardous wastes overseas for environmentally sound disposal. Such shipments were made in the years 2001 and 2003. Table 2.C below show the quantities of waste exported. It should be noted that these quantities were voluntarily reported by a small number of organisations wishing to have their waste exported, and therefore should not be taken as representative of the overall hazardous waste generation rates in Barbados.

Table 2.C: Chemical Waste Exports (2001, 2003)

YEAR OF EXPORT	SOLID WASTE (KG)	LIQUID WASTE (L)
2001	9,000	15,279
2003	12,420	11,220

2.4 Priority Concerns Related to Chemicals Management

In 2004, as part of the process of preparing the National Profile of Chemicals Management, stakeholders were asked to identify and prioritise their concerns related to chemicals management in Barbados. Problems deemed to be in most pressing need of attention were given a ranking of 1 while less immediate concerns were assigned a ranking of 2 or 3.

Rural Barbadian Landscape

The problem areas identified by the consultative process as being of high priority were:

- Contamination of groundwater
- Coastal and marine pollution
- Impacts on biodiversity
- Hazardous waste treatment and disposal
- Storage and disposal of obsolete chemicals
- Occupational health and safety.

During the consultation, it was further determined that there was often a lack of data to inform clear conclusions about the scale, extent and impacts of the problems identified, or to guide decision-making about strategies to ameliorate the existing situation. This lack of data was itself identified as an important problem that needs to be addressed if chemicals management in Barbados is to be improved.

2.5 Policy, Regulatory and Institutional Framework

2.5.1. National Legislation and Policy

There are two legal instruments specifically intended to facilitate the effective control and management of chemicals in Barbados. These are the Health Services (Control of Drugs) Regulations and the Pesticides Control Act and its accompanying regulations.

The Control of Drugs Regulations regulate the import, manufacture, production and distribution of all drugs in Barbados. The Pesticides Control Act is "an Act to provide for the control of the importation, sale, storage and use of pesticides". There are no legal instruments intended to comprehensively control the import, production, sale, storage, use, export and disposal of consumer and industrial chemicals other than pesticides.

2.5.1.1. Pesticides Control Act

The Pesticides Control Act (1974) is "an Act to provide for the control of the importation, sale, storage and use of pesticides". The Act allows for attendant regulations to be made for:

- Prohibiting the manufacture, packaging, importation, advertisement, sale and use of particular pesticides or classes of pesticides;

- Controlling the manufacture, packaging, importation, transportation, advertisement and sale or other distribution of particular pesticides or classes of pesticides;
- Controlling the use of pesticides in agriculture generally or on particular crops or pests;
- Controlling the use of pesticides on produce during its storage and transportation;
- Setting out the conditions under which pesticides are to be stored;
- Protecting workers against the risk of poisoning or other injury by pesticides;
- Prescribing the permissible level of any pesticide in any particular kind of produce at the time of marketing;
- Controlling the quantities of pesticides which may be imported or manufactured and the types of containers in which such substances may be imported, transported, offered for sale or otherwise distributed;
- Controlling the labelling of containers, their subsequent disposal and the disposal of unwanted stocks of pesticides;
- Requiring the keeping and inspection of records and the furnishing of returns and other information with respect to pesticides;
- Restricting and prohibiting the use of particular pesticides or classes of pesticides;
- Imposing restrictions and obligations on pest control operators;
- Imposing duties on employer, workers and others in respect of the occupational safety and health of persons working with pesticides;
- Prescribing standards for the composition of pesticides; and
- Requiring licences to manufacture, import, package, sell or otherwise distribute or use any pesticide.

There are so far only two accompanying regulations to the Act:

- Pesticides Control (Approval of Pesticides) Regulations, 1974; and
- Pesticides Control (Labelling of Pesticides) Regulations, 1976.

The absence of regulations to bring the provisions of the Act fully into force has been a constraint on its full and effective implementation.

The Pesticides Control Act establishes a Pesticides Control Board to carry out the provisions of the Act and Regulations. The Board comprises of persons from the public and private sectors.

The Act also allows for the designation of inspectors to investigate compliance with the Act and Regulations.

2.5.2. International Agreements

Barbados has committed to the implementation of a number of international agreements and procedures aimed at bringing about sound chemicals management. Among these are Agenda 21, the Basel Convention and the Rotterdam Convention.

2.5.2.1. Agenda 21

Agenda 21 has been described as "a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment" (United Nations, 2004). It was passed by more than 170 countries, including Barbados, and adopted at the United Nations Conference on Environment and Development, commonly known as the Earth Summit, held in Rio de Janeiro, Brazil in 1992. Its principles were reaffirmed at the World Summit on Sustainable Development held in Johannesburg, South Africa, in 2002.

Chapter 19 of Agenda 21 is concerned with the environmental sound management of toxic chemicals, including prevention of illegal international traffic in toxic and dangerous products. Under this heading, governments are urged to take a number of actions to achieve key objectives in six programme areas:

- Expanding and accelerating international assessment of chemical risks;
- Harmonisation of classification and labelling of chemicals;
- Information exchange on toxic chemicals and chemical risks;
- Establishment of risk reduction programmes;
- Strengthening of national capabilities and capacities for management of chemicals; and
- Prevention of illegal international traffic in toxic and dangerous products.

Chapter 20 recommends actions to achieve the goal of environmentally sound management of hazardous wastes, including prevention of illegal international traffic in hazardous wastes. The programme areas identified in Chapter 20 are:

- Promoting the prevention and minimisation of hazardous waste;
- Promoting and strengthening institutional capacities in hazardous waste management;
- Promoting and strengthening international cooperation in the management of transboundary movements of hazardous wastes; and
- Preventing illegal international traffic in hazardous wastes.

The Environmental Unit of the Ministry of Energy and the Environment and the National Commission on Sustainable Development are responsible for the oversight

and implementation of activities related to the Government's obligations under Agenda 21.

2.5.2.2. The Basel Convention

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal seeks to "protect, by strict control, human health and the environment against the adverse effects which may result from the generation and management of hazardous wastes and other wastes". The Convention came into force in May 1992 and Barbados acceded to the Convention on August 24, 1995. The EPD is the National Authority responsible for implementation of the Basel Convention.

A central goal of the Basel Convention is the environmentally sound management of hazardous waste. To this end, the Convention establishes a system to control the transboundary movement of hazardous waste and requires all Parties to report on the generation, export and import of wastes covered by the Convention. Parties can also access, via the Secretariat or one of the Regional Centres for Training and Technology Transfer, technical assistance and training in the management and minimisation of hazardous wastes.

All of the chemicals included in the Stockholm Convention, on becoming wastes, are subject to the controls of the Basel Convention. Specifically, the Basel Convention governs the management, movement and disposal of the following types of POPs wastes:

- Wastes, substances and articles containing, consisting of or contaminated with polychlorinated biphenyl (PCB) ... at a concentration level of 50 mg/kg or more;
- Wastes … including waste pesticides and herbicides which are off-specification, outdated, or unfit for their originally intended use;
- Wastes that contain, consist of or are contaminated with … Any congenor of polychlorinated dibenzo-furan [or] any congenor of polychlorinated dibenzo-dioxin.

The Basel Convention Secretariat has issued a wide range of guidelines, guidance and training manuals to instruct and assist countries in the environmental sound management of hazardous wastes, including the *General technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants (POPs)*.

2.5.2.3. The Rotterdam Convention

Barbados is signatory, but not yet Party, to the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals in International Trade, which came into force in February 2004. The Convention was developed in response to the call, in Chapter 19 of Agenda 21, for a legally binding instrument on the Prior Informed Consent (PIC) procedure. The PIC procedure is "a means for formally obtaining and disseminating the decisions of importing countries as to whether they wish to receive future shipments of specified chemicals and for ensuring compliance with these decisions by exporting countries".

The Rotterdam Convention's aim is "to protect human health, including consumers and workers, and the environment against potentially harmful impacts from certain hazardous chemicals and pesticides in international trade". To achieve this aim, two main objectives have been identified:

- To promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm; and
- To contribute to their environmentally sound use, by facilitating exchange about their characteristics, by providing for a national decision-making process on their import and export, and by disseminating these decisions to Parties.

Eight of the ten intentionally-produced POPs are currently subject to the PIC procedure under the Rotterdam Convention:

- Aldrin;
- Chlordane;
- DDT;
- Dieldrin;
- Heptachlor;
- Hexachlorobenzene;
- Toxaphene; and
- Polychlorinated Biphenyls (PCBs).

Endrin and mirex are not yet subject to the PIC procedure but mirex is scheduled for review by the Convention's Chemical Review Committee to determine whether or not it should be included in the Convention.

The EPD and the Ministry of Agriculture and Rural Development (MARD) are joint National Authorities for the Rotterdam Convention.

2.5.3. Agencies and Organisations Involved in Chemicals Management

2.5.3.1. Government Ministries and Agencies

There are a number of government ministries and agencies with various levels of involvement in and responsibility for chemicals management in Barbados. These ministries and agencies are listed below and their responsibilities outlined.

2.5.3.1.1. Ministry of Environment

The EPD, as the national environmental regulatory agency, seeks to ensure and facilitate the safe and environmentally sound use, handling, transportation, storage and disposal of hazardous chemicals. The EPD is also responsible for the implementation of the Basel and Stockholm Conventions in Barbados, and is one of two designated National Authorities (the other is the MARD) for the implementation of the Rotterdam Convention.

