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**REPORT OF THE CARIBBEAN WATER AND WASTEWATER  
ASSOCIATION (CWWA) 16<sup>TH</sup> ANNUAL CONFERENCE AND EXHIBITION  
HIGH-LEVEL SESSION #3**

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This document, which has been reproduced without formal editing, represents the ECLAC perspective of the proceedings, based on its attendance at the meeting. The official report will be issued by the CWWA.

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# **HIGH-LEVEL MINISTERIAL SESSION (HLMS 3) ON WATER**

## **I. INTRODUCTION**

The Caribbean Water and Wastewater Association (CWWA) held their 16<sup>th</sup> Annual Conference on 2-3 October 2007, in St. Kitts and Nevis. The theme was 'Integrating Water and Sanitation in Sustainable Development'. The objective of this conference was to address various themes with a view to minimizing environmental social and economic damages through interpreting sustainability principles in the context of water and wastewater management. This year the CWWA collaborated with the Global Water Partnership-Caribbean (GWP-C) and the Economic and Commission for Latin America and the Caribbean (ECLAC). ECLAC co-sponsored the meeting.

## **II. OPENING REMARKS**

The introductory welcoming remarks were delivered by Ms Dumas-Harewood, President of the CWWA. She highlighted the importance of advocacy in strengthening a forum for the Integrated Water Resources Management (IWRM) approach and stated that in order for this structure to be successful, it was essential to develop a regional approach and create a common agenda. She stressed that climate change and disaster management were key considerations that should be incorporated into an appropriate regional IWRM programme. These issues should be addressed in a context that focused on building capacity and developing competencies. Ms. Dumas-Harewood expressed positive expectations that the technical presentations would encourage an integrated approach to water management, which required a formal legal framework.

Mr. Wayne Joseph, Chairman of the GWP-C, addressed the meeting and gave a historical overview of the development of water management in the region and highlighted the fact that water was initially placed on the international agenda in 1992 at the Rio Summit. He welcomed the collaborative contribution of the CWWA, GWP-C and the ECLAC Subregional Headquarters for the Caribbean in this year's event. He felt that it was important to pool regional resources thereby uniting efforts in charting the way forward. Mr. Joseph congratulated the collaborative effort of agencies such as the Caribbean Environmental Health Institute (CEHI) and the United Nations Environment Programme (UNEP) in leading the regional discussions to identify areas of duplication and gaps in the water sector. He encouraged the participants of the meeting to create opportunities for country partnerships, the development of sensitisation programmes and other collaborative efforts.

The Honourable Dr. Earl Asim Martin, Minister of Public Works, Utilities, Transport and Posts of St. Kitts and Nevis delivered the feature address in which he underscored this meeting as an apt forum for sharing visions and for the cross-fertilization of ideas. He described the IWRM as a flexible tool for addressing water challenges and reiterated the importance of building strategic alliances in addressing such challenges.

### **III. TECHNICAL PRESENTATIONS**

The representative of the Caribbean Community Climate Change Centre (CCCCC) stressed that water is a vital and critical commodity necessary for sustainable development in key sectors and ecosystems. He stated that the water supply was threatened by population growth, pollution, increasing sectoral demand, bad land use practices, watershed degradation and management issues and that climate change compounded these impacts. He emphasized that the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) predicted an increase in the earth's temperature by 2 to 4.5°C over the next decades. Sea level rise was also predicted to increase between 11 and 77 centimetres along with forecasts of changing weather patterns with intense droughts, floods and hurricanes. The climate trends in the Caribbean were alarming as these might have serious repercussions for water management, which heralded the need for adaptation. However in explaining the difference between mitigation and adaptation, he noted that mitigation is the reduction of greenhouse gases while adaptation is the response to deal with the impact of climate change. Adaptation involved interventions in many areas including policy, technical and structural instruments, risk sharing and spreading, change of use activity and location.

The representative noted that to address these issues the region needed data; downscaled climate models; the capacity to forecast the climate basin at the regional or national level over seasons and years; vulnerability assessments capacity; hazard mapping capacity; risk management; public education and outreach programmes; participation of civil society and promotion of an integrated approach to water resources management.

The CCCCC was involved in a number of regional studies and projects that dealt with vulnerability and impact, such as in Jamaica (aquifer salination) Belize and Saint Lucia (watershed).

In the discussion, the impact of climate change on water demand was raised and the sensitivity of the agricultural sector to the availability of water was noted. It was suggested that a more judicious use of water resources through drip irrigation, water harvesting and storage was necessary. Drip irrigation was a good conservation tool used in Israel and Cuba and was soon to be implemented in St. Kitts and Nevis, where experts from Cuba were scheduled to train farmers. An introduction to greenhouse farming and the utilization of drought resistant crop varieties could assist small farmers through the adaptation process. The methods were used in Guyana, for example, where farmers were using salt resistant rice varieties to adapt to the increase in salt water intrusion. It was noted that governments should endorse these types of technology by implementing policy that rendered these affordable.

