

REPORT OF THE
SEMINAR ON INTEGRATED WATER RESOURCE MANAGEMENT:
INSTITUTIONAL AND POLICY REFORM
24-27 June 1997, Port of Spain, Trinidad and Tobago

Water resources management challenges

The Caribbean faces many challenges for managing its water resources in a socially acceptable, environmentally sustainable and economically efficient manner. The region's small island characteristics, geography, history, culture, and socio-economic conditions call for specific solutions as well as adaptation of traditional solutions to effectively manage the water resources. As well, the region exhibits diverse characteristics regarding water resources availability and use. Summarised, these characteristics include that :

The region's water resources are vulnerable to global factors such as climate change (and accompanying temperature increase, sea level rise, saltwater intrusion and reduced precipitation), hurricanes, and drought;

Water is a vital factor for the socio-economic development of the region;

Freshwater is scarce in many islands;

Total water use is dominated by domestic and commercial needs (including for tourism);

irrigation use accounts for about 20 per cent of total use;

Water utilities are facing financial management problems (due to inadequate pricing and tariffs policies), poor operations and maintenance, high unaccounted for losses, as well as problems due to human resources retention, limited capacity, etc;

Institutional fragmentation and inadequate policies, funding and institutional constraints are hampering effective management of water resources due to deteriorating hydrological data collection and analysis, poor land use, causing widespread degradation of watersheds and impacting downstream water utilities and the estuarine, marine and coastal resources,

water pollution from point sources and non-point sources, a growing problem affecting public health and freshwater and marine environments;

Coastal and marine resources are important to the island economies.

Progress to date

The various specific and special characteristics of the region have been discussed and addressed in many global and regional forums. However, in addressing the recommendations in the various sectors in the Small Island Developing States (SIDS) Programme of Action adopted in Barbados in

1994, it was recognized that a more integrated approach to water resources was necessary if these problems were to be addressed in a sustainable manner. Hence, subsequent initiatives and meetings have attempted to focus on an integrated approach. Examples of these include the 1992 Rio Earth Summit, the 1993 World Bank Water Resources Management Policy, the 1996 Bolivia Summit and the 1996 San Jos, Accord.

Seminar objectives

This report summarizes the papers presented, discussions and the results of working group exercises of a seminar on integrated water resource management, held on 24-27 June 1997, at the Holiday Inn Hotel in Port-of-Spain, Trinidad.

Based on progress to date, the seminar sought to promote integrated approaches to water resource management in the Caribbean by :

- developing a common understanding among the cross sectoral country team members of
- the water resources management challenges of the region;
- to share relevant water resources management experiences from within and outside the region;
- identifying and discussing priority areas requiring immediate action;
- recommending specific steps to address them.

The seminar/workshop targeted cross-sectoral country teams from water and sewerage authorities, ministries of Agriculture, Environment, Health, Planning and Finance from 23 Caribbean countries. Following sessions dealing with issues in water resources management, experiences in water resource management in the Caribbean, experiences in natural resources management, networks for cooperation and existing programmes for regional cooperation, participants worked together in groups to formulate strategies for promoting integrated water resources management. Four key areas for action were identified: public awareness and education, institutional coordination, water resources policy and legislation and innovative financing.

The workshop represented the fulfilment of a mandate of the fourteenth plenary session of the Caribbean Council for Science and Technology (CCST), and was sponsored by the CCST, Caribbean Development Bank (CDB), the Commonwealth Science Council (CSC), the Economic Development Institute (EDI) of the World Bank, the Inter-American Development Bank (IDB), the Organization

of American States (OAS), the Government of Trinidad and Tobago and the World Meteorological Organization (WMO).