The Environmental Unit of the Ministry of the Environment is responsible for the national implementation of the Montreal Protocol on Ozone-depleting substances and, along with the National Commission of Sustainable Development, for implementation of Agenda 21.

2.5.3.1.2. Ministry of Health

The Ministry of Health is responsible for the administration of the Control of Drugs Regulations under the Health Services Act, as well as for administration of the Sale of Poisons Act, which governs the sale and distribution of poisonous substances to householders.

Through the Sewerage and Solid Waste Project Unit, the Ministry of Health is also responsible for the development of a hazardous waste policy, hazardous waste storage facilities and the operation of such facilities.

2.5.3.1.3. Ministry of Agriculture and Rural Development

The Ministry of Agriculture and Rural Development is the lead agency for the Pesticides Control Act and accompanying regulations and for the Fertilisers and Feeding Stuffs Act, which provides for the registration and control of the import, manufacture, labelling and sale of fertilisers and feedstuffs.

Additionally, the Ministry is one of the designated National Authorities (the other is the EPD) for the implementation of the Rotterdam Convention in Barbados and is one of the key supporting agencies for the implementation of the Stockholm Convention.

2.5.3.1.4. Ministry of Labour

Under the Health and Safety at Work Act, the Ministry of Labour regulates matters concerning occupational health and safety in the workplace.

2.5.3.1.5. Ministry of Commerce

The Barbados National Standards Institution (BNSI), in the Ministry of Commerce, Consumer Affairs and Business Development, is the authority responsible for the execution of the Control of Standards Act. In this regard the BNSI specifies standards for pictorial marking for handling of goods, handling and labelling of dangerous goods, and the classification of hazardous chemicals, chemical products and dangerous goods.

2.5.3.1.6. Ministry of Home Affairs

The Central Emergency Relief Organisation (CERO) and the Barbados Fire Service, both agencies in the Ministry of Home Affairs, play crucial roles in emergency response. The Fire Service is a key response agency in events of chemicals spills or fires. The Service also educates the public about risk management and hazard reduction. CERO is involved in the coordination of response to emergency incidents, as well as education and awareness raising about emergency preparedness and response.

The National Council on Substance Abuse also plays a role in chemicals management through their efforts to control the import, production and export of chemical precursors to illegal narcotics.

2.5.3.1.7. Ministry of International Transport

The Barbados Port Inc. (BPI) is responsible for the implementation of the Barbados Port Authority Act, the Carriage of Goods by Sea Act, and the International Maritime Dangerous Goods Code. These instruments mandate that the BPI ensure the safe transportation, carriage, storage and handling of dangerous and offensive goods that are imported or exported via the island's ports of entry.

2.5.3.1.8. Ministry of Energy and Public Utilities

Under the Fuel Oil Act and the Storage of Petroleum Act, the Ministry regulates the importation, landing, storage and keeping of fuel oil, volatile petroleum and flammable liquids.

2.5.3.1.9. Ministry of Finance

The Customs and Excise Department, which comes under the umbrella of the Ministry of Finance, monitors and regulates the import and export of all chemicals and hazardous substances to and from Barbados. It is through the Customs

Department that import, export, and trade restrictions imposed by other regulatory agencies are enforced.

2.5.3.2. Inter-Ministerial Commissions and Coordinating Mechanisms

Over time, several public sector authorities have emerged that have sought to address national development considerations in a manner that draws upon the necessary input of key stakeholders. Those that have some bearing on chemicals management in Barbados include the:

- Pesticides Control Board;
- Chemical Substances Technical Working Group (CSTWG);
- National Ozone Committee;
- Risk Analysis Monitoring Committee on Industrial Development; and
- National Advisory Committee on Occupational Safety and Health.

Table 2.D provides an overview of the mandates of these respective committees.

Table 2.D: Inter-Ministerial Commissions and Coordinating Mechanisms

NAME OF MECHANISM	RESPONSIBILITIES	SECRETARIAT
Pesticides Control Board	To advise the Minister on matters relevant to the making of regulations under the Pesticides Control Act; and To carry out the provisions under the Act	Ministry of Agriculture and Rural Development
Chemical Substances Technical Working Group (CSTWG)	To provide guidance on the development of a comprehensive national framework for hazardous substances management	Environmental Unit, Ministry of Energy and the Environment
National Ozone Committee	To assist the Ministry of Environment with the execution of the Barbados Country Programme for the phasing out of ozone-depleting substances	Environmental Unit, Ministry of Energy and the Environment

Table 2.D: Inter-Ministerial Commissions and Coordinating Mechanisms

NAME OF MECHANISM	RESPONSIBILITIES	SECRETARIAT
National Advisory Committee on Occupational Safety and Health	To assist the Factory Inspectorate, Ministry of Labour, with the formulation of national occupational health and safety policy and regulatory frameworks	Labour Department, Ministry of Labour and Social Security
Risk Analysis and Monitoring Committee for Industrial Development	To advise on and make recommendations concerning risks to environment and workers associated with the use and manufacture of hazardous materials at industrial facilities in Barbados	Barbados Investment and Development Corporation

2.5.3.3. Non-Governmental Stakeholders

There are several non-governmental chemicals management stakeholders in Barbados, with varying types of involvement, expertise and experience in chemicals management. These include non-governmental organizations such as Counterpart Caribbean and the Caribbean Conservation Association, regional and international organizations such as the Food and Agriculture Organization of the United Nations (FAO), the Pan-American Health Organisation, the United Nations Development Programme, and the Inter-American Institute for Cooperation on Agriculture. Labour unions, private sector organizations and educational institutions such as the University of the West Indies also hold significant expertise that could be brought to bear in improving the level of chemicals management in the island.

3. ASSESSMENT OF POPS ISSUES IN BARBADOS

This chapter summarises the results of the POPs assessments carried out in the second phase of NIP development. It outlines the current state of knowledge about POPs in Barbados, including inventory information, technical, management and monitoring capacity, and provisions for sharing information and raising public awareness.

3.1 POPs Pesticides

3.1.1. Production, Import, Export and Use

Production of POPs pesticides has never taken place in Barbados and no future production is anticipated. Although POPs pesticides have previously been used, the Pesticides Inventory conducted in 2003 – 2004 did not find any POPs pesticides in use. The inventory covered many of the major pesticides storehouses on the island but many of the small users of pesticides were not covered.

The Pesticide Control Board has issued bans on the importation and use of aldrin, chlordane, DDT, dieldrin, endrin and heptachlor. The remaining three POPs pesticides – hexachlorobenzene, mirex and toxaphene – have not been officially banned, but no licences have been issued for their importation and use.

3.1.2. Policy and Regulatory Framework

Pesticides are regulated under the Pesticides Control Act. The provisions of the Act are outlined in Section 2.5.1.1. Because Barbados is a signatory to the Basel

Convention, the disposal of waste pesticides should be carried out in accordance with the requirements of that Convention.

3.1.3. Available Monitoring Data

Samples of groundwater are tested annually using a wide-spectrum analysis, which includes analysis for all of the POPs pesticides except mirex. There has been no detection of POPs pesticides in groundwater samples.

There is no testing of other environmental media for POPs pesticides.

3.2 PCBs

3.2.1. Production, Import, Export and Use

There is no data to indicate that PCBs are currently produced or have ever been produced in Barbados. Because there is no specific import/export category for PCBs and PCB-containing materials, available data does not permit determination of the quantities of PCBs, if any, imported into or exported from Barbados.

In 2004, a national PCBs inventory was carried out by the EPD as part of the development of this NIP. The aim of the inventory was to identify materials and equipment that might contain PCBs at concentrations in excess of 0.05% and volumes greater than five litres, as required in paragraph (a) of Part II of Annex A to the Convention. The execution of the inventory was informed by two UNEP guidance documents, *Guidelines for the Identification of PCBs and Materials Containing PCBs* (1999) and *PCB Transformers and Capacitors: From Management to Reclassification and Disposal* (2002).

LOCATIONS OF POTENTIALLY PCB-CONTAINING EQUIPMENT

Electric Utilities	32 pieces
Industrial Facilities	103 pieces
Military Facilities	37 pieces
Residential/Commercial Buildings	15 pieces

Based on the guidance contained in these documents, four types of facility were identified as owning and/or operating potentially PCB-containing equipment. The total number of pieces of equipment identified was 187, of which 71 are currently in use. It should be noted that of these 187 items, only 2 pieces of equipment have been confirmed as

containing PCBs. Chemical screening and analysis will be necessary to positively confirm the presence of PCBs in the other 185 items.

3.2.2. Policy and Regulatory Framework

In the absence of a regulatory framework specifically for the control and management of hazardous and toxic substances, there is no legislation or policy in Barbados governing the import, use or export of PCBs.

3.2.3. Available Monitoring Data

There is very limited data available on the presence of PCBs in the environment, in food or human tissues, or on health impacts potentially related to PCB contamination.

The Barbados Water Authority and the EPD routinely monitor groundwater wells in Barbados and a wide-spectrum analysis of groundwater samples from one or two of these water supply wells is carried out on an annual basis. These analyses have not to date detected the presence of PCBs in the groundwater. The results of the most recent analysis, in June 2004, have shown PCB concentrations to be below the reliable quantitation limit of 0.010 µg/L. Additionally, in the early 1990s, sea-urchin tissue was tested for a variety of toxic substances, including PCBs. No PCBs were detected in the samples analysed.