The meeting noted that forecasting models were being developed by CCCCC for which the Meteorological Institute (INSMET) in Cuba could facilitate training in the application of modelling and this could be shared throughout the region.

This session also considered the need for more specific data on rainfall patterns in order to plan water conservation appropriately.

The second presentation, delivered by the representative of the Global Initiatives, Global Water Partnerships Organization (GWPO), built on the first presentation, where the close correlation between adaptation and mitigation was reiterated. The presenter noted the inseparability of these factors especially when addressing water issues, which should be placed high on the political agenda. He noted that climate change might be the catalyst by which to do so observing, however, that climate change detracted from the pressing water problems that needed to be addressed. Water could only be effectively managed if it was recognized as an economic and social good. He suggested that policy makers should move towards scenario planning instead of relying only on historical data in order to manage this resource. The IWRM strategy might offer this possibility as it encompassed policy, laws, institutions, pricing and regulation, among others. The presenter addressed the topic of water governance and stated that this could be effective only if a politico-diplomatic approach was applied when dealing with rules, systems, accountability, participation and civil society. He emphasized the need to balance environmental, social demands, equity concerns as well as economic and political demands. He noted that there were no easy solutions, but there was a need to view water management in a more efficient and serious manner.

He outlined the following 10 elements of IWRM as a guide towards better water management:

- (a) Securing a high level of political support;
- (b) Establishing an enabling environment;
- (c) Focusing on cross sectoral cohesion;
- (d) Informing population and changing behaviour;
- (e) Building appropriate capacity;
- (f) Assessing water resources availability;
- (g) Using finance efficiently;
- (h) Agreeing on processes of change and monitoring progress;
- (i) Mainstreaming IWRM plans and strategies in national development plans and budgets; and
- (j) Creating processes for stakeholder voice.

During the discussions it was observed that the Caribbean subregion did not have the institutional framework to implement IWRM. However, Brazil was cited as an example that could be emulated, where a special water agency equipped with a high-level committee was established, responsible for water resources management. There was agreement that the region

needs to combine historical data and scenario building as part of the strategic management of the resource. The linkage between energy and water was also noted as energy was needed to pump water and for desalination. Renewable sources of energy such as seawater, geothermal and biofuels were recommended.

In his presentation, the representative of the Caribbean Disaster Emergency Response Agency (CDERA) emphasized the importance of designing a proper contingency and recovery plan for utilities in Caribbean economies. Presently there was a growing demand for the utilization of water, and emergencies were not always related to traditional hazards. There were more frequent and diverse threats that impacted on these resources, such as floods, hurricanes (the frequency of higher categories has increased over the last decade) and droughts.

He noted that climate change brought variability resulting from increased urbanisation, land degradation, and transboundary threats. A comprehensive disaster management approach should incorporate the management of all hazards in all phases of the disaster management cycle and mainstreamed into an organization's policies and programmes.

A proper water utility emergency plan should address the contamination of the water supply, power outages, infrastructural damages, transportation and communications failure. He noted that scenario planning and analysis was essential to designing an appropriate and adaptable plan aimed at securing future supplies of water resources. The following recommendations were presented for consideration by the CWWA:

- (a) To establishment of a working group to consider priorities for a comprehensive disaster management plan;
- (b) To explore a model business impact analysis for the Caribbean water utility and the use of core value chain principles in mainstreaming disaster risk reduction;
- (c) To develop an inventory of experiences in hazard management in the utility sector and identify best practices; and
- (d) To agree on a process for representation and participation in the regional disaster risk reduction dialogue

The meeting noted that all regional water projects should be reviewed with the intention of identifying opportunities for information and experience sharing, streamlining and developing synergies, creating regional collaboration and common agendas.

The representative from the Bahamas made a presentation on his country's experience in developing an IWRM plan. He noted that the exercise was challenging considering that the archipelago's main freshwater resources were concentrated on only three of the islands. He stressed that these resources were highly vulnerable, as 90 per cent of the freshwater resources were within 5ft (1.5m) of the surface, thus increasing the vulnerability to flooding and surges.