Issues raised and key points

During the final two days, the participants formed working groups, deliberated on a number of important issues and recommended the following actions for immediate consideration:

The main recommendations of the seminar/workshop focused on the need to: (a) urgently manage water resources in an integrated manner, (b) take strategic rather than reactive action, (c) address freshwater, marine and coastal resources as a management continuum, and (d) develop strategic partnerships and networks for fostering information sharing and exchange. According to participants, these would involve :

- Identification and establishment of appropriate coordination units for promoting collaboration and cooperation at the regional and national levels. The primary goals for regional collaboration would be to foster cooperation for promoting the development of professional networks for addressing different components of water resources management (such as watershed management and pollution control) and information sharing and exchange (through electronic networks, etc.). The University of West Indies and other institutions of higher learning could, for example, develop appropriate curricula on a whole range of subjects related to water resources management (such as water resources economics, water legislation, water policy development, etc.) and strengthen existing programmes at the various campuses ;
- Development of integrated water resources management policies and strategies for each island based on the principle that water resources management activities need to be self financed and consider demand management as a vital cost effective policy option;
- Development of appropriate public awareness and education strategies.

Specific actions could include pilot projects for managing watersheds, specific strategies for sensitizing policy makers and for promoting changes in public attitudes and behavior, developing primary and secondary school curricula with a specific goal of sensitizing school children.

Other issues raised included :

Partnership - there is need to promote partnerships between the public sector, the private sector and the wider community, via policy;

Political awareness and commitment - to facilitate the process of policy reform, political awareness of the relevant issues must be promoted;

Conservation via tariff structures - tariff structures which encourage conservation in both metered and un-metered users need to be carefully designed;

Impacts of the tourism industry - the impact of the tourism industry on water demand and waste water production need to be recognized by policy makers. Policies should consider the localized impacts of tourism-related water demand, the seasonality of demand, the impacts of all related development and the critical need for hotel retrofit. Policies should include application of equitable pricing and tariff structures;

Multi-dimensional policies - policy for integrated water resource management should attempt to deal with all aspects of management - social, economic, political, technical and cultural issues all impact on efforts at effective management;

Settlement patterns - patterns of settlement represented a major impact on water resources in most islands, and should be addressed by policies for integrated water resource management;

Use of software based management tools - policy formulation processes based on the use of decision -support and other software- based management tools should recognize the strengths and limitations of these tools. In particular, the outputs of these tools should be viewed as preliminary indicators, and traditional information gathering, consultation and analysis processes should continue to be employed;

Policies for retrofit - policy to encourage retrofit should take into account that utilities often view retrofit programmes as leading to reductions in income;

Reduction of demand for irrigation water - policy interventions to reduce demand for water for irrigation should include subsidized loans to purchase technology and improve irrigation network design and assistance with selection of appropriate crop varieties;

Public information campaigns - public information campaigns should be considered a critical

aspect of water resource management policies and programmes, particularly in areas where education levels are major constraints to community action;

Stakeholder consultations - stakeholder consultations, should be conducted, and should include meetings with licensed abstractors;

Special coordinating mechanisms - special coordinating mechanisms should be employed by policies and programmes aimed at integrating water resource management. Conflict management based on a shared understanding of the resource limitations and impacting issues is key to success to any integrated water resource management plan. In particular, scientists and policy makers must be brought together so that policies are formulated based on the most reliable data;

Impact on the marine environment - policies and programmes for water resource management need to recognize and deal with impacts on the marine environment;

Community participation - the role of community participation in water resources management encompasses the identification of problems and solutions, issues and priorities. This should be embodied in any water resource management policy;

Economic importance of sectors - the economic importance of sectors should be reflected by water resource management policies addressing water conservation;

Separation of administrative roles - administrative structures should separate regulatory, enforcement, supply and monitoring and data collection roles. In addition, there is need to recognize the business focus of the privatized water utility, and to allocate responsibility for social aspects of water resource management to specialist institutions or government bodies;

Networking to maximize access to resources - there is need for increased international and regional networking to improve access to skills, knowledge and strategies;

Data collection - there is need for adequate and reliable data collection mechanisms;

Utility public image - while seeking to reduce wastage and become more effective, agencies with responsibility for supply of potable water must maintain a positive public image in order to ensure the success of conservation efforts.

