

MITIGATING THE IMPACTS OF DROUGHT IN THE CARIBBEAN

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Many of the Small Island Developing States (SIDS) in the Caribbean, as well as the low-lying coastal regions of South and Central America, are particularly vulnerable to hydrometeorological and climate hazards due to their geology, topography, significant coastal urbanization, small climate sensitive economies and lack of significant economic diversity. As a result, reducing their vulnerability to climate and hydrometeorological hazards is critical if many of these states are to increase or sustain their current level of socio-economic development into the future. The variable nature of Caribbean rainfall, with periods of extremes in excessive and depleted rainfall, impact on regional water resource. Drought represents one of the most frequently occurring climate hazards in the Caribbean with recent droughts resulting in economic losses and anxiety for many Caribbean States. While droughts are a frequent occurrence in the region, the region's adaptation to such events is quite poor.

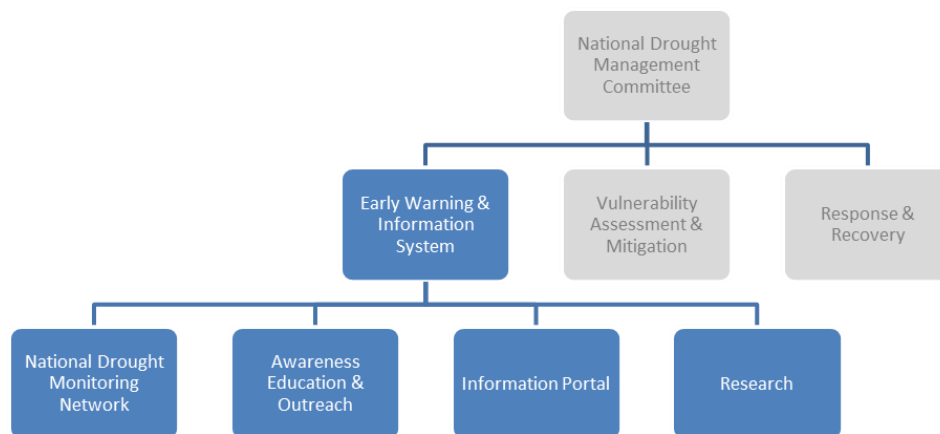
Frequent enough drought events prompted the establishment of the Caribbean Drought and Precipitation Monitoring Network (CDPMN) launched under the Caribbean Water Initiative (CARIWIN – www.mcgill.ca/cariwin) in January 2009. The regional monitoring activity at the Caribbean Institute for Meteorology and Hydrology (CIMH) in collaboration with its seasonal rainfall forecasts proved to be timely, as they alerted the region to the severe 2009-10 drought, which began in the latter months of the 2009 wet season and continued into the succeeding dry season. The many impacts experienced in the Caribbean, including low availability of potable and irrigation water, bush fires, reduction in locally/regionally grown food commodities, raised food prices and decreases in contribution in hydro-electric power in at least one country, prompted the Caribbean Disaster Emergency Management Agency (CDEMA) to include drought as one of the hazards it manages and provides support for its member states. With support from the Government of Brazil, the Caribbean Community (CARICOM), through CDEMA sought to increase national consideration of developing policies and plans to mitigate drought, but more particularly to establish National Drought Monitoring Networks for early warning against the hazard. Before the end of the project, two of the three pilot countries, Grenada and Jamaica (Saint Lucia being the third), were confronted with another potential drought situation in the latter half of 2012, as one of the main drivers of Caribbean drought, the El Niño, began to establish itself in the Pacific. Despite, the eventual dissipation of the El Niño in the Pacific, rainfall in the region continued to be below normal except for December. However, since then, and despite the relieving rains of December, particularly in the eastern Caribbean, these pilot countries and their neighbours have been confronted with low water availability for farmers (particularly rainfed farmers), reduced water levels in waterways and great concerns over water supplies for the second half of the dry season. It is clear that with a below normal 2012 rainy season, the 2013 dry season would have begun with already depleted water reserves – herein lies the basis of present concerns.

It can be concluded that unless more is done to increase the region's resilience to drought, the region will be challenged to sustain and enhance its socio-economic development under a range of future climates and increasing climate variability currently being forecast. Areas where more

needs to be done include (i) enhancing the quality, delivery and targeting of climate services to national and regional stakeholders, (ii) increasing data sharing, enhancing collaborations between national, regional and international stakeholders, (iii) policy reform with respect to Integrated Water Resources Management (IWRM), and (iv) public education, and (v) monitoring the impacts of these events to determine the level of sensitivity that between drought and local economies. It can further be concluded that if significant improvements are not made with respect to adaptation to drought, many Caribbean SIDS will find it difficult to adapt to future regional climates which are expected to be marked by on average longer drier conditions than present.

To aid in future adaptation, the Caribbean Institute for Meteorology and Hydrology (CIMH) is working, initially with its partners in Grenada, Jamaica and Saint Lucia, to develop Plans for the establishment of Drought Early Warning and Information Systems (DEWIS) that would be part of more comprehensive National Drought Plans (see schematic below). This aligns with the Declaration (http://www.hmndp.org/sites/default/files/docs/HMNDP_Final_Declaration.pdf) from the recently concluded High-level Meeting on National Drought Policy. The intention is for this approach to be replicated across the Caribbean. In each country, the DEWIS recommends the establishment of:

- A National Drought Monitoring Network, a collaboration of all national water and climate agencies, with use of their skills and measuring equipment, to monitor and forecast rainfall and available water,
- A Public Awareness and Education working group that focusses on educating and informing the public on issues related to drought,
- A working group that develops and maintains a public web-based information portal and,
- A Research Network comprising local, regional and international institutions that would provide support for the improvement and sustained relevance of the three groups.



Schematic of National Drought Plans, with emphasis on Early Warning and Information Systems

With respect to the comprehensive national drought plans, CIMH recommends that, apart from Early Warning and Awareness and Education, four other keys aspects be included:

1. Vulnerability and Impact Assessment

2. Preparedness and Mitigation
3. Response
4. Recovery

Without such proactive planning, the States of the region will always find themselves unprepared, with more than necessary negative impacts from periods of below normal rainfall. Needless to remind us, that Climate Change Scientists in the region suggest that these episodes will become more frequent and intense with time!