

SANITATION COUNTRY PROFILE

BARBADOS

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Decision-Making: The National Commission on Sustainable Development (NCSD) was established with the mandate to advise Government on measures required to integrate environmental and economic considerations in decision-making processes and on global issues of sustainable development; to facilitate national level coordination mechanisms on sustainable development; to promote greater understanding and public awareness of the cultural, social economic and policy approaches to attaining sustainable development in Barbados. The National policy on Sustainable Development has been published and strategies to increase national awareness as well as to implement the recommendations of the policy are being developed.

A. Basic Sanitation and Solid Wastes: Several Government agencies share responsibility for the management of wastes in Barbados:

- a) The Sewerage and Solid Waste Project Unit (SSWPU) of the Ministry of Health is responsible for establishing the framework for and the initial overall implementation of the Integrated Solid Waste Management Plan (ISWMP). The Unit continues to implement the programme and will hand over the various components to the appropriate Government Agencies that will carry out the long-term implementation/management of these components.
- b) The Sanitation Service Authority (SSA) of the Ministry of Health has responsibility for the collection and disposal of Solid Waste from homes island wide and government agencies. It also has a commercial arm, which offers service to the private sector in addition to service already offered by private waste collectors. Under the ISWMP, this agency will be less involved in the disposal of waste, but will manage the private sector agency that will operate the disposal facilities. The SSA will retain responsibility for the collection of municipal solid waste.
- c) The Environmental Engineering Division (EED) is responsible for monitoring and enforcement issues that pertain to solid waste management.
- d) The Environmental Health Officers (EHOs) of the Ministry of Health assist with the monitoring and enforcement in respect of solid waste management.
- e) The Office of the Attorney General drafts and revises solid waste management legislation and provides advice to Government with respect to legal issues in solid waste management. In addition, a number of agencies such as the Royal Barbados Police Force, Customs and Excise Department and the Barbados Defence Force, as well as the Judiciary, play critical roles in the enforcement of solid waste management legislation.
- f) The Ministry of Public Works and Transport has responsibility for road construction and maintenance of roads that lead to the disposal facilities.
- g) A committee chaired by the Environmental Engineering Division of the Ministry of Housing, Lands and the Environment and the Barbados National Standards Institute (BNSI) has been set up and a paper has been prepared which will lend to the development of some environmental standards, which include water, and wastewater standards.

B. Hazardous Wastes: Under the Integrated Solid Waste Management Plan (ISWMP) a full hazardous waste management plan is being developed utilizing a 'cradle to grave' approach with respect to management of hazardous chemicals and wastes. Additionally a Chemical Waste Storage Facility is being constructed as a component of ISWMP. Complementing these initiatives is the preparation of a Draft Policy Paper on Hazardous Substances Management, which is being prepared by the Chemical Technical Working Group in Hazardous Substances (CSTWG) which functions under the Ministry of Housing, Lands and the Environment.

C. Radioactive Wastes: Radioactive waste, which is composed mainly of medical waste, is being handled in an initiative undertaken jointly by the SSWPU and the QEH through a medical waste programme with funds to be obtained under the HIV/AIDS Project, which has received World Bank Funding.

Programmes and Projects:

A. Basic Sanitation: Significant on-going investment in sewage disposal facilities with the objective of stemming contamination of coastal water, preventing contamination of groundwater and generally improving the sanitary conditions on the island is taking place. At the end of 2001 work on the South coast sewerage project was nearing completion with work on treatment plants and marine outfall 100% complete and work on the property connection and collection system 90% and 60% completed respectively. With this system sewage is to be piped from a 12km strip of the southern coastline extending about 500 metres inland, to undergo primary treatment before being discharged 1.1 km out to sea. Work on the west coast sewerage project has commenced.

During the 1995/96 period, Government embarked on two new housing programmes, the Urban Renewal Project and the Rural Development Programme, which are targeted to address the housing deficiencies of residents within these distinct geographic regions. Basically, the two programmes seek: to upgrade the infrastructural services and amenities; to enable homeowners to upgrade pit latrines to water closets; to acquire security of tenure to enter joint venture partnerships with private builders to construct in-fill housing; to restrict the encroachment of housing onto agricultural lands; and to conserve, preserve and sustain historical architectural and environmental areas. The pilot project phase of the Urban Renewal project was estimated to cost BDS\$1.2million.