3.3 Unintentionally Produced POPs (Dioxins and Furans, HCB and PCBs)

3.3.1. Releases of Unintentionally Produced POPs

Prior to the commencement of the NIP project there was no routine monitoring or inventory programme for releases of POPs from unintentional production of Annex C chemicals. As a result, information about historical releases and trends in releases is not available.

As part of the NIP development process a national inventory of dioxins and furans was carried out in 2004 for the year 2003. The inventory was carried out following the approach and methodology recommended in the *Standardized Toolkit for Identification and Quantification of Dioxins and Furan Releases* (UNEP, 2003). As no similar guidance is available for quantifying the unintentional production of HCB and PCBs, it was not possible to carry out inventories of these substances.

Total releases of dioxins and furans for 2003 were estimated to total 49.0 g of toxic equivalents (g TEQ) from six source categories. The majority (91%) of these releases were emissions to air. It should be noted that the paucity of information available about the processes likely to release dioxins and furans introduces a factor of error into the estimates, the magnitude and significance of which is difficult to assess.

ESTIMATED PCDD/PCDF RELEASES, 2003 (IN G TEQ)

Waste incineration	42.7
Ferrous and non-ferrous metal production	0.1
Power generation and heating	0.7
Production of mineral products	0.3
Transportation	0.4
Uncontrolled combustion processes	4.8
TOTAL	**49.0**

3.3.2. Available Monitoring Data

Barbados does not have the technical capacity to directly monitor releases of unintentionally produced POPs, therefore there is no measured data available in this regard.

3.3.3. Policy and Regulatory Framework

There is currently no legislative or policy framework through which regulatory action can be taken to reduce emission of air pollutants such as dioxins and furans. In an appraisal of national legislation and policy that could be used to implement the requirements of the Stockholm Convention, it was suggested that the Health Services Act, 1969, Cap. 44 of the Laws of Barbados, and the accompanying Nuisances Regulations could possibly be used to control dioxin and furan releases.

THE HEALTH SERVICES (NUISANCES) REGULATIONS, 1969

Conditions deemed in the regulations to be nuisances include:

- Any discharge, except in accordance with a permit granted by the Minister or a Medical Officer of Health, of any industrial waste or other noxious matter on to any beach or into the sea or into any river, ravine, watercourse, pond, ditch, drain or other place;
- Any chimney emitting smoke in such quantity or of such density as to be prejudicial or injurious to public health.

However, to date the regulations have not been used in this fashion to exercise regulatory control over emissions to air.

3.4 Stockpiles, Wastes and Contaminated Sites

In 2004, inventories of intentionally produced POPs (POPs pesticides, including DDT, and PCBs) were carried out to identify and quantify stockpiles and wastes containing or contaminated by these chemicals. The results of these inventories are summarised below.

3.4.1. POPs Pesticides

As there are no permitted uses for POPs pesticides in Barbados, any quantities of these substances identified by the inventories would be classified as wastes.

One 22 litre metal drum labeled as endrin was discovered during the pesticides inventory, along with several other similar containers whose labels were illegible.

Drums of waste endrin

Chemical analysis is required to conclusively identify the substance in these containers as endrin.

The pesticides inventory also highlighted the discovery of containers of pesticides which could not be identified because of the poor condition or complete absence of labels on the pesticide containers. Again, chemical analysis of these substances is necessary to determine the nature of their contents, and whether any of them are POPs.

The inventory also identified a number of sites where pesticides had been disposed by dumping or open burning and where pesticides spills or leaks had occurred. It is possible that the soil at these sites may be contaminated by POPs pesticides. Sampling and analysis of the soil at the sites in question would be necessary to determine the level of contamination, if any, present.

3.4.2. Polychlorinated Biphenyls

Sixty-six sites, ranging from military installations to residential/commercial operations, were investigated during the PCBs inventory. In accordance with the Convention, priority was given to identifying items that potentially contain PCBs in concentration greater than 10% and volumes greater than 5 litres. Based on the assessment criteria used (date of manufacture and relevant manufacturing specifications, where available), 187 pieces of equipment that might be PCB-containing were identified. Of these, 116 pieces are no longer in use and can be considered as wastes. Only two pieces of equipment were positively identified as containing PCBs, based on their labelling. Chemical screening of the remaining 185 items will be required to determine whether or not PCBs are present.

An out-of-use transformer

During the inventory, several of the organizations surveyed indicated that they had previously taken steps to dispose of old electrical equipment such as transformers. However, information about the types and quantities of the equipment was not available, nor was information provided about the disposal locations used. There is therefore the possibility that dump sites have been contaminated by leakage of PCBs from improperly disposed equipment, but further conclusions in this regard are hampered by the lack of data.

3.4.3. Dioxins and Furans

The Toolkit used to guide the execution of the nation inventory of dioxins and furans provided advice as to the identification of potential “hot spots” for dioxins and furans. Hot spots are sites which are contaminated by dioxins and furans as a result of the storage, application or disposal of materials contaminated by dioxins and furans.

Based on the guidance provided in the Toolkit, sites potentially contaminated by dioxins and furans include those where

- there has been the intensive long-term use of 2,4-D herbicide;
- dredged marine sediments have been deposited;

- plastic-coated copper cables have been burned on the ground;
- PCB-containing equipment has leaked or been disposed of;
- dry-cleaning residues have been dumped;
- ash and residues from incineration have been disposed of;
- land-fill or dumpsite fires have taken place; and/or
- there has been a fire at a chemical manufacturing or storage facility.

Although the Toolkit allows for the identification of potential hot spots, the actual level, if any, of contamination by dioxins and furans at these sites cannot be determined without sampling and relevant chemical analysis.

3.5 Future Production, Use and Releases of POPs – Requirements for Exemptions

The inventory programmes commenced in 2004 will be continued on a regular basis in order to provide the necessary information to identify trends and make projections about POPs production, use and release in Barbados. It is not anticipated at this time that any production or use exemptions will be required for the currently listed POPs.

3.6 Monitoring of Releases and Environmental and Human Health Impacts

Annual broad-spectrum analysis of samples taken from one or two of the primary groundwater extraction sites is undertaken, and includes eight POPs pesticides and PCBs. This analysis is carried out at a laboratory in the USA, as Barbados does not currently have the capacity to execute such measurements. To date, this monitoring programme has not detected the presence of these substances in the groundwater.

No other routine monitoring of POPs releases or presence in environmental media is carried out. There is no monitoring of the presence of POPs in human or animal tissues or in foodstuffs. Neither is there monitoring of possibly POPs-related health effects.

3.7 Awareness Raising and Education

Although several of the agencies involved in chemicals management in Barbados execute awareness-raising and education programmes for their stakeholders, there have been, prior to the NIP project, no awareness programmes focused specifically on POPs.

A number of awareness-raising activities have been carried out since the commencement of the project, including the publication of notices in the print and electronic media, workshops, focus groups, consultations, presentations to stakeholder groups, preparation and distribution of educations materials, both for the general public and for persons working in agriculture, publication of a website, and an ERADICATE POPS logo competition for youth.

Specific stakeholder groups targeted by these awareness-raising efforts have included managers and workers in agriculture, managers and operators of industrial facilities, environmental and agricultural non-governmental organizations (NGOs), labour unions, scientists and technical personnel, chemical re-formulators and distributors, youth, and the general public.

3.8 Technical Infrastructure for POPs Assessment, Measurement and Analysis

The National Profile of Chemicals Management and the Stockholm Convention Impact Appraisal have identified three facilities in Barbados, with capabilities related to the analysis and measurement of POPs.

It has been recommended that the laboratory at the Government Analytical Services (GAS) should be established as the primary facility for POPs chemicals analysis in Barbados. The GAS laboratory currently has the physical infrastructure in place to carry out instrumental analyses for 10 of the 12 POPs chemicals; there is no capacity to analyse for dioxins and furans. It has been noted that some capacity building will be needed for the GAS, both in terms of the acquisition of reference standards and training for staff in the standard methods used for POPs determination. The laboratory is currently undergoing strengthening and proficiency testing as a step towards achieving accreditation for its analyses.

The GAS laboratory recently participated in a regional survey of analytical needs, coordinated by the Basel Convention Regional Centre for Latin America and the Caribbean. The survey is part of a project to identify what analytical capacity exists

and is needed for the implementation of National Plans across Latin America and the Caribbean, in order to prioritise actions to be taken to achieve effective participation in a global POPs monitoring programme. It is anticipated that as part of this project, analytical centres will be established to serve the needs of the region. The locations of these facilities and the modalities for accessing their capacity have not yet been determined.

3.9 Systems for the Assessment and Regulation of POPs Chemicals

There is only one system for the assessment and regulation of POPS chemicals and this system is applicable only to pesticides. Its legal basis is the Pesticide Control Act and the accompanying Pesticides Control (Approval of Pesticides) Regulations.

These regulations require persons to apply for permission to manufacture, import, store, use, distribute, sell or expose or offer for sale any pesticide other than those already approved by the Pesticides Control Board. Such an application must be accompanied by relevant supporting information, including:

- Information about the toxic effects likely to be caused in persons using or handling the pesticide with special reference to toxic effects likely to be caused by ingestion, by inhalation and by adsorption through the skin;
- Evidence of the fact that use of the pesticides on crops, on produce or on animals … would not in any way render food unfit for consumption because of the residues of the pesticide present therein; and
- Information about potential toxic effects on birds, fish, bees and on other wild life and domestic animals.