The Bahamas participated in regional IWRM workshops, stakeholder meetings and assessments held throughout 1999-2005. The Water Management firm conducted an environmental study with Inter-American Development Bank (IDB) funding in 2003. The terms of reference considered groundwater management, pollution control and well testing and the

study was informed by stakeholder meetings and seminars. The study's methodology included reviewing existing data, stakeholder interviews, reviewing the systems in comparable environments, conducting four site visits and convening two seminars. The findings were as follows:

- (a) Groundwater (fresh, brackish, saline/seawater) was critically important to the Bahamas but there was no coherent control over abstraction and polluting activities;
- (b) Resources in NP over-exploited;
- (c) 65 per cent of samples show signs of contamination;
- (d) Eight main threats to groundwater were diagnosed, some of which were over-abstraction, physical disturbance (canals, marinas, surge, borrow pits), point-source pollution (oil/chemical spills), among others.

He noted the high cost of inaction, an estimated US\$70million, in the event of outbreaks, which would involve high treatment and environmental costs. The study informed policy guidelines that should assist the government and the water authorities in implementing the IWRM. These included universal access at affordable prices; appropriate quality for user/functions; sustainable management (no depletion, contamination, or degradation over time); efficient and effective disposal of waste and effluent (lowest possible cost, without endangering potable water); and use of appropriate instruments to address threats.

He emphasized that in order to implement IWRM, there were certain regulatory instruments that needed to be designed which would include a combination of legal, planning, economic and educational instruments

The project consultants had issued a number of recommendations that the government should consider implementing. These were: (a) treatment of groundwater as a strategic national resource; (b) implementation of necessary institutional arrangements - *groundwater regulatory body as a division of an environmental regulatory body*; (c) flexible legal instruments for groundwater regulation; (d) the regulatory functions for water should be vested in the Ministry of Health (Department of the Environmental Protection and Planning); (e) an environmental regulator to implement and enforce certain legal instruments (e.g. abstraction licensing regime, well drillers regulations, solid waste disposal control, Environmental Impact Assessment (EIAs), etc); and (f) the Ministry of Works and Public Utilities (Physical Planning and Building Control Divisions) should continue the implementation of its legal instruments (e.g. land use planning and the building regulations).

A 16-step plan was also devised to assist the Government of the Bahamas in implementing IWRM over a three-year period. Unfortunately, there has been no follow-up to this study because there is no champion of the cause.

During the discussions, it was highlighted that this project was internationally driven. It was noted that although the Ministry of Finance was identified as the lead agency in the implementation of the recommendations, it was still essential to elect a champion from within the Cabinet. The meeting noted an example in Africa that involved bilateral donors, where even though the process took four years, the champions and stakeholders had been easily identified

from within the community, leading to a more sustainable output. This process encouraged ‘buy in’ and was cost effective as everything was driven locally.

The presenter proposed that the Department of Environmental Protection and Planning (DEPP) which would operate under the Ministry of Health, should be the champion of the cause as there was existing infrastructure within the ministry.

The representative of Jamaica gave an account of the country’s experience in developing an IWRM plan. She informed that Jamaica amended their 2000 water policy in 2004 to include issues such as gender in water resources management, the provision of universal access to water by 2010, and irrigation and urban drainage. The Government of Jamaica thought it necessary to increase water access in the rural areas and is seeking to determine how to involve the local communities in this drive. The government has estimated that increasing access of water to rural areas will cost approximately \$3 billion and another \$800 million in sewerage treatment. Although the government has developed plans for increased rural access to water, a lack of funding has halted the process. However, there have been a few successful rural water programmes funded by the IDB. A rapid response programme was developed which employs and installs black tanks for storage. A hydrological mapping of Jamaica classified the accessibility, availability of water, and the modalities needed in various regions to access water. Although the policy addressed water data collection and monitoring, it did not consider climate change. It was expressed that the hydrological mapping of Jamaica should consider the impact of climate change that could inform the planning processes.

The ECLAC consultant presented her study that was conducted in Antigua and Barbuda, Grenada and Dominica. It provided an overview of the water profile of each island and addressed the capacity of national institutions to implement IWRM strategy. Results indicated that the organizations that were responsible for the provision of potable water supply were the national water authorities (Antigua Public Utilities Authority, the Dominican Water and Sewerage Company, National Water and Sewerage Authority), which are also responsible for water resources management. The water sources for water supply in Antigua and Barbuda and Grenada are surface, groundwater, rainwater harvesting and desalinated water. However, in Dominica the source is surface water from the rivers and streams. Although the World Health Organization (WHO) guidelines for water quality are upheld, watershed management is not undertaken effectively in any of the islands. Wastewater disposal in the islands is mainly by septic systems and soak ways.

The tariff structure in each country was reviewed and deemed insufficient with respect to encouraging water conservation and reflecting the economic value of water, however, there were some initiatives that addressed conservation.

