

**JAMAICA**  
**TERMS OF REFERENCE**  
**CONSULTANT TO DEVELOP PROPOSAL- CLIMATE DATA & INFORMATION MANAGEMENT**  
**STRATEGIC PROGRAMME FOR CLIMATE RESILIENCE**  
**INVESTMENT PROJECT 1**

**I. BACKGROUND**

Jamaica, a small island developing state, is particularly vulnerable to climate change. Approximately two-thirds of the population of about 2.7 million people lives in coastal towns and communities, that is, within 2 km of the coast. In addition, the coastal zone contains an estimated 75% of industries and service sectors and is responsible for generating some 90% of GDP. Over the ten year period 2001-2010, hydro-meteorological hazards have caused damage and losses estimated at \$111.8 billion. On average over this ten year period, the damage and loss suffered due to these hydro- meteorological events, amounted to approximately 2% of Jamaica's GDP.

Based on the most recent projections for climate change, countries like Jamaica will be severely threatened by the direct and indirect impacts of climate change, most of which are projected to accelerate in the coming decades. In fact, data from climate models downscaled under Phase I of the PPCR have indicated that the country will experience significant changes in temperature, precipitation and sea-level rise (SLR) by 2050. In addition to the changes projected, the models have also indicated increased climate variability to result in:

- decrease in the length of the rainy season by 7-8 per cent
- increase in the length of the dry season by 6-8 per cent
- a 20 per cent increase in the frequency of intense rains

Given these projections, Jamaica's vulnerability to changing climatic conditions is likely to increase with sectors such as water, agriculture and tourism being severely impacted. For this reason, adaptation to climate change is critical for Jamaica, as failure to implement adaptation measures will likely retard the achievement of the country's sustainable development goals under Vision 2030 Jamaica National Development Plan.

Jamaica is therefore implementing a number of initiatives to mitigate disasters and address climate change resilience building particularly in the priority sectors - human health, tourism, agriculture and food security, water resources, coastal resources and human settlement - outlined in Jamaica's Second National Communication to the UNFCCC. Among the funding facilities being accessed in support of the

national efforts is the Pilot Programme for Climate Resilience (PPCR)<sup>1</sup> under the Global Climate Investment Funds (CIF) Program. The programme was designed to pilot and demonstrate ways to integrate climate risks and resilience into core development planning among developing countries. Jamaica is one of six regional countries which are participating in the Caribbean regional PPCR.

Under Phase I of the PPCR, Jamaica has completed four critical technical studies to inform initiatives to address climate change, undertaken institutional strengthening and developed a Strategic Programme for Climate Resilience (SPCR) approved in November 2011. The SPCR is a multi-sectoral programme to be implemented as Phase II of the PPCR. It is being executed by the PIOJ and implemented across several agencies, namely; the Meteorological Services, Ministry of Health, Ministry of Agriculture and Fisheries, Rural Agricultural Development Agency, Water Resources Authority, Ministry of Water, Land, Environment and Climate Change, University of the West Indies, and Panos Caribbean.

Along with the sectoral focus of the SPCR, key crosscutting themes will be addressed. These relate to climate change knowledge and awareness building; mainstreaming; risk information; and data collection and management. The SPCR will be implemented through three investment projects, Investment Project 1 – Climate Data & Information Management; Investment Project 2 - Institutional Mainstreaming and Sectoral Adaptation; and Investment Project 3 - Climate Change Adaptation & Disaster Risk Reduction Financing.

Financing for the investment projects is being channelled through two multi-lateral development banks (MDBs), the IDB and World Bank. To access funding for these, the project concepts must be developed into fully-fledged costed proposals for submission to the PPCR Review Committee and the Board of the respective MDB. The design of Investment Project 1 is being led by The World Bank and that of Investment Projects 2 and 3 by the PIOJ with technical assistance from the IDB.