B. Solid Wastes: In early 1993, recognising the need for comprehensive Solid Waste Management in Barbados the GOB entered into an agreement with the Inter-American Development Bank to undertake an integrated Solid Waste Management Programme, using an independent consultant.

The key issues that were identified were:

- i. Lack of an integrated approach to collection and disposal of solid waste,
- ii. Littering,
- iii. Illegal dumping,
- iv. Handling and disposal of special waste,
- v. The need for organisational change,
- vi. The need for a cost recovery mechanism.

A number of programmes and incentives have been established including the 'Bring Your Own Bag Programme' and home composting pilot projects. The "Bring Your Own Bag" programme encourages shoppers to provide their own re-usable shopping bags instead of accepting plastic shopping bags. The Home Composting project involves combining kitchen scraps and yard waste in a composting container, which upon completion is a useful and valuable product. Both projects seek to promote the reduction of the amount of waste taken to the landfill; therefore, extending the time it will take to utilize all the landfill space.

C. Hazardous Wastes: Please see under the relevant section in *Decision-Making*.

D. Radioactive Wastes: No information available.

Status:

A. Basic Sanitation: Sewage disposal in Barbados varies depending on locality, type of structure and in which water protection zone the premises are situated. A government operated sewage treatment plant caters to the central Bridgetown area while most hotels have privately operated sewage treatment plants. Domestic and commercial properties vary in disposal methods from water borne facilities or environmental sanitary pits (ESP). Final disposal from homes is underground via septic tank, well or earth pit while effluent from the treatment plants are usually to the sea or underground via a well after primary treatment.

Present capacity to treat or recycle waste water (public sewerage scheme) is limited to the Bridgetown Sewerage Treatment Plant with a capacity of approximately 9000 cubic meters/day. There are about 12 package plants at various hotels. Some are treating the wastewater and reusing it for irrigation (i.e. Sam Lords Castle, Almond Village Resorts).

The primary sources of land based pollution of the marine environment are Sewage from through flow of septic wells into the near shore region from domestic septic wastewater; Industrial Discharge; Agriculture chemicals and Land runoff; and illegal dumping of garbage.

B. Solid Wastes: All existing equipment and technologies need to be reviewed periodically with an aim to upgrading them. At all stages, the BATEA- Best Available Technology Economically Achievable Approach will be utilised. Community support, through promotion at summer camps and private sector workshops, has been established and seeks to encourage greater public responsibility with respect to solid waste management.

C. Hazardous Wastes: The hazardous waste that is produced in Barbados is comprised of small quantities of several waste streams. The constraint of the lack of space has to be considered when addressing the most appropriate method of hazardous waste disposal. Under the Integrated Solid Waste Management Programme, a Chemical Waste Storage facility is being constructed to provide appropriate safe storage of hazardous waste prior to shipment off the island for treatment. Currently chemical waste is treated and disposed of locally where possible. For other cases arrangements have been established with external agencies to ship hazardous wastes abroad.

D. Radioactive Wastes: Barbados has no nuclear reactors and does not utilize large amounts of radioactive materials. The only sectors that utilize minute quantities are health and research institutions in laboratories. The management of these quantities is under the Ministry of Health. Of special concern to Barbados and the region as a whole is the issue of the Transboundary movement of radioactive wastes from one developed country to another through the ecologically sensitive Caribbean basin.

Capacity Building, Education, Training and Awareness-Raising:

A. Basic Sanitation: Many activities have been undertaken to change unsustainable consumption and production patterns such as energy efficiency awareness, waste management public awareness and water conservation activities and public awareness and education campaigns. However it is difficult to gauge the impact of such activities on public behaviour at this time.

B. Solid Wastes: It is recognized that new skills are needed by both private and public sectors to effectively implement the ISWMP for Barbados. A training programme is being conducted for personnel in the government agencies involved in solid waste management, as well as for private sector individuals. The ISWMP has an extensive education component, which is pivotal to the successful implementation of the programme. Public awareness and education materials have been developed, such as physical and computer models, brochures and videos as well as steps have been taken to integrate solid waste management into the curricula and activities at schools. It is recognized that the education programme needs to be improved and will be more effective when the overall framework for the ISWMP is established, and the necessary infrastructure and institutional arrangements are in place.