The consultant reviewed the core IWRM functions as follows:

- (a) Policy and strategy;
- (b) Legislation and enforcement;
- (c) Water resources assessment;
- (d) Master planning and allocation of water;

- (e) Water demand analysis;
- (f) Demand management;
- (g) Conservation;
- (h) Pricing of water;
- (i) Water resources development and distribution.

The findings of this study indicated that the islands showed some development in the areas of pricing of water and water resources development and distribution but, in general, the other core areas of IWRM were non-existent. Additionally, the institutional frameworks were not adequate and the key stakeholder organizations did not have the capacity, skills and experience needed to implement IWRM. It was noted that the core functions of IWRM should not be vested in the organization responsible for potable water supply and sewerage, and that a separate entity should be established instead for the implementation of the IWRM.

Some of the recommendations made included the development and implementation of an IWRM policy and strategy, IWRM legislation and enforcement; development of an IWRM master plan; water resources assessment; regulation of the use of available water resources; establishment of a national water resources database and dissemination of data and information, among others.

Some of the challenges associated with implementing an IWRM strategy in these islands were:

- (a) Lack of understanding of IWRM;
- (b) The location of IWRM;
- (c) Lack of vision for IWRM;
- (d) Development of an IWRM organizational structure;
- (e) Implementation of an effective governance structure;
- (f) Lack of skills and knowledge base required;
- (g) Financing of an IWRM organization;
- (h) The notion that water management is only about transmission and distribution of potable water and disposal of sewage must be dispelled.

The meeting noted the importance of the process and that the involvement of stakeholders were essential to implementing IWRM in the region. Clearly defined roles of agencies, communities and other stakeholders would assist the successful implementation of IWRM, especially if a regional approach was adopted.

The representative of ECLAC noted that efficiency should be the primary focus for water managers and public utilities in carrying out their operations. A cost effective and efficient water

system allowed the liberalization of financial resources to fund the expansion of water provision to the poor. External factors, however, could impact on water management in the Caribbean.

It was noted that policy efforts and resources would enhance decision-making in attaining sustainable development. Some aspects of this development, although not immediate, could be identified, prioritized and sequenced. He noted that a comprehensive policy with the participation of key stakeholders in strategic thinking might generate the best and most appropriate plan. A review of economic policies was needed, however, economic incentives should be designed to complement the water regulation and management. He also emphasized that the region should move away from the sectoral approach to embrace the development of an ultimate water authority habilitated to resolve conflicts, assume responsibility over water-related decisions and undertake decision-making.

The main features of water were, first, it must be captured to be utilized; second, information was needed to manage this resource; and third, it is a public good. Therefore, if this resource were overused, governments should take steps to reallocate resources; institutions should incorporate the climate change factor into water markets and proper regulation needed to be enforced. He commented that in general the economic return to investing in water resources was low, however, governments needed to make water a priority because it was a social necessity. He noted that water agencies needed to reorganize their operations alongside governmental reform in order to develop adequate water policies, accompanied by a strong water policy statement to be considered during international negotiations and with foreign investors.

During the discussions it was noted that sequencing was needed and that a good starting point lay in identifying existing challenges within institutions. One of the major stumbling points in initiating IWRM was that traditionally the region's governments had not encouraged the empowerment of civil society. The latter was essential, however, for a successful implementation of the IWRM, therefore this tradition needed to be changed.

## IV HIGH LEVEL SESSION #2

### A. Status report on the issues requiring follow-up action

The President of the CWWA gave a summary report on the follow-up issues from the High Level Session #2 held in October 2006 in Tobago.

The general objectives of that forum were:

- (a) To provide technical information on some relevant issues relating to sector management;
- (b) To provide an opportunity for decision makers to meet and discuss issues of mutual interest;
- (c) To identify policy issues in the water and waste sector that may benefit from a regional perspective and approach.

There were six major concerns raised at that meeting based on the country reports, namely:

- (a) Capacity-building at the professional level;
- (b) Payment for services;
- (c) Gender issues;
- (d) Solid waste management;
- (e) Protection and conservation;
- (f) Governance.

Some of the issues that were addressed were: preparing IWRM plans in the region; assessing the performance of water utilities; knowledge exchange; water conservation and achieving the Millennium Development Goals. She reported on the varying levels of successful execution of these and cited the following as challenges and opportunities to working to address the actions and issues raised in these high-level ministerial sessions:

- (a) Working with limited resources;
- (b) Success was dependent on institutions working together for a common purpose;
- (c) Benefit of the collaborative approach cannot be over emphasized;
- (d) Pulling on institutional strengths;
- (e) Institutionalise the process of the high-level session through resource provision and implementation of recommendations.