The Board may seek the advice and assistance of relevant experts in assessing the chemicals and determining whether or not to approve its import, manufacture, distribution and use. Pesticide approvals are for granted for three years or for a shorter period as determined by the Board, and are subject to review once this period has expired. The Board may revoke an approval at any time as it deems necessary. The Board may refuse permission to manufacture, import, distribute or use a pesticide if the application fails to provide sufficient supporting information, if the pesticide is considered unsafe or ineffective under the working instructions submitted with the application, or if it is deemed that pesticide usage may constitute a risk to the public health, domestic animals or wildlife. The Board may also ban or severely restrict a pesticide if it is deemed that its use constitutes a risk to the safety and health of human beings, domestic animals, wildlife or the environment.

4. THE NATIONAL IMPLEMENTATION PLAN

National implementation plans, as required by Article 7 of the Stockholm Convention should outline how Parties intend to meet the obligations of the Convention. The preparation of an NIP allows countries to develop compliance strategies that are appropriate to and consistent with the national context. The action plans and measures included in the NIP should reflect and respond to the national circumstances in which the Plan was formulated.

This national implementation plan for the Stockholm Convention is intended to fulfill the requirement for Barbados, as a Party to the Convention, to develop action plans and strategies for the implementation of relevant Convention obligations.

The NIP highlights the key requirements of the Stockholm Convention and identifies, based on stakeholder consultation and the recommendations contained in the Stockholm Convention Impact Appraisal Final Report, measures and actions to give national effect to these requirements. The organizations and agencies involved in the implementation of these action plans are identified and a timeframe for the activities is proposed. The Plan is summarised in Table 4.A on page 70.

The NIP is intended to apply to the five year period from January 2006 to December 2010. The plan is scheduled for review in 2009, and an amended and updated plan is to be prepared for the period commencing January 2011. Further information on the review and update of the implementation plan can be found in Section 4.2.4.

In addition to the specific measures outlined in the action plans, there are a number of overarching considerations which are fundamental to the successful implementation of the Stockholm Convention in Barbados. These are discussed under the relevant headings below.

4.1 Overarching Considerations

4.1.1. Institutional Framework

The implementation of the Stockholm Convention in Barbados requires the expertise and participation of several stakeholder groups and organizations, both in and outside of government. The need for wide-ranging commitment to and participation in Convention implementation has been acknowledged during the process of plan development via the involvement of a multi-sectoral co-ordinating committee and stakeholder consultation at all steps of the process. The benefits gained from this approach should be carried forward to the further implementation of the Convention.

In addition to being Party to the Stockholm Convention, Barbados is Party to the Basel Convention and a signatory to the Rotterdam Convention. These three MEAs collectively cover a range of objectives and activities related to the chemicals safety and the environmentally sound management of chemicals and hazardous materials. Given the complementarity of the three Conventions, it is recommended that Barbados take a synergistic approach to their implementation. Such an approach is supported by Decision 23/9 of the UNEP Governing Council, which endorses the goal of promoting cooperation and synergies between the Basel, Rotterdam and Stockholm Conventions.

It is recommended that the implementation of the Convention be overseen by a national Chemicals Convention Committee, which would bear responsibility for providing policy input, function guidance and overall oversight of the implementation of the three MEAs in question. The Committee should comprise representatives from key government agencies as well as representatives from industry and civil society. The proposed composition of the Committee is as follows:

- EPD (Chair)
- Ministry of Agriculture and Rural Development
- Government Analytical Services
- Environment Unit, Ministry of Energy and the Environment
- Ministry of Health
- Labour Department
- Barbados Water Authority
- Customs and Excise Department
- Barbados Workers' Union
- Counterpart Caribbean
- University of the West Indies

The duties of the Committee would include:

- Overseeing the national implementation of the Basel, Rotterdam and Stockholm Conventions;
- Reviewing, commenting on, and approving plans for action and activities to implement the Basel, Rotterdam and Stockholm Conventions;
- Reviewing, commenting on, and approving documents and reports required under the Conventions, including strategy documents and action plans;
- Recommending general and specific tasks for the implementation of the Conventions;
- Reviewing and commenting on the execution of activities and actions for the implementation of the Conventions;
- Ensuring that the national implementation of the Convention adequately addresses a range of relevant cross-sectoral issues; and
- Reviewing and commenting on the state of Barbados' compliance with the Basel, Rotterdam and Stockholm Conventions.

The Committee would have responsibility for overseeing and providing guidance on the national implementation strategies and activities for the three Conventions, as well as for reviewing, evaluating and advising on the success of implementation plans and activities.

4.1.2. Regulatory and Policy Framework

One of the major constraints to effective chemicals management in Barbados is the absence of a comprehensive and coordinated legislative framework to control the import, export, production, sale, transport, storage, use and disposal of chemicals other than pesticides. There is no appropriate regulatory mechanism by which steps can be taken to prohibit or severely restrict the importation and uses of non-pesticide chemicals currently included or proposed for future addition to the Convention. There is also no strong legal basis for control of emissions of pollutants such as dioxins and furans. The need for a comprehensive regulatory mechanism for chemicals management has repeatedly been identified as an essential priority for the effective implementation of the Stockholm Convention.

The Cabinet has recently approved a policy, legislative and administrative framework for the drafting and introduction of an Environmental Management Act (EMA). Among the policy objectives identified are:

- Facilitation of Barbados's ability to adhere to commitments under international Conventions and Treaties relating to the management of the natural environmental and resources;

- Regulation and promotion of improved management of hazardous materials; and
- To give effect to the obligations of Barbados under the various multi-lateral environmental agreements to which it is party.

These objectives are further supported by the recommendation, contained in the National Sustainable Development Policy, for the development of a comprehensive policy to guide the management of hazardous materials, including wastes.

To this end the Ministry of Energy and the Environment has prepared a draft Proposal for a national Environmental Policy, Administrative and Legislative Framework, which includes recommendations for the sound management of hazardous substances. Further to this, the draft Environmental Management Act (EMA) incorporates provisions for the regulation of the manufacture, import, storage, distribution, sale and use of toxic substances.

The finalisation and adoption of the proposed policy, administrative and legislative framework will have many benefits for the management of POPs and hazardous chemicals in Barbados, and is strongly endorsed and supported. The EMA and accompanying regulations should effectively transfer the requirements of the Stockholm Convention and other chemicals MEAs to the national context by including provisions for monitoring and assessment, information exchange, planning and management, reporting, and enforcement. Action must also be taken to ensure the effectiveness of the legislation by raising awareness among stakeholders about the regulatory requirements and ensuring that the necessary supporting infrastructure and capacity is in place to implement and enforce the regulatory provisions.

4.1.3. Technical and Financial Assistance

Barbados is committed to fulfilling its obligations under the Stockholm Convention and to providing, to the extent feasible, financial support for the activities and measures necessary to achieve compliance with the Convention. However, as a small island developing state, Barbados lacks the national capacity to effectively undertake all the measures needed to meet the Convention's requirements. Successful implementation of Barbados' NIP is dependent on the availability of technical and financial assistance in a number of key areas, including the management and disposal of POPs stockpiles and wastes, the promotion of BAT and BEP, and training and capacity building for persons and agencies involved in the management and regulation of POPs.

In Articles 12 and 13, the Stockholm Convention recognises the particular needs of developing countries and countries with economies in transition in relation to availability of and access to technical and financial resources.

Article 12 recognises that rendering timely and appropriate technical assistance in response to requests from developing countries and countries with economies in transition is essential to the Convention's success and obliges Parties to cooperate to provide such assistance and to promote the transfer of technology to help those countries build the capacity necessary to implement the Stockholm Convention.

> The extent to which the developing country Parties will effectively implement their commitments under this Convention will depend on the effective implementation by developed country Parties of their commitments under this Convention relating to financial resources, technical assistance and technology transfer.
>
> **The Stockholm Convention**

Article 13 requires each Party to provide, within its capabilities, financial support for national activities and strategies intended to achieve the objective of the Convention. It also obliges developed country Parties to provide new and additional financial sources to enable developing country Parties and Parties with economies in transition to meet the agreed full incremental costs of implementing the Stockholm Convention, and makes provisions for the establishment of a financial mechanism to achieve this end. The GEF is the interim financial mechanism for the Convention. Parties may also provide, and developing countries avail themselves of, financial resources to assist in Convention implementation through other sources and channels, be they bilateral, regional or multilateral.

Both Articles 12 and 13 require Parties to take full account of the specific needs and special situation of least developed countries and small island developing states, respectively, in their actions with regard to technical and financial assistance respectively.

At the first Conference of Parties of the Stockholm Convention, in May 2005, Decision SC-1/15 on technical assistance was adopted along with the corresponding guidance on technical assistance and transfer of environmentally sound technologies. The guidance identifies potential sources of technical assistance such as intergovernmental agencies, developed countries via bilateral development agencies, non-governmental organizations, research institutions and universities. Identified priorities for technical assistance include, but are not limited to, the following:

- development, implementation and updating of national implementation plans;
- review of available infrastructural capacity and institutions and the potential to strengthen them in light of the Convention;
- training for decision makers, managers and other relevant personnel in areas related to Convention implementation;
- identification and disposal of POPs wastes;

- identification and promotion of BAT and BEP;
- identification of contaminated sites; and
- monitoring of POPs levels.

The Conference of Parties also adopted Decision SC-1/9 on guidance to the financial mechanism. This Decision identifies activities and objectives that should be prioritised for the provision of financial assistance, such as:

- development and implementation of activities identified in national implementation plans as national priorities;
- activities that support or promote capacity-building, including human resource development and institutional development and/or strengthening;
- assistance with needs assessment and information on available sources of funding;
- activities that promote BAT and BEP; and
- activities that promote education, training, public participation, and awareness raising of stakeholders and the general public.