Next steps

The governments of the Caribbean nations need to appoint dynamic lead persons to champion the promotion of integrated water resources management policies and strategies in each island country. The governments should also appoint cross sectoral task forces for promoting the necessary institutional and policy reforms. The governments should consider utilizing existing institutions (such as the Sustainable Development Councils to the extent that they feel appropriate) to champion the promotion of integrated water resources management.

There is need to identify the appropriate regional institution to promote and coordinate institutional reforms for integrated water resources management and to provide funds and/or information about available funding for technical assistance for developing integrated water resources policies and strategies. Such funds could become available from regional banks, multi-lateral development institutions as well as the Global Environment Facility.

A follow-up meeting is recommended for monitoring and evaluating the progress on regional and national level water resources management policy reforms.

PROGRAMME

Day 1

8:00 - 9:00 Registration

Opening Ceremony

Chair: Mr. Eric Ashcroft

9:00 - 9:05 Welcome - Mr. Eric Ashcroft, Water and Sewerage Authority

9:05 - 9:10 Brief Remark - Mr. Wendell Lawrence, Caribbean Development Bank

9:10 - 9:30 Seminar Opening - His Excellency, the Honourable Minister of Public Utilities, Mr.

Ganga Singh

9:30 - 9:45 Seminar Objectives - Mr. Donatus St. Aimee- Caribbean Council for Science and

Technology

9:45 - 9:50 Vote of thanks - Mr. Francois-Marie Patorni, Economic Development Institute

Keynote address

Chair: Mr. Wendell Lawrence

9:45-10:45 Water Resources Management Issues and Challenges in the Caribbean

(Speaker: Mr. Terence Lee-UNECLAC)

Discussions

10:45 - 11:15 Break

11:15 - 12:15 New Paradigm in the Economics of Water Resources Management

(Speaker: Mr. Sergio Ardila - IDB)

12:15 - 1:00 International Perspective on Water Supply Management , Financing and Private

Sector participation

(Speaker: Mr. Carlo Rietveld-World Bank)

Discussions

1:00 - 2:30 Lunch

2:00 - 2.30 Luncheon Address: Impacts of Climate Change on Water Resources in the Caribbean

(Speaker: Dr. Gyan Shrivastava--University of West Indies)

Issues in Water Resources Management

Chair: Mr. Luis Garcia

2:30 - 4:00 Watershed degradation and management in the Caribbean Islands
(Speaker: Dr. Frank Gumbs-UWI)

Impact of Agricultural Development on Water Resources in the Caribbean
(Speaker: Dr. Compton Paul-CARDI)

Discussions

4:00 - 4:20 Break

4:20 - 5:30 Impact of Tourism on Integrated Water Resources in the Caribbean
(Speaker: Ms. Glenda Medina-CCA)

Water Pollution: Sources and cost-effective treatment options

(Speakers: Mr. James Stone-Enviro-Waste Services Inc. and Dr. Jason Gondron, Red Fox Environmental Inc.)

Discussions

5:30 - 6:00 Summary and participants input

7:00 -9:00 Cocktail Reception

Day 2

Issues in water resources management

Chair: Mr. David Moody

8:30 - 10:00 Use of decision support tools for Coastal Zone Management in Curacao and Jamaica
(Speaker: Mr. Frank Rijsberman, Resource Analysis, Delft)

Discussions

10:00 - 10:30 Break

10:30 - 12:00 Demand Management

Demand Management Practices and economics for the Caribbean

(Speaker: Mr. Saul Arlosoroff-WWC)

Water production, Use and Conservation

(Speaker: Dr. Henry Smith-UVI-Water Resources Institute)

Discussions

12:00 - 1:30 Lunch

1:00 - 1:30 Luncheon Presentation: Economic Considerations in Hydrological Data Collection
(Speaker: Mr. Kailas Narayan-Caribbean Meteorological Institute)

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_3454