The representative of the Caribbean Development Bank (CDB) informed the meeting that his organization was financing an overview of the water sector, including its performance, policy and regulatory framework. This was being piloted in Barbados, Jamaica, Guyana and Trinidad and Tobago and the CDB expressed interest in collaborating with the CWWA on providing relevant and useful information.

The meeting noted that presenting a consolidated overview of ongoing regional projects at the ministerial forum should be encouraged. In response to this suggestion it was stated that the CWWA had taken the lead in this area in 2007 when they assisted regional institutions, such as CEHI, the Integrating Watershed and Coastal Area Management in Small Island Development States (IWCAM) project, and GWP-C, in holding discussions to identify and map such activities in the region. There was the need for an overarching regional strategy (which may be institutionalized) that would review the effectiveness of the regional policies.

## **V. ROUNDTABLE DISCUSSION**

In passing the chairmanship to St. Kitts and Nevis, the representative of Trinidad reiterated the commitment of the Government of Trinidad and Tobago to advancing progress in the Caribbean region especially with respect to the development of the water sector.

He expressed hope that the significant progress achieved in the implementation of the IWRM would strengthen the region to convincingly make representation internationally. He stressed the importance of ensuring that best practices were transferred and shared. He advised that it was the duty of those present to transmit the information into the region and into the public domain as evidence of the region's ability to change direction in a positive manner.

The representative of St. Kitts and Nevis expressed his gratitude for the assistance of the Government of Trinidad and Tobago in facilitating the smooth transfer of the chairmanship. He also praised the President of the CWWA for the support provided to the Government of St. Kitts and Nevis and expressed the need for a mechanism that would effectively implement the actions and recommendations raised in this forum. He also noted that it was important for the Caribbean Community (CARICOM) to formally recognise this forum as the ministerial forum for water issues; and that any actions and recommendations arrived at be carried forward and implemented. He stressed the importance of recognising that the region consisted of one people bound by the same challenges and urged for regional collaboration.

In the discussion that followed participants noted that climate change was taking place at an alarming rate making adjustment difficult. This complicated how utility managers would address sea level rise within the context of the increasing level of development and construction of concrete structures. These structures could hamper adaptation to the rising sea level and could result in ecosystem imbalances.

The suggestion was made for the creation of a database of core skills in water management. This would be a first step in developing a mechanism through the GWP-C to utilize skills throughout the region in order to facilitate the implementation of IWRM regionally.

In this context, a participant pointed out that such a database already existed but was limited only to the area of sanitation. It was also suggested that the database should incorporate the private sectors. Recommendations were made for the database not to be general but rather to focus on specific areas; and not to be restricted only to water technicians and engineers.

The meeting noted the need for an education drive focused on IWRM and water issues. The CWWA, GWP-C, UNEP and CEHI were some of the agencies that had collaborated in facilitating different consultations, seminars and training sessions throughout the region this year. There were a few initiatives that were highlighted: public education in Dominica, Grenada and Saint Lucia; and collaboration between Martinique and Trinidad and Tobago - riverbed management and IWRM. These initiatives should have a regional focus rather than being bilateral. It was agreed that increasing the number of informed persons in the region would help progress to be made regarding IWRM.

The representative from the Syndicat Intercommunal d'Alimentation en Eau et Assainissement de la Guadeloupe (SIAEAG) suggested the creation of a pilot committee for discussing water-related issues at a regional level. He noted that Guadeloupe was well placed to collaborate with other countries in the Caribbean region, being part of the European Union (EU), to share its experiences in water management. As most Caribbean countries were tourism-based, problems of water contamination (both seawater and drinking water) would affect the Caribbean image and was also economically costly. Countries, therefore, needed to cooperate, pool resources to advance water management. He mentioned that Guadeloupe organized a Water Day every two years and he offered Guadeloupe as host for a meeting by January 2008 for all regional water stakeholders in the Caribbean in order to discuss avenues of further regional collaboration.

## **A. Country and institutional updates**

### **1. Barbados**

The representative of Barbados stated that customer service was lacking in the water sector. He suggested that the CWWA could be a platform to advance best practices in water management for the region. He mentioned that Barbados was water scarce and that authorities were currently considering the possibility of wastewater reuse. Barbados was also currently reviewing its zoning policy. There were concerns on the island regarding protecting underground water resources and there was a need to re-examine the entire water system in light of new threats and challenges.