It is evident that there is the opportunity for Barbados to access technical and financial assistance in many of the priority areas outlined in this plan, and activities for which technical and/or financial assistance is likely to be required have been clearly identified as such.

4.2 Priorities and Actions

Chapter 3 of this document describes the national POPs situation as it relates to POPs pesticides, PCBs, and dioxins and furans. The national POPs management priorities in respect of these groups of chemicals are summarised below:

- To dispose of existing POPs pesticide waste;
- To raise awareness of POPs pesticides and the need for their safe management and disposal;
- To take appropriate steps to respond to the addition of new chemicals to the list of POPs in the Convention;
- To maintain and update national inventories of POPs pesticides;
- To establish administrative procedures by which the importation of PCBs can be controlled/regulated;
- To conclusively ascertain the presence of PCBs in equipment that has been identified as potentially PCB-containing;

- For PCB-containing equipment no longer in use, to undertake its disposal in an environmentally sound manner;
- For PCB-containing equipment still in use, to commence development of plans for phase-out and disposal;
- To maintain and update national inventories of PCBs;
- To promote the use of BAT and BEP to reduce emissions of dioxins and furans from waste incinerators;
- To require the use of BAT and BEP at new facilities likely to generate dioxins and furans;
- To improve the quality of data on emissions of dioxins and furans;
- To maintain and update national inventories of dioxins and furans.

These priorities and related action plans were formulated based on the priority tasks listed in the Stockholm Convention Impact Appraisal. The Appraisal identified 15 priority tasks necessary to meet the obligation placed on the Government of Barbados under the Stockholm Convention. In prioritising tasks, consideration was given to:

- The urgency of the action needed to protect public and environmental health;
- The proximity of deadlines imposed by the Convention;
- The requirements for actions to be taken as precursors for other requirements;
- The relative ease of implementation of the actions in questions.

Action plans have been developed to address the obligations imposed by the following articles of the Stockholm Convention:

- Article 3: Measures to Reduce or Eliminate Releases from Intentional Production and Use
- Article 5: Measures to reduce or eliminate releases from unintentional production
- Article 6: Measures to Reduce or Eliminate Releases from Stockpiles and Wastes
- Article 7: Implementation Plans
- Article 10: Public Information, Awareness and Education
- Article 15: Reporting

The total cost of implementing the measures in this NIP has been estimated at approximately Bds$595,000.

4.2.1. Measures to Reduce or Eliminate Releases from Intentional Production and Use (Article 3)

Article 3 of the Stockholm Convention requires Parties to take legal and administrative measures to regulate, with the goal of eliminating, the production, use, import and export of the chemicals listed in Annexes A and B of the Convention.

CHEMICALS LISTED IN ANNEXES A AND B OF THE STOCKHOLM CONVENTION

Aldrin	Heptachlor
Chlordane	HCB
DDT	Mirex
Dieldrin	Toxaphene
Endrin	PCBs

Under the Convention, import and export of Annex A and B chemical is allowed only for specific listed uses and purposes, or for environmentally sound disposal. Any import or export of Annex A and B chemicals should be carried out in compliance with the provisions of existing international prior informed consent instruments, such as the Rotterdam Convention.

In addition to exercising regulatory control over import, export, production and use, Parties with regulatory and assessment schemes for new or existing pesticides or industrial chemicals are required to include in these schemes consideration of a number of screening criteria listed in Annex D of the Convention.

The national priorities established in relation to achieving compliance with Article 3 of the Stockholm Convention are to:

- Take legal measures to prohibit the production, use, import and export of POPs pesticides, with the exception of export for environmentally sound disposal; and
- Take administrative measures to prohibit the import and export of PCBs and PCB-containing equipment.

4.2.1.1. Take legal measures to prohibit the production, use, import and export of POPs pesticides, with the exception of export for environmentally sound disposal

Currently there are no licences for the import, use or sale of any of the nine POPs pesticides, which means that their production, import and use in Barbados is effectively illegal. However, only six of the nine pesticides have been officially included on the Pesticides Control Board list of banned and severely restricted substances. It has been recommended that the remaining three POPs pesticides – HCB, mirex and toxaphene – should be formally included on this list. Further to this, as new pesticides are added to Annexes A and B of the Convention, these will need to be included in the Board's list of banned and severely restricted pesticides.

In order to meet these goals, the necessary interventions are required:

1. Submission of a recommendation to the Chair of the Pesticides Control Board that, based on the associated human and health hazards, Annex A or B pesticides that are not currently banned should be added to the list of banned and severely restricted pesticides.

2. For each new POPs pesticide added to Annexes A or B, submission to the Chair of the Pesticides Control Board copies of the proposal, risk profile and risk management profile prepared in respect of that chemical, along with a copy of the decision of the Conference of Parties to include it in the Convention, and a recommendation that the chemical should be formally banned, if such action has not already been taken.

3. Circulation to members of the Board of relevant information documents about POPs pesticides, followed by action by the Pesticides Control Board to ban/severely restrict the chemical(s) in question.

4. Issuance of public notices that the pesticides in question have been banned/severely restricted.

There is no cost associated with the implementation of these measures.

4.2.1.2. Take administrative measures to prohibit the import and export of PCBs and PCB-containing equipment

A policy on hazardous substances management, which proposes a regime for the legal and regulatory control of chemicals, including pesticides, in all aspects of their life cycle, has been developed by the Chemical Substances Technical Working Group. However, there is currently no regulatory scheme in place in Barbados to control the production, import, export and use of industrial chemicals such as PCBs.

Until such legislation comes into being, one option for the control of PCBs is via the Miscellaneous Controls Act, Cap 329 of the Laws of Barbados, under which various commodities may be put on licence to restrict or prohibit their import into and/or export from the country. This Act is administered by the Ministry of Commerce, Consumer Affairs and Business Development. Necessary interventions are outlined below.

1. Preparation of a submission to the Director of the Department of Commerce and Consumer Affairs proposing that PCBs should be put on licence and presenting the reasons why import and export of these substances should be prohibited, with specific reference to the associated human and environmental health considerations and the requirements of the Stockholm Convention.

2. Preparation and submission of a Paper to Cabinet for a decision on whether or not PCBs should be added to the list of commodities on licence.

3. Requirement, for all PCBs exported for disposal, that notification in writing be submitted regarding the exportation, transportation and environmentally sound disposal of the wastes, as required by the Basel Convention.

There is no cost associated with the implementation of these measures.

4.2.2. Measures to reduce or eliminate releases from unintentional production (Article 5)

Under Article 5 Parties shall undertake measures to reduce releases from anthropogenic sources of the chemicals listed in Annex C of the Convention, with the goal of continuing minimisation and, where possible, elimination.

CHEMICALS LISTED IN ANNEX C OF THE STOCKHOLM CONVENTION

Polychlorinated dibenzo-p-dioxins

Polychlorinated dibenzofurans

Polychlorinated biphenyls

Hexachlorobenzene

Among the measures required by Article 5 is the development and implementation of an action plan as part of an overall NIP. The action plan and strategies therein are to be reviewed, and their success evaluated, every five years, and relevant reports submitted to the Conference of Parties.

Parties are further required to take national action to promote training, education and awareness with regard to the reduction of unintentionally produced POPs (uPOPs), to promote the application of available, feasible and practical measures for release reduction or source elimination, to promote the development of alternative processes or products which would not lead to the release of uPOPs, and to promote, and in some cases require, the use of best available techniques (BAT) and best environmental practices (BEP) for existing and new sources of uPOPs.

To assist with the implementation of Article 5, draft *Guidelines on best available techniques and provisional guidance on best environmental practices relevant to Article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants* have been prepared by an Expert Group on Best Available Techniques and Best Environmental Practices, appointed by the Stockholm Convention Secretariat.

The national priorities for achieving compliance with Article 5 of the Stockholm Convention are to:

- Promote the use of BAT and BEP for existing waste incinerators;
- Require the use of BAT and BEP for new source facilities;

- Maintain source inventories and release estimates; and
- Review the effectiveness of the measures taken to reduce releases of uPOPs.

4.2.2.1. Promote the use of BAT and BEP for existing waste incinerators

The 2003 inventory of dioxins and furans found that waste incineration was the leading source category for releases of dioxins and furans in Barbados, with 87% of total estimated releases originating from incinerators. As a result, actions to reduce releases from existing sources are focused on this category. The Convention requires that emission reduction strategies should incorporate and promote the use of BAT and BEP, and the draft guidelines and guidance on BAT and BEP include recommendations for the improvement of waste management, better operation and management of the incineration process, and suitable treatment of emissions, residues and effluents. In order to encourage the use of the techniques and practices in waste incineration, the following interventions are to be carried out:

Solid Waste Incinerator

1. Execution of environmental audits at municipal solid waste and medical waste incinerators (i.e. the incinerators at the Bayview Hospital, Bridgetown Port, Grantley Adams International Airport, McBride Caribbean Ltd, and the Queen Elizabeth Hospital). This activity would also contribute to the improvement of subsequent national inventories of uPOPs.

2. Awareness raising and training in BAT and BEP for technicians, operators and managerial personnel at waste incinerators, as well as regulatory personnel. In order to ensure that the training programme is relevant to the Barbados situation and context, it should be preceded by on-site assessments of the techniques and practices in use at the targeted facilities.

