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Small Island Countries Dialogue on Water and Climate

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EXECUTIVE SUMMARY

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Background to Small Island Countries

This document serves as an executive summary for the Caribbean and Pacific Synthesis Reports on Water and Climate (Springer (2002) and Scott et. al. (2002)). The two regions are collaborating as part of the global Dialogue on Water and Climate (DWC) initiative, which works "to improve the capacity in water resources management to cope with the impacts of increasing variability of the world's climate, by establishing a platform through which policymakers and water resources managers have better access to, and make better use of, information generated by climatologists and meteorologists."[1]

The Caribbean and Pacific regions have a history of partnership on environment and sustainable development issues. This ranges from their participation in the Alliance of Small Island States (AOSIS) and the African-Caribbean-Pacific Group of States (ACP) to their collaboration on the United Nations Summits for Small Island Developing States. One of the more groundbreaking of these summits was the United Nations Global Conference on the Sustainable Development of Small Island Developing States (Barbados, 1994). The Conference was able to bring together countries, the donor community, and non-governmental organisations to identify the specific needs of Small Island Developing States (SIDS). It resulted in the adoption of the Programme of Action for the Sustainable Development of Small Island Developing States. The SIDS Programme of Action highlights the importance of both water resources and climate change. The collaboration between the Pacific and Caribbean regions in the DWC builds on both the SIDS Programme of Action and previous collaboration in the areas of water resources and climate change.

The Small Island Countries Dialogues

As regions composed of island countries, the Caribbean and Pacific regions face similar issues in managing their water resources under the combined challenges of increasing demand, intensifying climate variability, and the potential impact of climate change. Accordingly, the Caribbean and Pacific DWCs worked collaboratively to promote an active exchange of information and experiences between the regions to enrich their respective dialogues. This included Caribbean participation in the 3rd World Water Forum Pacific Regional Consultation Meeting on 'Water In Small Island Countries' (Fiji, July-August 2002), which included the Pacific Dialogue on Water and Climate, and Pacific representation in the Caribbean 11th Annual Caribbean Water and Wastewater Association Conference/2nd Caribbean Dialogue on Water and Climate Stakeholders

[1] http://www.waterandclimate.org/home.html

Consultation (Saint Lucia, October 2002). In addition, the teams of both regions shared documents and resources, and collaborated on a Joint Programme of Action for Water and Climate, which will be presented at the 3rd World Water Forum in Kyoto, Japan, 16-23 March 2003. The Caribbean and Pacific also worked together on the preparation of the Caribbean and Pacific synthesis reports on water and climate (2002). The reports closely examine the issues to better understand and plan for the impacts of climate change and climate vulnerability on water resources in SIDS.

Water and Climate Issues in Small Island Countries

The Caribbean Report examines the current state of water resources management in the region. Specifically, it takes note of growing water demand in the face of uncertain water supply. This is exacerbated by salt-water intrusion from over-extraction and sea-level rise, and water quality degradation from urbanisation, land use patterns, waste management, and climate variability. A particular issue of concern in the Caribbean related to water demand is the heavy use of water by the tourism industry, of which the region is increasingly dependant on for growth. This is resulting in a significant increase in water demand for maintenance of swimming pools, lawns, golf course, sewerage disposal, and personal hygiene. Specifically, the National Water Commission of Jamaica calculated that the Jamaican tourism sector demands ten (10) times more water per capita than the domestic sector and four (4) times more water than the commercial sector. On the positive side, some hotels are taking a more "ecological" approach and are instituting water savings and recycling programmes. An increase in tourism could also lead to an increase in agricultural activities to supply the tourism industry. Agricultural activities result in irrigation and water degradation from run-off.

In order to curb the vulnerability of the agricultural sector to climatic change, the report suggests specific coping/adaptation strategies such as improvements in crop varieties; improvements in soil management, fertilization, and pest and weed control so as to improve resource productivity; and improvements in irrigation and other farming practices. Several countries in the Caribbean have initiated research activities to address the impact of climate variability and change on water resources. Specific examples include: the installation of groundwater monitoring systems and the use of hydraulic network modelling in Barbados; recycling of effluent and use of aquatic plants in wastewater treatment in Jamaica; and the evaluation of improved water intakes for surface waters in Saint Lucia.

The Pacific Synthesis Report takes a similar approach to that of the Caribbean, examining island vulnerability, water resources management and water use. The report provides a concise description of climatic events in the region, such as El Niño Southern Oscillation (ENSO) episodes; the reverse condition to El Niño, La Niña; and tropical cyclones and their impacts on Pacific Island Countries. On a related note, it highlights a series of examples of climate monitoring taking place in the Pacific. These include a case study from Rarotonga (Cook Islands) and from

Tarawa (Kiribati). Staff from the Cook Islands Department of Water Works have worked with the South Pacific Applied Geosciences Commission (SOPAC) to test the appropriateness of alternative methods for measuring drought severity. They have developed a drought index that is useful in developing and implementing drought management plans. In Kiribati, there is on-going monitoring and assessment of groundwater resources which assists in future planning for climate change. The cost of potential climate change impacts on Tarawa's groundwater is estimated to be in the range of US$1 to 3 million per year, thereby justifying substantial investment in hydrological investigations and monitoring to ensure sustainable groundwater use.