### **2. Trinidad and Tobago**

Trinidad and Tobago was currently preparing water and wastewater master plans to address the increasing water demand in the country. Large development projects were being pursued in order to completely restructure the water sector and meet increased demand. The GWP-C in Trinidad was working with the Water and Sewerage Authority (WASA) to build in a multi-pronged approach to water management. Due attention was being given to the need for increased storage capacities, especially given that rainfall was becoming shorter in duration and higher in intensity. The representative noted that wastewater reuse was being considered as a supply source for industries. The government was also pursuing the option of desalination to

supplement or satisfy the increased water demand. The operation of a leakage reduction programme aimed at reducing water losses and improving water availability was also pursued. Implementations of these programmes were being accelerated due to a pressing need for more water. The representative mentioned that implementation of a sub-master plan for wastewater in the eastern corridor of Trinidad had started. Assessments had also been conducted to ensure continuity in supply during emergencies such as disasters, and standby operators had been purchased and installed at strategic facilities for this purpose.

### **3. *CDB***

This representative noted that considerable investment was required in the water sector and there were multilateral agencies that could provide this support. He noted, however, that agencies needed to have a more strategic approach to financing. The CDB was due to carry out a sector overview that should lead to the development of a more strategic approach in the sector. A proposal made two years ago to establish a water fund had not been implemented to date. Mention was made also of the fact that workshops could be held on financing that involved water professionals and finance officials and that a mechanism for bringing together the water sector and the finance sector was needed. It was proposed for the GWP-C to collaborate with the CDB in exploring the financial involvement of private sector banks in the sector.

### **4. *Grenada***

The representative mentioned that in Grenada water supply was mainly in the form of surface water coming from hills. Currently water leakage reduction programmes were being implemented while the privatisation of the water sector was being considered. Some participants cautioned against outright privatization and recommended instead the privatization of certain types of assets.

### **5. *Dominica***

The representative of Dominica informed that steps had not yet been taken to address the issue of water management in an effective manner. However, efforts were in train to change this by attempting to embrace IWRM. In this regard, the CWWA held a workshop on IWRM in Dominica in September, 2007. With funding from the EU, the island was aiming at consolidating what so far had been a small-scale fragmented water system into a larger national one. The authorities were considering developing facilities in order to export water to neighbouring islands.

### **6. *Jamaica***

The representative of Jamaica asked for guidance in developing incentives for the private sector. In response, the GWP-C representative stated that not much information was available on private sector incentives, noting that this was a problem that Argentina had experienced. He emphasized the importance of partnership building in this regard.

### **7. *ECLAC***

The representative from ECLAC stated that this organization provided policy support to its member States and was engaged in research and policy work. ECLAC also responded to

request for technical support. It might be possible for ECLAC to give support towards the creation of an inventory of water resources in the region as previously expressed by participants.

#### **8. *SIAEAG - Guadeloupe***

The representative outlined the various aspects of the government's plan for water and sanitation for 2007. He noted that the island had various sources – well, groundwater, desalinated water and river resources. Guadeloupe (being an archipelago island) possessed the technology and know-how to link and supply the islands with water. In trying to implement a water management programme in Guadeloupe, authorities were attempting to address the problem of leakages, improve storage capacity and regularize the provision of water. One of their main objectives was to eliminate water pollution. The authorities were aiming at equipping each household with two types of water supply systems: a piped water system and a rainwater harvesting system so that a combination of both types of water would be used for different purposes. Guadeloupe was moving towards a new water governance system that would emphasise evaluations by end-users to control quality of service. They needed to comply with European norms in terms of water quality and by 2015 all water bodies on the island were expected to meet the same quality standards.

#### **9. *Bahamas***

The Bahamas was facing increasing demand from users. The government was currently seeking to address both the need for increased water supply and financial viability. There had been a heavy shift in the Bahamas from using groundwater towards desalinated water. The rate of development on the islands and thus of increased water demand was exceeding the country's rate of production in water, and there was a grave concern as to whether the country would be able to sustain demand, especially from large hotels. Government subsidies in water use were growing thus endangering the financial sustainability of the water system. This representative remarked that authorities were focusing on water relative to sewerage and solid waste disposal due to relatively higher financial viability in water provision. There was a need to impose differential water tariffs and water taxes and for hotels to have their own treatment facilities. The Bahamas was heavily dependent on tourism and it was pointed out that a negative event in one part of the Caribbean could have huge negative consequences on tourism in other islands. This being the case, the representative from the Bahamas strongly advocated for a regional approach to addressing pollution and environmental risks in the Caribbean.