While it may be possible to carry out a rudimentary waste audit as part of the routine functions of the Environmental Protection Department, more comprehensive and informative audits are likely to require external technical assistance, as will the

delivery of training in BAT and BEP. The estimated cost of these activities is $70,000.

4.2.2.2. Require the use of BAT and BEP for new source facilities

The Stockholm Convention requires each Party to phase in, within 4 years of the entry into force of the Convention for that Party, requirements for BAT to be used for new sources in the following categories:

- Waste incinerators;
- Cement kilns firing hazardous wastes;
- Production of pulp using elemental chlorine or chemicals generating elemental chlorine; and
- Specified thermal processes in the metallurgical industry.

Parties are also required to promote the use of BAT for new sources in other categories and to promote the use of BEP for all new sources. For Barbados, this phase-in process should be completed by August 2008.

The primary avenue for the control of environmental impacts of new developments is the Town Planning Department's development approval process, and specifically the associated requirements for environmental impact assessments (EIAs) of certain types of facility, including incinerators, chemical plants and crematoria. Consequently, it is proposed that provisions to require/encourage the use of BAT and BEP should be incorporated into the existing development approval framework by means of the following interventions:

1. Liaison with the Town and Country Planning Development Office regarding the inclusion of BAT and BEP considerations in the approval process for new developments in the relevant source categories.

2. Incorporation of BAT and BEP considerations in the EPD review of EIAs for new developments in the relevant source categories.

3. Submission of a proposal for the formal inclusion, via the National Physical Development Plan at its next update, of BAT and BEP considerations as a standard part of the EIA process for proposed new facilities in the relevant source categories.

There is no cost associated with the implementation of these measures.

4.2.2.3. Develop and maintain source inventories and release estimates

To meet the requirements of Article 5, Barbados is required to identify and characterise releases of uPOPs and, correspondingly, to develop and maintain source inventories and release estimates. Such inventories would inform the

development of national priorities and strategies to address these releases, and would allow assessment of the success of the strategies.

The national inventory of dioxins and furans carried out for the year 2003 was the first of its kind, and the action plan to reduce releases of dioxins and furans was formulated based on the results of that inventory. The inventory identified significant information gaps that affected the accuracy of the final release estimates. In updating the inventory, efforts must be made to improve the quality of the data inputs and consequently the accuracy of the inventory. To this end the following interventions have been identified:

1. Identify, in conjunction with stakeholders, measures to address data gaps highlighted in the dioxins and furans inventory.

2. Development of an electronic database of source information to facilitate inventory update.

3. Update of inventories every four years. The next inventory of uPOPs should take place in 2008 for the year 2007, and should be included in the EPD's programme budget and estimates of expenditure for that year. Inventories should be carried out in compliance with the most current guidelines issued by the Convention Secretariat and should be expanded to include estimate/quantification of unintentional releases of HCB and PCBs if relevant guidance is available.

It is anticipated that these activities may be incorporated into the routine activities of the Air Quality Section of the Environmental Protection Department. It is therefore not anticipated that there will be any additional costs associated with implementation of these measures.

4.2.2.4. Review of the effectiveness of the measures taken to reduce releases of uPOPs

Article 5 specifically requires that strategies to reduce uPOPs releases should be reviewed, and their success evaluated, every five years. The results of such reviews are to be included in reports submitted in fulfillment of the requirements in Article 15 of the Convention of Reporting. Required interventions in this regard are:

1. Review of the measures for reducing uPOPs releases. The first such review is scheduled to take place in the year 2010, as part of the overall review and updating of this NIP (see Section 4.2.4), and subsequent reviews will take place every four years, following the updating of the inventories as outlined in Section 4.2.2.3.

2. Reporting to the Conference of Parties on the reviews and the success of measures taken to reduce releases of uPOPs. This activity will be

incorporated into the overall process of preparing and submitting national POPs reports, as described in Section 4.2.6.1.

There is no cost associated with the implementation of these measures.

4.2.3. Measures to Reduce or Eliminate Releases from Stockpiles and Wastes (Article 6)

Article 6 of the Stockholm Convention is concerned with the sound management of POPs stockpiles and POPs wastes. A stockpile may be defined as a stock of POPs chemicals or equipment or materials containing or contaminated with POPs for which there are still permitted uses in a country according to the register of specific exemptions and the list of acceptable purposes in Annexes A and B of the Convention. If the stock in question no longer has a permissible use under the terms of Annex A or B, it is considered to be a waste.

Parties are required to develop and implement strategies to identify (i) stockpiles consisting of or containing Annex A or B chemicals and (ii)_wastes consisting of, containing or contaminated by chemicals listed in Annex A, B, or C.

Obsolete Pesticides

Stockpiles, when identified, should be managed in a safe, efficient and environmentally sound manner. Wastes should be handled, collected, transported and disposed of in an environmentally sound manner. No recovery, recycling reclamation or reuse of POPs waste is permitted. Wastes should not be transported across international boundaries without taking into account relevant international rules, standards and guidelines, such as those of the Basel Convention.

In addition to managing stockpiles and wastes appropriately, Parties must endeavour to develop strategies for the identification of sites contaminated by POPs chemicals. The Convention does not require remediation of these sites, but if remediation is undertaken, it must be carried out in an environmentally sound manner.

The following priorities have been identified as being important for achieving compliance with Article 6 of the Stockholm Convention.

- To take measures so that wastes are disposed of in an environmentally sound manner;
- To identify stockpiles, products and articles in use and waste consisting of, containing or contaminated by POPs chemicals; and
- To ensure that stockpiles and products and articles in use are managed in an environmentally sound manner.

4.2.3.1. To take measures so that wastes are disposed of in an environmentally sound manner

Inventories of Annex A and B chemicals were carried out in 2004 and wastes potentially containing, or contaminated by, POPs were identified. In several cases, poor management and storage of these wastes presents environmental and human health hazards. One of the priorities identified by stakeholders during the Convention impact appraisal was that these wastes should be disposed of safely at the earliest possible opportunity. However, Barbados has neither the infrastructure nor the capacity to dispose of POPs waste, or other hazardous waste, in an environmentally sound manner. As a result, hazardous waste is shipped overseas for disposal using the services of a waste disposal contractor.

It must be taken into consideration that the Basel Convention on the Control of Transboundary Movement of Hazardous Waste and their Disposal requires Parties to the Basel Convention to ensure that hazardous waste, or other waste, that are exported are packaged, labeled and transported appropriately, and that they are managed and disposed of in an environmentally sound manner in the country of import. Notification procedures outlined in the Basel Convention must be followed, and hazardous wastes are not to be exported to non-Party states. In addition, efforts should be made to adhere to guidance presented in the various technical documents issued by the Basel Convention Secretariat

The following interventions are necessary to achieve the goal set for this priority.

1. Screening of potentially PCB-containing equipment to determine the presence and concentration of PCBs.

2. Analysis of pesticides waste identified during the national pesticides inventory to confirm its preliminary identification as endrin.

3. Environmentally sound disposal of POPs pesticides waste.

4. Development, in consultation with stakeholders, of a plan for the phase-out of confirmed PCB-containing equipment.

The cost of these activities is estimated at $350,000. It will be necessary to obtain technical and financial assistance to carry out these interventions. Such assistance

may be available through UNEP and the Secretariat of the Basel Convention, who are currently in the process of developing a draft proposal for a regional project and partnership for the final disposal of waste pesticides and selected POPs in the Caribbean, as well as the prevention of future accumulation. The assistance that could be available through such a project would be instrumental in facilitating the achievement of this priority objective.

4.2.3.2. To identify stockpiles, products and articles in use and waste consisting of, containing or contaminated by POPs chemicals

As previously noted, inventories of POPs pesticides and PCBs were carried out in 2004. Although these inventories provided a good initial basis for POPs management planning decisions, there were constrained by the limited availability of data. In the appraisal of the impacts of implementing the Stockholm Convention, it was strongly recommended that the inventories be "revisited" to improve the amount and quality of data gathered and to present more comprehensive information about the status of POPs stockpiles and wastes in the country. It should further be noted as well that as new POPs are included in the Stockholm Convention, it will be necessary to carry out new/revised inventories to identify products in use, stockpiles and wastes consisting of, or contaminated with, such new POPs.

Additionally, regular review of these inventories will allow evaluation of progress made in eliminating intentionally-produced POPs in Barbados. Regularly updated inventories will facilitate the evaluation and reassessment of priorities and objectives and the development of new and well-informed strategies and action plans to address the national POPs situation. Regular inventory updates will also facilitate reporting to the Convention Secretariat.

In order to address this priority, the following interventions are required.

1. Updating of inventories every four years. The next inventory of POPs pesticides and industrial chemicals should take place in 2008.

2. Development of pesticides storage and stock management regulations for the Pesticides Control Act.

3. Training for agricultural workers in good pesticides stock management, including safe storage, record-keeping and stock taking, and the use of adequate personal safety measures. Technical assistance to support this action may be solicited from the FAO and the Inter-American Institute for Cooperation on Agriculture.

4. Encouragement, via public awareness campaigns, of voluntary reporting of POPs products, stockpiles and wastes.

The cost of these activities is estimated at $75,000.

4.2.3.3. To ensure that stockpiles and products and articles in use are managed in an environmentally sound manner

Part II of Annex A of the Stockholm Convention requires Parties to promote measures to reduce exposure and risk associated with the use of PCBs, including ensuring that equipment is intact and not leaking, that measures are taken to protect against electrical failures that could result in fire, and that regular inspections are carried out.

