

## **CHEMICALS**

### **Concrete Progress in Implementation**

The Environmental Protection Department (EPD) (formerly the Environmental Engineering Division) was established in 1971. The EPD is a department under the Ministry of the Environment, Water Resources and Drainage. The EPD is the environmental monitoring and pollution control department of the Government of Barbados. The EPD is responsible for the monitoring and control of conditions likely to affect the quality of land, air and water and the general health and environmental well-being of the inhabitants of Barbados. Its functions are exercised throughout the entire island. The EPD's functions include the management and control of the use of chemicals which have the potential to affect human health and well being, and the environment.

### ***Participation in International and Regional Initiatives***

Barbados is signatory to the following international Conventions and Agreements which relate to the management of chemicals:

- The Basel Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal;
- The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade;
- The Vienna Convention for the Protection of the Ozone Layer;
- The Montreal Protocol on Substances that Deplete the Ozone Layer;
- The Stockholm Convention on Persistent Organic Pollutants;
- The Strategic Approach to International Chemicals Management (SAICM); and
- The International Convention for Prevention of Pollution from Ships (MARPOL).

In addition to meeting obligations under these various international agreements, the EPD has submitted a proposal to the Global Environmental Facility (GEF) for funding of a project geared at implementing the Globally Harmonised System of Classification and Labeling of Chemicals (GHS) locally.

### ***Policy Measures to Phase out Chemicals that Pose Unreasonable and Unmanageable Risk to Human Health and Human Environment***

Barbados has instituted a number of forward-looking policy measures geared at comprehensively phasing out a range of chemicals that pose significant risk to its populace.

A major initiative included under this comprehensive policy framework has been the preparation of the National Implementation Plan (NIP) for Persistent Organic Pollutants (POPs) listed under the Stockholm Convention.

Government is also implementing a refrigerant management programme to facilitate the phasing out of CFCs under the Montreal Protocol. It has also committed itself to designing, developing and delivering related training which will be targeted at officers of the Customs Department and air conditioning and refrigerator technicians.

These measures are further being supported by a number of other regulatory instruments and the development of legislative instruments to assist in the phase out of Ozone Depleting Substances (ODS). Examples include the control of agrochemicals through the Pesticide Control Act, 1974 which is implemented by the Pesticides Control Board. The Regulations :Pesticide Control (Approval of Pesticides) Regulations 1974 and Pesticide Control (Labeling of Pesticides) Regulations 1976 provides for a register of banned, rejected or restricted pesticides which prohibits entry of these substances into the island.

These efforts, for example where the NIP is supported by pertinent legislation, and other systems, clearly indicate the targeted and coordinated actions that the Government of Barbados is utilizing to realize its goals to mitigate risks associated with chemicals.

#### ***Policies and Frameworks for Prevention of Accidents, Preparedness and Response***

The Government has adopted a policy position of minimizing the risks posed by accidents involving chemicals through optimizing its level of preparedness and response. These goals have lead to the formulation of a strategy focused on limiting exposure to risks associated with oil spills and hazardous materials emergencies; there are currently two response plans within this strategy; the National Oil Spill Contingency Plan (NOSCP) and the Hazardous Materials Response Plan (HMRP).

The National Oil Spill Contingency Plan was approved in 2002 and delineates the national preparedness and response system, including both public and private resources, for oil spills on land or at sea. It is Government's intent that the NOSCP will act as a catalyst to facilitate the efforts of individual companies attempting to establish appropriate response plans themselves. Government is also encouraging companies to implement chemical assessment programs.

The National Oil Spill Contingency Plan is further reinforced by the implementation of the Hazardous Materials Response Plan. The latter plan outlines the responsibilities of responders and emergency personnel in the event of an incident. The HMRP is aimed at promoting the increased efficiency of the national response mechanism.

#### ***Policies Aimed at Reducing the Risks Posed by Lead, Mercury and Cadmium and Other Harmful Heavy Metals***

Government's mandate to tackle the risks posed by lead, mercury and other heavy metals has been spearheaded by the Energy Division. While cognizant of the fact that at

present there is no specific legislation prohibiting the sale and/or use of leaded gasoline in Barbados, the Energy Division has taken proactive steps to ensure some level of consumer protection is being afforded until the required legislative changes can be adopted. The Energy Division effectively tackled this issue in the short/medium term by successfully implementing a policy encouraging the switch from the use of leaded to unleaded gasoline. This has been accomplished by working closely with suppliers and retailers, while at the same time sensitizing the public and other stakeholders as to the benefits (both health and environmental) associated with this move.