#### **10. *Antigua and Barbuda***

The representative pointed out that Antigua and Barbuda was unique as there was a single statutory body that managed telecommunications, water and energy. He mentioned that having water and energy managed by the same company was advantageous to the water sector which was the single largest user of energy on the island. The government was also the single largest user of telecommunications, and cash returns did not accrue to the company in large numbers, thereby making maintenance of infrastructure difficult. In the 1980s, Antigua and Barbuda opened up its economy including migration, thereby introducing foreigners with diverse water habits to a water-scarce island. The water supply situation in Antigua and Barbuda was currently highly critical as reserve supplies had dried up. Moreover the islands were increasingly experiencing short duration and high-intense rainfall; there had been a change in rain pattern and this had put pressure on water provision. He noted that use of desalination was on the increase

on the islands and that the operation of desalination plants could adversely impact on the quality of marine environment. In addition, he noted that since the 1980s, the government had allowed hotels to build and operate their own desalination units. This measure had led to a shrinking of the customer base in water for the public utilities company thereby making it harder for the utility companies to charge low prices to customers to ensure wide access. The representative also expressed concerns regarding the absence of water regulation and the lack of quality control over those hotel-run desalination plants. Outbreaks at these hotel desalination plants had occurred in the past and in such cases the cash-strapped public utilities companies had to spend large sums of money in testing its own water supplies in order to prove that it was not at fault. Hotels have now been encouraged to train its personnel in testing for water quality at its plants to prevent similar incidents. It was suggested by other participants that a study on the impact of hotels on the water sector be undertaken and for Antigua and Barbuda to consider importing water from neighbouring countries.

#### **11. *St. Kitts and Nevis***

The representative of the host country mentioned that surface water was the major source of water supply on the island along with some desalination. He mentioned that golf courses in the tourism sector were no longer using ground or surface water but rather desalinated water for its uses. The authorities were developing a policy that addressed water conservation. Since water usage was subsidized, efforts were also being made to sensitize the public on water conservation. The government was currently benefiting from assistance from the Government of Spain to chlorinate water supplies to achieve 100 per cent chlorination of all water supplies by mid-2008. Education programmes were also needed to sensitize the public to use piped water rather than source water, the latter use is customary in St Kitts and Nevis. He mentioned that the availability of trained human resources was a challenge on these islands, currently there were only two trained water engineers in the water department.

### **B. Recommendations**

Each of the presenters highlighted a few areas of concern that arose from their presentations that the CWWA and GWP-C could address in their work programmes for the coming year. Their comments are incorporated into the following list:

- (a) Convene a training workshop for water managers on the impact of climate change on water resources (one day).
- (b) Convene an awareness session for policy makers on the impact of climate change on water resources (one day).
- (c) Conduct case studies on the impact of climate change on the water sector.
- (d) Improve data collection and data management in support of climate change modelling in the Caribbean.

(e) Set up a regulatory mechanism within CARICOM to establish water and climate change as a priority; identify a champion to represent SIDS in international negotiations.

(f) Develop more IWRM action plans and embed these in the national development plans inclusive of financing strategies, which would facilitate the implementation of the plans.

(g) Separate IWRM and water and sewerage divisions in national institutions. CEHI was complemented on its role in giving good technical support in the process thus far.

(h) Establish a working group to consider and make recommendations for a comprehensive disaster management.

(i) Explore the initiation of a business model in impact analysis for Caribbean water utility and the use of core value chain principles in framing an architecture for mainstreaming disaster risk reduction therein.

(j) Create an inventory of current experiences in hazard management in the utility sector and identify good practices. He suggested that the CWWA could effect this action.

(k) Agree on a mechanism for representation in regional risk reduction dialogue.

(l) Identify strategies for developing capacity for IWRM in the Caribbean.

(m) Need for strategies for ensuring the adoption and implementation of IWRM plans and policy. The regional States need assistance with the next steps; it is also important to foster locally driven projects and targets and to conduct research to investigate the successes and lessons learned from East Africa in the implementation of the IWRM.

(n) Explore workable financing strategies for IWRM implementation in the Caribbean.

(o) Pursue actions in strengthening the legal and institutional frameworks, nationally and regionally in support of IWRM.

(p) Develop political will and commitment.

In the following discussions it was noted that the CCCCC was currently looking for a partner to help execute the workshops and training sessions.

It was suggested that water and climate change could be placed on the political agenda of CARICOM if the CCCCC report was utilized effectively at the Council for Trade and Economic Development (COTED), especially if ministers served as champions for these issues.

It was noted that many of the countries did not have the institutional strength to implement IWRM and the region needed to address this issue. The GWP-C could possibly expand their partnership in their five-year plan and encourage national discussion.

Water resources management agencies needed to be developed as a separate entity from the water supply and sanitation divisions, because the user of the resource should not function as the regulator of the resource. The region was lacking the human resources, but global lessons were numerous and the region would do well to note these.

ECLAC was asked whether the organization could possibly assist in writing a paper on the options for establishing IWRM strategies for the region.