Investment Project 1 which is the subject of this assignment specifically targets improved quality climate information for effective planning and action at local and national levels. Its objectives are to:

- a. strengthen Jamaica's meteorological observation and data collection systems;
- b. develop updated climate change scenarios specific to Jamaica and using them to assess expected consequences of climate change on priority sectors;
- c. conduct vulnerability assessment of the health sector;
- d. develop a comprehensive risk/climate change information platform; and
- e. improve climate change knowledge, attitudes and practices nationally.

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<sup>1</sup> The other Caribbean countries participating in the PPCR are Haiti, St Lucia, Grenada, Dominica and St. Vincent and the Grenadines. The PPCR is being implemented by The World Bank (WB), the Inter-American Development Bank (IDB), and other multilateral organizations and involves both public and private sector entities and Non-Governmental Organizations.

## II. OBJECTIVE OF THE CONSULTANCY

To develop a detailed hydromet project proposal and supporting documents for Investment Programme 1 – Climate Data & Information Management leading to review and approval by the PPCR Review Committee and the Board of the World Bank.

## III. SCOPE OF WORK

In carrying out the assignment, the investment proposal developed by the consultant will establish linkages with planned and on-going climate change programmes to facilitate complementarities and reduce potential for duplication. The consultant will seek past available hydromet data, and establish linkages with current data, and the potential for certain types of hydromet technology that will be most suitable for Jamaica. The proposal will be formulated in keeping with the required format, content and quality required by the PPCR Sub-Committee; and the loans and grants documents of the World Bank.

The Consultant is required to:

- i. Review and assess the national capability for meteorological forecasting and identify data requirements and equipment specification to improve forecasting capabilities including the range of available technologies and technological products<sup>2</sup>
- ii. Review and assess the existing climate/hydro-meteorological information<sup>3</sup> and determine current and future user needs. This should include assessing institutional and human resources capacity of the national meteorological services and national hydrological services and identifying gaps;
- iii. Conduct a stock-taking and assessment of the existing technical information and identify modernization investments based on the outcomes of the stock-taking assessment, while also including ICT enabled infrastructure and, outlining measures to ensure sustainability of said investments<sup>4</sup>. This includes ensuring that the type of system chosen can have easy and regular maintenance;
- iv. Initiate rescue and digitization of historical analog/paper hydromet data that may be existing in various agencies/institutions;
- v. Carry out consultations with stakeholders and sectors consuming meteorological, climatic and hydrological information to determine, among others, how best to communicate

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<sup>2</sup> This includes radars and tipping bucket precipitation gauges

<sup>3</sup> Consultant should also familiarize themselves with relevant literature related to the project, including: the Strategic Programme for Climate Resilience and Vision 2030 Jamaica – National Development Plan

<sup>4</sup> By the time this stage of the assessment is completed, the consultant should be able to have clear knowledge about the following questions: What kind of HCS is needed? Is hydromet data freely accessible? How are they processed? How is data translated into sector impacts? Do project beneficiaries currently use HCS? Do they have the capacity to effectively identify HCS needs and to integrate HCS in decision making? What is the current capacity of hydromet institutions to deliver products and services? To operate infrastructure, manage data, develop products? What is the current state of hydromet infrastructure? What is needed? What are required O&M costs? What mechanisms can be put in place to ensure relationships are built between providers and users of information, and that information is accessible and decision-relevant? What types of existing mechanisms can be leveraged and/or new mechanisms created to ensure effective coordination amongst information providers? Is this feasible given the project budget and timeline? Are there barriers to private sector involvement? What types of mechanisms can be designed to ensure local benefits?