In a similar manner, the EPD is currently implementing a similar project also associated with its policy of effectively mitigating the risks associated with the presence and use of heavy metals. This effort is focused on establishing a working inventory of facilities involved in the use of mercury on the island. This project will facilitate and build upon the EPD's ongoing efforts to monitor where and how mercury is used. This project will provide the EPD with the resources it needs to close the gap between its current position and the goals it has set regarding its ability to track and assess the risk posed by operations utilizing this heavy metal.

The outputs of the project will be used to design a policy framework that would focus on the identification of effective mechanisms regarding the control of these substances. It is anticipated that this process will be successfully replicated for other heavy metals which pose significant levels of risks.

### ***Existing or Planned Mechanisms for Systematic Evaluation, Classification and Labelling of Chemicals***

The Government of Barbados' determination to rationalize how it manages the risks associated with hazardous chemicals can be observed in the priority it has placed on the labeling of those materials. In addition to the existing policy framework, there are several articles of legislation in existence which address the issues and procedures associated with labeling of chemicals. Prominent examples of such legislation include the Pesticides Control Act and the Control of Standards Act. Providing this legislative support has been seen as a critical component in the regularization and promotion of the safe handling of chemicals.

In addition to the legislative support, Government has articulated the need to bolster its efforts regarding the systematic evaluation of chemicals. It is cognizant of the potential gains of having a formal chemical classification system. Government has recognized that as an interim measure, classifications systems for waste under the Basel Convention are being considered. In this regard, the EPD is developing a project based on the Globally Harmonized System (GHS) of labeling. Upon completion, this project will address classification of various chemicals.

Similar gains are also expected from the implementation of the **National Agriculture Health and Food Programme**. This program is funded under the Inter American

Development Bank (IDB). It is expected to provide a mechanism for the systematic evaluation and classification of agriculturally related products. The project also includes the development of a system (inclusive of policy framework) which will seek to apply a life cycle approach to food safety. This system will;

- incorporate the inputs at farm level to the final consumer;
- investigate the establishment of the National Agricultural Health and Food Control Agency; and
- include the construction of a National Agricultural Health and Food Control laboratory.

The project commenced in July 2009 and is intended to enhance the competitiveness of agriculture and fisheries sectors in Barbados. It will also assess the extent of inter-agency collaboration process, including the Ministries of Health, Agriculture, and Consumer Affairs Department.

### **Lessons Learned and Best Practices**

#### ***Strategies for Exposure Assessment and Environmental Monitoring***

With respect to Barbados' treatment of chemicals, there is an on-going management of ground water resources. Government has established a systematic monitoring programme conducted under the purview of the EPD. Specifically, this monitoring regime has been established to investigate the impact of chemicals and other substances with the aim of early detection of any anomalies. High standards are applied to groundwater analysis, which is monitored for a range of chemical parameters, petroleum hydrocarbons, and pesticides. In addition, widescreen assessments of public supply wells are conducted twice annually.

The standards associated with marine water testing are also very stringent; marine water is analyzed for bacteriological parameters as well as Total Nitrogen and Total Phosphorus. The overall aim of the monitoring programme is to provide scientific information to improve decision making and protect the environment whilst building environmental monitoring capacity within the relevant agencies.

Plans are in place to establish an ambient air-quality monitoring programme. This initiative is a component of the Global Atmospheric Passive Sampling Network Project supported by the Government of Canada in association with the Government of Barbados. The first phase of this project which involved an air quality monitoring station has been completed successfully and the samplers have been returned for a second phase. Financial and human constraints associated with the Graphical Air and Atmospheric Pollution System (GAPS) have impacted the ability to do any work in the area of exposure assessment. It should be noted that Government had previously installed a sampler in Bridgetown, the capital city, however that installation has since been made redundant.

## **Actions Taken**

### ***Initiatives for Assessment of Toxic Chemicals, Hazard and Risk Assessment***

Barbados has also been very diligent regarding its commitments to assessing the threats associated with chemicals, hazards and risks. A national survey of pest control operators and their businesses was conducted in 2006, with a report on the study completed in the following year. The recommendations are awaiting ratification by Cabinet, upon ratification the recommendations will result in heightened regulation in the use of chemicals in the chemical sector.

There are also other initiatives which are making significant inroads into the challenge of toxic chemicals assessment. One such project which is currently being implemented is aimed to upgrade the plant at the Government Analytical Services Laboratory to test for POPs. Developing this capability would assist with the identification of chemical stockpiles and allow for their appropriate disposal.

