

PROJECT INFORMATION DOCUMENT (PID) CONCEPT STAGE

Report No.: PIDC387

Project Name	Improving Climate Data and Information Management (P129633)
Region	LATIN AMERICA AND CARIBBEAN
Country	Jamaica
Sector(s)	Public administration- Information and communications (100%)
Theme(s)	Climate change (80%), Natural disaster management (15%), Social Protection and Labor Policy & Systems (5%)
Lending Instrument	Investment Project Financing
Project ID	P129633
Borrower(s)	Jamaica
Implementing Agency	Planning Institute of Jamaica (PIOJ)
Environmental Category	B-Partial Assessment
Date PID Prepared/ Updated	29-Jun-2015
Date PID Approved/ Disclosed	29-Jun-2015
Estimated Date of Appraisal Completion	
Estimated Date of Board Approval	24-Jul-2015
Concept Review Decision	Track II - The review did authorize the preparation to continue

I. Introduction and Context

Country Context

A small Caribbean island nation, Jamaica is renowned for its attractive beaches, and agreeable climate. It lures an estimated 1.5 million tourists each year – more than half its population – to its many coastal resorts. It has a population of 2.7 million people and a per capita income of US\$4,972 (in 2010). On most measures of human development, the country performs satisfactorily. Life expectancy is high at 73 years, the MDG goal of universal primary education has been achieved and Jamaica is on track for eradicating extreme hunger. The country is also well endowed with natural resources – marine assets (fish, coral reefs and beaches), fertile soils and high value minerals. The key sources of foreign exchange are tourism, remittances, and bauxite mining. It is the fifth largest exporter of bauxite in the world.

Despite Jamaica's rich endowment of natural assets, its proximity to US markets, and buoyant investment (averaging 25 percent of GDP), economic performance has been disappointing. Growth

rates have been negative in recent years and have seldom exceeded 3 percent. Termed the “Jamaican paradox” the IMF identifies three reasons for this anomalous performance despite growth-conducive conditions - high debt, crime and climate-related hazards.

Jamaica has been among the most indebted countries in the world for over two decades with a public debt-to-GDP ratio that peaked at 129% in 2009. This large debt is a consequence of inflated spending on public sector wages and bail outs of economically unviable organizations. A “debt overhang” is known to adversely influence investment decisions (inducing greater “short-termism” due to a fear of future liabilities), and limits the scope for spending on other much needed public goods that could foster sustained growth. To reduce debt liabilities the government implemented a new debt management initiative, the Jamaica Debt Exchange (JDX) in 2010. This involved an exchange of high interest Government of Jamaica (GOJ) bonds for those with lower yields and longer maturities. The offer was taken up by over 95% of local financial institutions and was deemed a success by the government. It has created a modest amount of fiscal space in the current fiscal year.

High crime has been identified as another major impediment to growth. Crime not only diverts resources from productive forms of economic enterprise, but promotes investment into enclaves – such as all inclusive tourist resorts, mining and well protected special enterprise zones (World Bank 2011, UN 2007). Crime is likely to have induced a vicious cycle of economic stagnation – with low growth increasing incentives to engage in criminal activity and higher crime lowering growth and business confidence (World Bank 2011).

Climate-related disasters and vulnerability to climate change have been identified as the third major challenge. Indeed damage from climate-related disasters is high and continues to rise over time. Jamaica is highly vulnerable to climate change related disasters, in particular to droughts, floods, and hurricanes. The coastal zone in Jamaica is home to two-thirds of the population and an estimated 75 percent of industries, critical infrastructure and service sector, which altogether account for 80-90 percent of GDP. These assets and the production capacity are frequently threatened by climate change related disasters. For example, the cumulative damage from the last three major storms— Ivan (2004), Dean (2007), and Gustav (2008)—was over US\$1 billion. The recent October 2010 Tropical Storm Nicole is estimated to have caused a fiscal cost of 1.9% of the GDP. It is suggested that by 2025 the cost of these natural hazards for Jamaica could be 13.9% of GDP (based on 2004 GDP), 27.9 % by 2050, 42.3 % by 2075 and approximately 56.9% by 2100 (Bueno et al, 2008). These estimates, alarming though they may be, need to be treated with caution due to the imprecision of measuring damages and the risks of double-counting the damage to assets and the flow of income from these assets (World Bank 2010).