The Pacific Report also provides an overview of water resources and water use in the region, including surface water, groundwater, rainwater, desalination, importation, non-potable water sources, and substitution. In the Pacific, the use of water in human settlements varies significantly depending on availability, quality, type and age of water distribution systems, cultural and socio-economic factors and administrative procedures. Freshwater usage can range from 20-50 litres per person per day (L/p/d) to more than 1,000 L/p/d. Water distribution systems also vary. For example, in rural areas one type of system is the communal water supply system, managed by village or community water committees, island councils, or municipal administrations. As in the Caribbean region, the tourism industry demands a relatively high proportion of the total water consumption. However, the presence of tourist resorts can serve to enable local communities to benefit from higher technological solutions that local communities alone would not have been able to finance (e.g. Bora Bora, French Polynesia). Irrigation is not as substantial a consumer of water resources in the Pacific as in the Caribbean. This is due to the fact that coral atolls and small limestone islands generally do not possess sufficient water resources nor suitable soil conditions for irrigated agriculture. Irrigation is possible in the Pacific in high-elevation volcanic islands, but is still practised on a relatively limited basis.

Coping and Adaptation Strategies for Climate Variability and Change

Both the Caribbean and Pacific Synthesis Reports dedicate substantial attention to vulnerability and adaptation/management strategies, asserting that it is essential to understand and quantify the risks posed by climate change and climate variability to formulate appropriate strategies in the water resources sector. The Pacific Report makes the following recommendations (based on vulnerability and adaptation assessments in Fiji and Kirabati): adoption of a "No Regrets" adaptation policy; development of a broad consultative process for implementing adaptation; requirement of adaptation screening for major development projects; and strengthening of socio-economic analysis of adaptation options.

Both papers offer useful strategies for coping with the increased vulnerability of water resources to climate variability and change. For example, in the Pacific, one set of strategic responses relates to the application of seasonal and inter-annual climate forecasts. Specifically this refers to the development of

techniques to produce simple climate forecasts building on initiatives already underway such as:

- the Pacific ENSO Applications Center (PEAC) climate forecasts for US-affiliated Pacific Islands,
- The Australian Bureau of Meteorology (BOM) collation and dissemination of seasonal and long-range climate forecasts for the South Pacific,
- The New Zealand National Institute of Water and Atmospheric Research (NIWA) monthly climate bulletin for the tropical South Pacific islands.
- The Fiji Meteorological Service (FMS) seasonal rainfall prediction scheme which has the potential to be adapted to other Pacific Island countries.

The Caribbean Report highlights the impact of climate change on human health and sanitation, especially vector-borne and water-borne disease. It presents a three-year project being undertaken by the Caribbean Epidemiology Centre (CAREC), which is examining the impact of climate change on dengue fever. Also, the Caribbean Report examines the issue of sea level rise and hydrology. The Caribbean Planning and Adaptation for Climate Change (CPACC) Project noted that in Guyana, agriculture, human settlements, infrastructure, fisheries and water resources were likely to be adversely impacted by sea level rise, through erosion, inundation, and salinization. This would result in serious consequences for the agricultural industry as well as human settlements in Georgetown. Suggested coping strategies include an adaptation policy framework and capacity building. In terms of water resources and hydrology, the Caribbean Report projects that the impacts of climate variability and change would include decreased water supply; slower groundwater recharge rates; increased irrigation demands due to higher temperatures; increased extreme weather events (e.g. floods and droughts); degradation of water resources; disruption of ecosystems; and increased actuarial uncertainty in risk assessment, which inflates insurance premiums. Some of the approaches suggested to addressing these impacts are more effective integrated water resource management, capacity building, water pollution prevention and control, appropriate cultural and attitudinal changes (e.g. creating a culture of conservation), and an improved water resources information base.

The Caribbean Report dedicates a section to insurance and financial services. This is an important consideration, as World Bank analysis of the major impact of catastrophic events on 16 countries for 1970-99 shows that catastrophic events lead to declines in the growth of output, investment, and consumption, and a worsening of the balance of payments. To address the paucity of insurance coverage in the Caribbean, market failures such as the following must be considered: underdevelopment of risk identification and forecasting; insurers do not discriminate by zone of risk or the implementation of risk-reduction measures; under-investment in mitigation and under-insurance by individuals; land-use regulations and building codes are non-existent or are poorly enforced; and

inadequate regulation. The report offers specific public sector interventions to address these market failures.

In the Pacific Report, a review of vulnerability and adaptation assessment indicates that ten Pacific Island countries have concluded preliminary national vulnerability assessments for the United Nations Framework Convention on Climate Change (UNFCCC). The following observations were made in relation to water resources:

- Improved management and maintenance of existing water supply systems and catchment protection and conservation are high priorities because of the relatively low costs associated with reducing system losses, improving water quality, and the broader environmental benefits.
- Centralised water treatment to improve water quality may be beneficial in urban areas, but different approaches may be needed for rural populations.
- There should be an increase in market-based mechanisms.
- Measures to protect groundwater resources should be considered, both concerning pollution and salt-water intrusion.

A Joint Programme for Action

The reports from the Caribbean and Pacific regions clearly illustrate the similar challenges that SIDS must address in the management of water resources in the face of increasing climate variability. They also highlight coping and adaptation strategies, which serve as a clear way forward for addressing the issue of water resources in the face of increased climate variability and change. These reports and the on-going Caribbean-Pacific collaboration also serve as a foundation for a Joint Programme of Action on Water and Climate for the two regions and a directive for decision-makers. The reports describe concrete activities that governments, donor institutions, non-governmental organisations, the private sector, and community groups can undertake to adapt their regions to the reality of increased climatic variability, increased water demand, and a seriously threatened water supply. The collaboration between the Caribbean and the Pacific regions on their respective Dialogues on Water and Climate illustrate that they have come a long way since the SIDS Programme of Action in integrating the important issues of water resources management and climate. This is an important step to take to better prepare both regions for the challenges that lay ahead.

References

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