- targeted information to users and how to build and strengthen in-country ownership of hydromet services; and (iv) conduct capacity and institutional strengthening, including training for the staff of the MSJ, PIOJ staff and associated key agencies to enhance service delivery;
- vi. Work with local and regional universities, colleges and research institutions to develop relevant scientific knowledge based on the findings of the hydromet climate data, including the development of improved tools and methods in support of hydromet and climate information services;
  - vii. Identify training needs with respect to the interpretation and application of high resolution climate scenarios for sectoral planning and propose indicative training programmes
  - viii. Identify innovative ICT enabled tools including mobile and geo-referenced applications to engage citizens and stakeholders in the production and consumption of climate data and information;
  - ix. Provide short-term technical support to PIOJ, Ministry of Water, Land, Environment and Climate Change, and MSJ for Project preparation and implementation readiness, including, preparation of detailed terms of reference for activities outlined, oversight and management of activities undertaken during the project preparation phase;
  - x. Collaborate with representatives of the regional PPCR to determine and establish the requirements (inclusive of equipment; database etc.) for linking the local Risk Information Platform to the regional information system/ network/mechanism to facilitate the sharing of climate change data and information and good practices;
  - xi. Work with policy makers and implementers to sensitize them to the role of HCS as a contributor to achieving sustained economic growth and poverty reduction. This work should include, but not be limited to assisting policy makers to gain a better understanding of how HCS can contribute to Jamaica's achieving and sustaining their National development goals (i.e. ensuring that improvements that are made today are helpful towards a climate resilient future);
  - xii. Ensure a functioning HCS by having good communication between information suppliers and user communities. Specific collaborative mechanisms should be built into project design to foster realization of development benefits, such as help desk capacity, staff exchanges, and engagement of boundary-level expertise and researchers. The private sector has a key role to play in provision and development of innovative services. In addition, private sector and research community support is critical to generation of new innovations and knowledge products. NGOs can also play a vital role in using their existing networks to build capacity and relay information at local scales. Across government agencies, it is important to identify possible duplication of efforts or overlapping mandates; and
  - xiii. Determine and conceptualize the appropriate scale of HCS projects.

#### **IV. EXPECTED DELIVERABLES**

The expected deliverables of this assignment are:

- A detailed methodology, work plan and implementation plan within ten working days after commencement of assignment.
- A draft investment proposal using the PPCR template for detailed investment proposals and the World Bank project profile templates for loans and grants. The draft should include costing and budget, cost benefit analysis, a log frame/result framework, monitoring and evaluation plan and risk log and outline of institutional arrangements.
- Final Report. The report should include, but not be limited to:
  - a. An assessment of all valuable stakeholder who should be included in the process (i.e. relevant research institutions, political and institutional players, and others who are likely to help influence the data collection and dissemination process; and
  - b. Proposal of NMHS training requirements and how to ensure that the data reaches the population through an outreach program consisting of:
    - i. Greater computer literacy for all staff
    - ii. Public education, community and outreach
    - iii. IT management skills
  - c. Based on the above assessments and research, the report should also include the potential for the development of weather monitoring products and the requirements for development of such products and the appropriate scale of these projects
  - d. Detailed cost estimates and implementation schedule for each component and its related sub components, and cost benefit analysis and risk analysis of the overall investment project to address the sustainability of the investment.

## V. SPECIFICATIONS OF THE CONSULTANCY

- Type of consultancy: Individual consultant.
- Duration: The entire consultancy will be for a maximum of 45 effective working days over a three-month period.
- Qualifications: Candidates should have a post-graduate degree in Hydrometeorological studies, Software Engineering, Environmental Management or related discipline, and at least 5 years' proven experience in project/programme development and project cycle management. Execution of this Terms of Reference requires the following:
  - Technical skills to support observing networks, management and analysis and data quality control;

- Familiarity with weather forecasting methodologies and tools including numerical methods;
- Excellent communication skills and excellent knowledge of the English language (both spoken and written);
- Ability to interface with the Government officials, relevant research centers, and other stakeholders working with groups that support the use of climate information for improved climate risk management;
- Experience in developing proposals for World Bank financing and in the social and environmental operational policies of the World Bank will be considered an asset; and
- Being able to legally work Jamaica.

## **VI. REPORTING/COORDINATION**

Reporting to the Planning Institute of Jamaica, the consultant will work under the supervision of a technical team established to give oversight to the assignment and in close collaboration with the counterparts designated by the Planning Institute of Jamaica. The consultant will also be required to collaborate with the consultants working on Investment Projects 2 and 3.