It was important to get political 'buy in' otherwise the process would not advance. Although water governance was in its infancy in the region, it might be good to prepare a paper with the options that countries could refer to as they went through the stages of implementation of IWRM. It was noted that a regional proposal for an IWRM strategy and an implementation plan was apt.

The private sector and financing institutions, inclusive of local banks, needed to be involved in the IWRM dialogue. Options should be provided through a comprehensive overview of the implementation of IWRM, so that countries could choose the best-suited option.

The meeting agreed that the CWWA and the GWP-C would collaborate and discuss the issues that were raised. It was stated that water projects throughout the region should share and pool their resources in identifying and mapping ongoing activities maybe through a working or an advisory group.

The representative of St. Kitts and Nevis thanked the participants for accepting the invitation to St. Kitts and Nevis and noted that the meeting allowed participants to learn new techniques and that this meeting had been a great experience for St Kitts and Nevis. He thanked the presenters for sharing their country experiences on behalf of the Government of St Kitts and Nevis and promised that the water agenda would be moved forward especially at the regional and international levels.

He expressed gratitude for the role the CWWA had played in carrying the mantle and for the support they provided to his government and noted that there were new items to be added to the 2007-2008 work plan. He thanked CWWA, GWP-C and ECLAC for hosting the high-level session. He informed the meeting that 10-18 January 2008 had been earmarked as a period for follow-up work which would include site visits, work and decision-making in sanitation in the Caribbean, and that activities would be implemented by the St Kitts and Nevis Government in collaboration with CWWA, Guadeloupe, the CCCCC and the GWPO.

The representative of Caribbean WaterNet, as Chair of the Roundtable discussions, summarized the discussions. He queried as to whether a needs assessment in water and IWRM was needed and stated that the main obstacles to IWRM in terms of non-existence or inadequate IWRM plans and policies were insufficient resources and lack of trained personnel. He also summarized the major recommendations as: a need for public outreach and advocacy; macroeconomic planning, methods and procedures for conflict resolution; need for capacity-building in legal frameworks; development of IWRM indicators; establishment of networks among regional institutions; establishment of mechanisms for increased stakeholder participation; establishment of mechanisms for case studies and sharing of experiences and

formalization of processes for data and research sharing. He also announced that the University of West Indies (UWI) would be holding a workshop on the theme of economic instruments for the IWRM in coming months.

Annex

**LIST OF PARTICIPANTS**

**Countries**

**Antigua and Barbuda**

Mr. Ivan Rodrigues

**Bahamas**

Mr. Robert Deal

**Barbados**

Mr. Elvin Sealy

Mr. Denis Yearwood

**Dominica**

Honourable George Ambrose

Mr. Bernard Ettinoffe

**Grenada**

Mr. Gregory Bowen

Mr. Winston Gabriel

**Jamaica**

Ms. Patricia Snow-Young

**Montserrat**

Ms. Lindell Greer

**Saint Lucia**

Mr. Andy Phillip

**St. Kitts and Nevis**

Honourable Earl Asim

Mr. Oaklyn Peets

**St. Vincent and the Grenadines**

Mr. Brian da Silva

**Trinidad and Tobago**

Dr. Ellis Burris

Ms. Michelle Durham-Kissoon

## **Agencies**

### **Inter-American Association of Sanitary and Environmental Engineers (AIDIS)**

Mr. Adalberto Noyola

### **Caribbean Development Bank (CDB)**

Mr. L. O'Reilly Lewis

### **Caribbean Environmental Health Institute (CEHI)**

Ms. Patricia Aquing

### **Caribbean Water and Wastewater Association (CWWA)**

Dr. Hugh Sealy

### **Economic Commission for Latin America and the Caribbean (ECLAC)**

Mr. Miguel Solanes

Ms. Bineswaree Bolaky

Ms. Elizabeth Thorne

### **Global Water Partnership – Caribbean (GWP-C)**

Mr. Wayne Joseph

### **Syndicat Intercommunal d'Alimentation en Eau et Assainissement de la Guadeloupe (SIAEAG)**

Mr. Emelius Hernandez

Ms. Ginette Nelson-Lacroix

## **Facilitators**

Mr. Glen Laville, CWWA, Bahamas

Dr. Ulric Trotz, CCCCC, Belize

Mr. Jeremy Collymore, CDERA, Barbados

Dr. Jacob Opadeyi, Caribbean WaterNet, Trinidad and Tobago

Ms. Sherry Dumas Harewood, CWWA, Trinidad and Tobago

Ms. Marilyn Crichlow, ECLAC Consultant, Trinidad and Tobago

Mr. Paul Hinds, GWP-C, Trinidad and Tobago

Mr. Alan Hall, Global Initiatives, GWPO, Sweden