Another useful scheme involves conducting an inventory on a variety of smaller POPs stockpiles which are located across the island. To date, the program is ongoing and has successfully identified and located many of these potentially hazardous sites. It is the intention that the project would provide the EPD with a baseline to establish a more detailed monitoring program.

In addition to the success achieved on these fronts, the Pesticides Control Board (PCB) will also implement a revised and more efficient monitoring system as well. This system will allow the PCB to assess proposals by companies for import of chemicals to be used in the industrial, manufacturing and agricultural sectors. The function of the Pesticides Control Board will be to assess these import requests and place them within a classification system based on their relative toxicity.

The Ministry of Labor and Immigration through the Labor Department is currently working on numerous regulations to support the Safety and Health at Work Act. Of special note is the proposed Regulations entitled the Maximum Permissible Limits of Certain Chemical Substances in Work Environment Regulations. The Act and regulations are designed to improve worker safety and reducing the exposure of workers to certain toxic chemicals through increased education, establishment of safety committees and restrictions on discharges into the work environment.

## **Relevant Trends, Constraints, Challenges and Emerging Issues**

### ***Information Exchange and Cooperation***

While there is much evidence of the free flow of information and significant levels of cooperation between agencies and similar bodies, a number of strategies have been identified to improve the system's efficiency. One such strategy would be to augment the current system by developing a formal mechanism to facilitate information exchange and communication. At present communication is facilitated by a number of

multi-agency organizations; these include Risk Analysis and Monitoring Committee on Industrial Development (RAMCID) and the National Advisory Committee on Occupational Safety and Health (NACOSH), both of which effectively cover risk assessments. This mechanism facilitates a situation promoting information exchange among the countries social partners; Government, the private sector, and trade unions.

## **COMMON ISSUES**

### **Education, Training, Awareness-Raising and Capacity Building**

Given the frequency with which they occur some areas have been flagged as common issues. One such area which has been identified is education and capacity building. From its experiences, in working with the POPs and SAICM projects, the EPD has identified a need for greater awareness, training of regulators, education of workers and the public. With respect to the general public some educational activities on POPs has been undertaken, this work will also be reinforced by a collaborative project between the Ministry of Agriculture and EPD to supply public notices and information on this issue.

A capacity assessment conducted under the SAICM project identified specific areas of chemicals management which will need to be strengthened, a workshop is being planned which will further define priorities for action.

Other relevant initiatives include a Laboratory enhancement capacity project which will improve the ability to test for POPs in blood, breast milk, and air.

In terms of its own efforts regarding the training of regulators and the public, the EPD advises on the handling, storage and disposal of chemicals.

### **National Legal Frameworks**

#### ***Chemicals***

As mentioned above the system is very fragmented and this is demonstrated in the long list of legal frameworks that cover different aspects of chemicals management. The main pieces of legislation are the Pesticides Control Act (1974), the Services (Control of Drugs) Regulations (1970) and the Marine Pollution Control Act (1998).

### **Institutional Capacity Building**

In terms of institutional capacity EPD is in need of both human resources and technical capacity to better manage chemicals in Barbados. At present it is considered a priority to get staff to undertake some training on hazardous waste, in the event of a chemical incident/ accident, they EPD is expected to play a primary role with respect to disaster management. In addition to staff, another crucial area for consideration is increased use of technology. While the EPD is improving, with respect to the hardware, there is a need

for the upgrade of software to include specialist programmes on modeling, GIS, and statistics.

### **Cooperative Frameworks and Partnerships**

The National Profile is a cooperative effort from all stakeholders. The EPD is seeking to develop a Memorandum of Understanding (MOU) with the University of the West Indies (UWI) for local research. The National Chemicals Convention Committee is comprised of chemical management stakeholders and is involved in all chemicals related projects and instrumental in the development of the NIP, the chemicals profile and the work coming out of the POPs and SIACM projects. They will also be integral to the GHS project if approved.

### **Technology Development, Transfer and Dissemination**

Within their respective sectors, companies undertake technology development, transfer and dissemination on an individual basis as commonly seen with many competitive situations and markets, the individual strategies and approaches that companies employ in their efforts to comply with regulatory requirements and laws vary tremendously. In Barbados, companies are seeking to become ISO 14001 certified, as this process does lead to improvements in environmental performance, which are generally consistent with domestic environmental requirements.