In this regard the following interventions are necessary.

1. Development and dissemination of guidelines for the management of PCB-containing equipment, including equipment that has been removed from use, taking into account current international guidance and best practice standards.

2. Formulation and implementation of a routine equipment inspection programme.

3. Encouragement of voluntary reporting regarding PCB management activities, including maintenance, filling/retro-filling, and removal from service.

The cost of these activities is estimated at approximately $15,000.

4.2.4. Implementation Plans (Article 7)

Article 7 of the Stockholm Convention requires each Party to develop and endeavour to implement a plan for the implementation of its obligations under the Convention, and to review and update that plan as appropriate.

Stakeholder consultation is considered an essential component of the development, implementation and updating of such plans, and Parties are encouraged to integrate NIPs for persistent organic pollutants into their sustainable development strategies as appropriate.

At the first meeting of the Conference of Parties, Decision SC-1/12 on national implementation plans was adopted. The annex to this decision provides initial guidance on the review and updating of NIPs. It outlines a number of factors, both internal and external, that could trigger a review and updating of a Party's NIP, including:

- Amendments to the Convention or its annexes;
- Adoption of guidance/guidelines on implementation of the Convention's requirements;
- Changes in national priorities and/or circumstances; and

- Updating of POPs inventories and subsequent indications of a change in the scope of the national POPs problem.

In the case of a change in obligations due to the amendment of the Convention or its annexes, Parties are required to review and update the NIP and transmit the updated Plan to the Conference of Parties within two years of entry into force of the amendment. Otherwise, the scheduling and manner of review and update has been left to each Party's discretion, with the requirement that the Party should notify other Parties via the clearing-house mechanism, of its intent to review and update the Plan.

The Secretariat of the Convention was requested in Decision SC-1/12 to elaborate further the process of reviewing and updating NIPs. Progress has been made on this enhanced guidance, which will inform the identification of actions to be undertaken under these two priority headings. It is anticipated that the draft guidance will be presented at the third Conference of the Parties of the Stockholm Convention in 2007.

This NIP for the period 2006 to 2010 fulfills the initial obligation to develop, in consultation with stakeholders, a plan for the implementation of the Convention. Furthermore, the national Sustainable Development Policy incorporates policy recommendations relevant to the principles espoused in the Stockholm Convention NIP. Under the heading "Waste Management in the Sustainable Development Policy", recommendations include:

- Continuing to implement programmes and activities which comply with and address Barbados' national obligation as Party to relevant international Environmental Agreements;
- Development of a comprehensive policy to guide the management of hazardous materials including chemicals for agriculture and/or manufacturing, as well as wastes;
- Including in the policy mechanisms and procedures for the importation, handling, transport, storage and disposal of hazardous waste in accordance with Barbados's obligations as Party to the Basel Convention; and
- Development of appropriate legislative measures to support the implementation of policy recommendations.

Having thus satisfied the requirement to develop a national plan, and to integrate related provisions in the national sustainable development strategy, the primary priorities for Article 7 relate to the review and updating of the plan, as follows.

- To review and update the NIP in the year 2010; and
- To review and update the NIP in response to changes in Barbados' obligations under the Stockholm Convention as a result of amendments to the Convention or its Annexes.

The estimated cost of this activity, including printing and distribution of the revised NIP, is $25,000.

4.2.5. Public Information, Awareness and Education (Article 10)

The Stockholm Convention requires in Article 10 the promotion and facilitation of awareness, information dissemination, and training among various groups, including workers, scientists, educators, technical and managerial personnel, women, youth and the public.

Parties are also requested to encourage stakeholders, such as industry and professional users, to promote and facilitate the provision of information on POPs.

The Stockholm Convention Impact Appraisal results discussed the general lack of awareness, at all levels of society and stakeholder organizations, of the hazards of POPs chemicals and the processes that produce them. It was recommended that awareness programmes should be developed to target specific audiences, including:

- Customs officers;
- Agricultural workers, small farmers, and household users of pesticides;
- Owners, managers and operators of facilities identified as releasing dioxins and furans; and
- Owners, operators, engineers and maintenance technicians working with PCB equipment.

It was also recommended that other governmental and non-governmental organizations, for example the Ministry of Agriculture and the Labour Department, should be closely involved in the delivery of such awareness programmes.

Considering the requirements of the Stockholm Convention and the recommendations of the Impact Appraisal, the following priorities have been identified (note that other training and awareness activities as part of strategies to achieve the objectives of Articles 3, 5, and 6, have been included in the sections of this plan related to those articles):

- Development and implementation of educational and public awareness programmes on persistent organic pesticides, their health and environmental impacts and their alternatives; and
- Development and implementation of awareness and training programmes for customs officers and other regulatory personnel.

4.2.5.1. Development and implementation of educational and public awareness programmes on persistent organic pesticides, their health and environmental impacts and their alternatives

A repeated observation during the process of developing the national implementation plan for the Stockholm Convention has been that inappropriate, indiscriminate and unsafe use and management of pesticides is common in Barbados, both at large agricultural farms and plantations and among small farmers and household users. Anecdotal reports obtained during the preparation of the National Profile and Impact Appraisal suggest that some POPs pesticides may still be in use at the household level, and that such pesticides are valued for their effectiveness. There seems generally to be a lack of awareness and appreciation of the hazards and health risks associated with pesticides. It was reported that, even in cases where safety or hazard information is provided, the information may, for various reasons, not be fully understood by the user, and therefore not applied to the practical management and use of pesticides. There is a clear need to educate the public about the hazards associated with POPs pesticides, and with the inappropriate use of pesticides in general. Necessary interventions include the following:

> There is a general lack of sensitivity to the need to use protective equipment in the agricultural and industrial sectors. Training, education, and public awareness are required at all levels.
>
> There are concerns about … risks posed by failures to follow packaging and MSDS instructions at all levels, including in domestic usage.
>
> **National Profile of Chemicals Management, December 2003**

1. Development and delivery of a nation-wide public awareness campaign informing of the hazards of unsafe pesticide use and educating about safety precautions to be taken when storing, handling and using pesticides.

2. Development and delivery of a public awareness campaign identifying the POPs pesticides as banned chemicals, describing the associated environmental and health hazards and recommending safer alternatives. Such a campaign should be extended to include all pesticides whose use in Barbados is banned or severely restricted.

The cost of these measures is estimated at approximately $50,000.

4.2.5.2. Development and implementation of awareness and training programmes for customs officers and other regulatory personnel

Customs officers are one of the country's first lines of defence against the illegal trade of hazardous substance such as POPs. They are therefore vital to the successful implementation of the Stockholm Convention and other MEAs with trade

restriction provisions. To effectively participate in Convention implementation, customs officers must have the skills and information necessary to identify illegal hazardous substances at ports of entry, and to ensure that prohibition and restriction measures are complied with. The Customs and Excise Department has identified capacity building in this area as vital to their ability to facilitate national compliance with the Stockholm Convention and other MEAs. Interventions in this respect include the following:

1. Preparation and distribution of an informational POPs deskbook and quick screening tool for customs officers. These would educate officers about POPs and the associated hazards, as well as providing identifying information such as chemical names, trade names, Chemical Abstract Services numbers, hazard labels, etc.

2. Participation of customs officers in Green Customs training. The Green Customs initiative is "a series of collaborative activities carried out by its partner organizations, aimed at raising the awareness of Customs and border control officers of several trade-related MEAs". International partner organisations that assist with related capacity building activities include the World Customs Organisation, UNEP's OzonAction Programme, and UNEP's Division of Environmental Conventions, among others.

3. Training of customs officers, the EPD and other agencies involved in the regulation and management of chemicals, in the implementation of the Globally Harmonised System for the Classification and Labelling of Chemicals (GHS). The GHS is an internationally-agreed system/standard for chemical classification and hazard communication. Familiarity with such a system would allow customs officers to more easily identify chemicals whose hazards have been assessed on an international basis. Training in the implementation of the GHS is available through the United Nations Institute for Training and Research, which has published a guidance document on the development of national GHS strategies.

Technical assistance would be required to carry out the second and third interventions relating to this priority. The cost of the first intervention, for which assistance is not required, is estimated at $10,000.

4.2.6. Reporting (Article 15)

Under Article 15 of the Convention each Party is required to report to the Conference of Parties on measures taken to implement the Convention's provisions, and on the effectiveness of such measures.

Parties are specifically obliged to submit to the Secretariat

(a) statistical data on total production, import and export of the chemicals listed in Annexes A and B of the Convention, or reasonable estimates of such data;

(b) a list of States from which such substances have been imported and to which they have been exported.

The EPD is responsible for the preparation of the necessary reports to the Conference of Parties.

The priority that has been set in relation to these two articles of the Convention is:

- Regular reporting on activities and measures undertaken to achieve compliance with the Stockholm Convention.

4.2.6.1. Regular reporting on activities and measures undertaken to achieve compliance with the Stockholm Convention

At the first meeting of the Conference of Parties to the Stockholm Convention, decision SC-1/22 on Party reporting, timing and format was adopted. This decision sets the first deadline for reporting as December 31, 2006, with reports to be considered at the Third Conference of the Parties in 2007. Reports should be submitted every four years thereafter, using the format adopted in Decision SC-1/22.

It should be noted that review and updating of POPs inventories, as required by Articles 5 and 6, have been scheduled to occur in the interval between reports, to facilitate the provision of up-to-date information to the Secretariat. The first review of the National Implementation Plan has also been scheduled for the year prior to the submission of the second report, again to facilitate the provision of up-to-date information.