C. Hazardous Wastes: No information available.

D. Radioactive Wastes: No information available.

Information:

A. Basic Sanitation: Please see under Information in the Freshwater Profile.

B. Solid Wastes: Indicators for the solid waste sector have been developed and included in the National List of Indicators of Sustainable Development. To date estimates for some of these indicators exist however frequent and accurate data will be generated once the weigh scale at the new Greenland Landfill becomes operational.

C. Hazardous Wastes: Data collection on hazardous waste produced in the island has only been recently done (late 1996) and therefore at present figures can only be considered as baseline data.

D. Radioactive Wastes: No information available.

Research and Technologies:

A. Basic Sanitation: Technology-related issues that need to be or are being addressed include those such as the use of freshwater resources - devices are available to reduce consumption; wastewater treatment and reuse are also promoted. Additionally, the Government has undertaken a project to address sewerage of the south and west coasts. The technological needs of Barbados with respect to waste water treatment is up to tertiary level treatment technologies; and, with respect to water purification, it is presently limited to filtration and disinfections.

Environmentally Sound Technologies (ESTs) are most urgently needed in the following sectors: Tourism, Agriculture, Health Industry and Manufacturing. As a result of their research, the Sewerage and Solid Waste Project Unit should promote innovation and transfer of ESTs as regards waste management, and the Water Resources Management and Water Loss Study should do the same for water resources management. Other areas may be addressed through more informal mechanisms. The National Environment and Sustainable Development Policy will also seek to address this issue in a comprehensive manner. Presently, there is no defined policy for the use of ESTs. An important constraint is the lack of a coordinated strategy and government policy. Public awareness would be more effective in the midst of such a policy.

B. Solid Wastes: See under Research and Technologies: A. Basic Sanitation

C. Hazardous Wastes: The technology needs for sound waste management include safe, sound and effective waste reductions options; Information systems - updated by industry and effective sampling and identification of hazardous waste streams (equipment lacking for laboratory).

D. Radioactive Wastes: No information available.

Financing:

A. Basic Sanitation: There is significant on-going investment in sewage disposal with the objective of stemming the contamination of coastal water, preventing contamination of ground water and generally improving sanitary conditions on the island. The City of Bridgetown is already sewerage and a South and west coast sewerage project has been undertaken. The south coast sewerage project stood at \$165BDS as of 2002. The west coast sewerage project is currently underway

B. Solid Wastes: Funding from the IDB was obtained by Government to carry out the Integrated Solid Waste Management Programme.

C. Hazardous Wastes: The hazardous waste management plan is to be carried out with funding from Government of Barbados (GOB), the Inter-American Development Bank (IDB) and Pan America Health Organisation (PAHO).

D. Radioactive Wastes: As previously mentioned, finance for the development of a medical waste management programme will receive assistance under the national HIV/ AIDS Project funded by the World Bank.

Cooperation:

A. Basic Sanitation: No information available.

B. Solid Wastes: No information available.

C. Hazardous Wastes: The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was signed by Barbados in 1994 and ratified in 1995. The Government is considering the establishment of a temporary storage facility for hazardous wastes prior to export for offshore treatment in accordance with the requirements of the Basel Convention. Canada has consented to receive hazardous waste for disposal. Barbados is involved at the regional level in the development of measures to address the Environmentally Sound Management of Hazardous Wastes as governed by the Basel Convention. As identified in the Regional Programme of Action for the Environmentally Sound Management of Chemicals, Barbados will benefit from the establishment of the sub-regional Technology Transfer Centre at Caribbean Industrial Research Institute (CARIRI), Trinidad & Tobago. This will serve to build capacity of existing institutions and agencies in the different islands.

D. Radioactive Wastes: The Government of Barbados has, since 1992, issued statements at various regional and international for a calling for the immediate ban of Transboundary movement of nuclear materials through the Caribbean Sea and that the Caribbean Sea should be declared a nuclear-free zone. It is noted that in the event of an accident that would result in release of the nuclear materials, that there is very improved capacity within the region to adequately deal with the consequences. CARICOM, which represents eleven (11) English-speaking nations of the region has issued a statement to the same itself in 1992 and renewed it in 1995. A compensatory and liability fund should be established in the event of such a catastrophe so that there will possibly be some measures, which can be taken. The Government of Barbados will be pursuing along with CARICOM partners how this issue can best be addressed through a multilateral instrument.

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