It is important for the EPD, as national focal point for the Stockholm Convention, to report not only to the Conference of Parties and the Convention Secretariat, but also to national chemicals and POPs management stakeholders on actions being carried out to achieve the elimination of these dangerous chemicals in Barbados. Reports should include data on import, production, use, release and disposal of POPs, the results of POPs inventories, information on policies and strategies being developed relevant to the management of POPs, and descriptions and discussion of measures being taken to reduce and elimination POPs in Barbados. The preparation of such reports on an annual basis, as part of the EPD's routine reporting programme, would facilitate the preparation of reports to the Conference of Parties and would also serve to promote and facilitate public information, awareness and education, as required in Article 10 of the Convention. Actions required are:

1. Incorporation of reporting on POPs and on actions taken to implement the Stockholm Convention into the EPD's annuals reports.

2. Submission of first report to the Conference of Parties by December 31, 2006.

3. Submission of reports every 4 years thereafter, in accordance with Decision SC-1/22 of the Conference of Parties.

There is no cost associated with the implementation of these interventions.

Table A.4-1: Summary of Priorities and Actions for the National Implementation of the Stockholm Convention

PRIORITIES	ACTIONS	LEAD/IMPLEMENTING AGENCIES	ESTIMATED TIME FRAME / IMPLEMENTATION SCHEDULE	ESTIMATED COST (BDS$)
Article 3 – Measures to Reduce or Eliminate Releases From Intentional Production and Use				
Take legal measures to prohibit the production, use, import and export of POPs pesticides, with the exception of export for environmentally sound disposal	For current POPs pesticides, submission of a recommendation to the Chair of the Pesticides Control Board that all such pesticides be banned	Environmental Protection Department (EPD)	2006	–
	For new POPs pesticides, submission of the relevant decision of the Conference of Parties and supporting documentation to the Chair of the Pesticides Control Board with the recommendation that the chemicals be banned	EPD	Continual	
	Decision to ban/severely restrict POPs pesticides, based on submitted information	Pesticides Control Board	Continual	
	Issuance of public notices to advise that the pesticides in question have been banned or severely restricted	Pesticides Control Board EPD Government Information Service (GIS)	Continual	

Take administrative measures to prohibit the import and export of PCBs and PCB-containing equipment	Proposal to the Director of the Department of Commerce and Consumer Affairs that PCBs should be put on licence	EPD	2006	–
	Submission of a Cabinet Paper for decision on whether or not PCBs should be added to the list of commodities on licence	Department of Commerce and Consumer Affairs EPD	2006	
	Requirement, for all PCBs exported for disposal, that notification in writing be submitted regarding the exportation, transportation and environmentally sound disposal of the wastes, as required by the Basel Convention	EPD	Continual	

Table A.4-2: Summary of Priorities and Actions for the National Implementation of the Stockholm Convention

PRIORITIES	ACTIONS	LEAD/IMPLEMENTING AGENCIES	ESTIMATED TIME FRAME / IMPLEMENTATION SCHEDULE	ESTIMATED COST (BDS$)
Article 5 – Measures to Reduce or Eliminate Releases From Unintentional Production and Use				
Promote the use of BAT and BEP for existing waste incinerators	Execution of waste audits at incinerators*	EPD Sewerage and Solid Waste Project Unit (SSWPU) Facility managers and/or operators	2008	$70,000
	Awareness raising and training in BAT and BEP for technicians, operators, managers and regulatory personnel*	EPD Labour Department SSWPU	2007	

* Technical assistance is required to execute these components of the NIP.

Require the use of BAT and BEP for new source facilities	Liaison with Town Planning Department regarding the inclusion of BAT and BEP consideration in the development approval process	EPD Town Planning Department	2006	–
	Incorporation of BAT and BEP considerations in the EPD's EIA review process	EPD	Continual	
	Inclusion, via the National Physical Development Plan at its next update, of BAT and BEP considerations as part of the EIA process for new source facilities	Town Planning Department	2010	
Develop and maintain source inventories and release estimates	Identify, in conjunction with stakeholders, measures to address data gaps highlighted in the dioxins and furans inventory	EPD Facility managers Other agencies holding relevant data	2007	–
	Development of an electronic database to facilitate inventory update	EPD Data Processing Department	2007	
	Update of inventories of unintentionally-produced POPs	EPD Labour Department Facility managers and operators	2008	

Review the effectiveness of measures taken to reduce releases of unintentionally-produced POPs	Review of measure for reducing releases	EPD	2010	–
	Reporting to the Conference of Parties on the results of the review	EPD	2010	

Table A.4-3: Summary of Priorities and Actions for the National Implementation of the Stockholm Convention

PRIORITIES	ACTIONS	LEAD/IMPLEMENTING AGENCIES	ESTIMATED TIME FRAME / IMPLEMENTATION SCHEDULE	ESTIMATED COST (BDS$)
Article 6 – Measures to Reduce or Eliminate Releases from Stockpiles and Wastes				
To take measures so that wastes are disposed of in an environmentally sound manner	Screening of potentially PCB-containing equipment to determine the presence and concentration of PCBs*	EPD MARD SSWPU Waste owners	2008	$350,000
	Analysis of the pesticides waste identified during the national pesticides inventory to confirm its preliminary identification as endrin*	EPD Ministry of Agriculture and Rural Development (MARD)	2008	
	Environmentally sound disposal of POPs pesticides waste*	EPD MARD SSWPU Waste owners	2009	

* Technical/financial assistance is required to execute these components of the NIP.

	Development of a PCB phase-out and disposal plan, in consultation with key stakeholders*	EPD Equipment owners and/or technical personnel	2009	
To identify stockpiles, products and articles in use and waste consisting of, containing or contaminated by POPs	Update of inventories of POPs pesticides and PCBs	EPD MARD Facility managers/operators Chemicals owners	2008	$75,000
	Development of pesticides storage and stock management regulations for the Pesticides Control Act*	MARD	2010	
	Training for agricultural workers in pesticides stock management*	EPD MARD Labour Department	2009	

* Technical assistance is required to execute these components of the NIP.

* Technical/financial assistance is required to execute these components of the NIP.

	Encouragement of voluntary reporting of POPs products, stockpiles and wastes	EPD MARD GIS NGOs	Continual	
To ensure that stockpiles and products and articles in use are managed in an environmentally sound manner	Development and dissemination of guidelines for the management of PCB-containing equipment	EPD Barbados Fire Service (BFS) Labour Department	2007	$15,000
	Formulation and implementation of a routine equipment inspection programme	EPD BFS Equipment owners and relevant managerial and technical personnel	2008 and ongoing	
	Encouragement of voluntary reporting about PCB management activities	EPD BFS Labour Department	Continual	

Table A.4-4: Summary of Priorities and Actions for the National Implementation of the Stockholm Convention

PRIORITIES	ACTIONS	LEAD/IMPLEMENTING AGENCIES	ESTIMATED TIME FRAME / IMPLEMENTATION SCHEDULE	ESTIMATED COST (BDS$)
Article 7 – Implementation Plans				
To review and update the NIP	Actions and activities to be identified based on guidance prepared by the Stockholm Convention Secretariat	EPD National Committee	2010	$25,000
To review and update the NIP in response to amendments to the Convention or its Annexes	Actions and activities to be identified based on guidance prepared by the Stockholm Convention Secretariat	EPD National Committee		

Table A.4-5: Summary of Priorities and Actions for the National Implementation of the Stockholm Convention

PRIORITIES	ACTIONS	LEAD/IMPLEMENTING AGENCIES	ESTIMATED TIME FRAME / IMPLEMENTATION SCHEDULE	ESTIMATED COST (BDS$)
Article 10 – Public Information, Awareness and Education				
Development and implementation of educational and public awareness programmes on POPs pesticides	Development and delivery of a public awareness campaign on pesticides safety	MARD EPD GIS NGOs Pesticide importers and distributors	2008	$50,000
	Development and delivery of a public awareness campaign informing the public about banned and severely restricted pesticides in general, and POPs pesticides specifically	MARD EPD GIS NGOs Pesticide importers and distributors	Continual	

Development and implementation of awareness and training programmes for customs officers and other regulatory personnel	Preparation and distribution of an information POPs deskbook and quick screening tool for customs officers and other regulatory personnel	EPD Customs Department BFS Department of Commerce and Consumer Affairs	2006	$10,000
	Participation of customs officers in Green Customs training*	Customs Department Environment Unit EPD	2007	
	Training of customs officers and other regulatory personnel in the implementation of the Globally Harmonised System for the Classification and Labelling of Chemicals*	Customs Department Environment Unit EPD Labour Department BFS	2008	

* Technical assistance is required to execute these components of the NIP.

Table A.4-6: Summary of Priorities and Actions for the National Implementation of the Stockholm Convention

PRIORITIES	ACTIONS	LEAD/IMPLEMENTING AGENCIES	ESTIMATED TIME FRAME / IMPLEMENTATION SCHEDULE	ESTIMATED COST (BDS$)
Article 15 – Reporting				
Regular reporting on activities and measures taken to achieve compliance with the Stockholm Convention	Incorporation of POPs reporting into the EPD's annual reporting schedules	EPD	Continual	–
	Submission of first report to the Conference of Parties by December 31, 2006	EPD	2006	
	Submission of second report to the Conference of Parties by December 31, 2010	EPD	2010	

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