GoJ recognizes that to address these climate hazards will require a shift from ex post management of risks and damage (i.e. responses after a disaster strikes) to building resilience (i.e. preparing for and minimizing/preventing damage). Achieving this goal calls for a considerable investment in climate proofing assets, livelihoods and economic activities. Relief is necessary but often not the most efficient way to address these problems. The rushed nature of emergency responses makes them particularly vulnerable to design inadequacies and sustainability problems. Emergency planning is less capable of successfully undertaking activities that require more complex processes and consultation with stakeholders. Addressing these issues lies at the very heart of this proposed Project.

Sectoral and Institutional Context

Geography has rendered Jamaica highly vulnerable to a range of climate disasters - droughts,

floods, and hurricanes. The coastal zone in Jamaica is home to two-thirds of the population and an estimated 80-90 percent of GDP. The coast is routinely threatened by hurricanes and storms. On the other hand the hinterland is affected by droughts and floods. Agriculture accounts for about 20 percent of employment and it is no surprise that poverty is largely concentrated in the rural parts of the island and is closely tied to low productivity. In 2009, an estimated 16.5% of the population is living below the poverty line. Most (61.0%) of these are in rural areas, dependent on agriculture, and are therefore disproportionately at risk to climate change impacts.

Climate-related disasters are much more likely to impact the most vulnerable members of societies, particularly women and the poor. For example, the urban poor are more vulnerable to such disasters because disaster-prone areas tend to have lower property prices, and so tend to be occupied by poorer citizens (often in informal settlements). Poor areas often have lower levels of protective infrastructure, and housing is of low quality and is much less likely to withstand a flood or cyclone. The consequences of drought are concentrated on poor rural households that depend on rain-fed subsistence agriculture. The poor are also likely to be less able to cope with a given shock, as they have few assets and often little access to economic or social safety nets (Enarson, 2000). In the context of this Project, the poor also tend to have lower access to actionable climate information and may be least prepared to withstand climate risks and disasters as a consequence.

Historical data indicate that over the past 30 years there have been 28 climate related disasters. In the latest ten years alone, there were 9 climate-related disasters. The implication is clear. A climate-related disaster is a predictable event that is likely to strike almost every year in Jamaica. The only uncertainty relates to the type of event (whether it is a hurricane, flood or drought) and its severity. Regional climate projections indicate that climate-related risks are set to magnify in the future. The projections based on global and regional models (without downscaling) suggest that there would be an increase in climate variability and extreme weather events, with a decrease in the length of the rainy season by 7-8%; an increase in the length of the dry season by 6-8 %; a 20 % increase in the frequency of intense rains; and an increase in the frequency of more intense hurricanes. Climate change is likely to increase some future hazards, but the largest driver of climate disaster risk is increased exposure. Urbanization and development in exposed areas is the primary reason for the ever increasing damage from extreme climate events and this suggests that with up to date climate information and planning, there is a possibility to minimize risks and damage.

The GoJ through Vision 2030 Jamaica: National Development Plan (2009-2030) has outlined its priorities and actions with regard to environment and climate change in the combined sector plan on Natural Resources and Environmental Management and Hazard Risk Reduction and Climate Change (2009). A primary focus of Vision 2030 Jamaica is to adapt to climate change through mainstreaming climate risks into government policies and plans, identifying strategic priorities and adoption of best practice, as well as promoting greater public awareness of the issues. Under the Pilot Program for Climate Resilience (PPCR), Jamaica developed its Strategic Program for Climate Resilience (SPCR) covering 2011-2030 and presented it to the PPCR Sub-Committee which considered and endorsed it in November 2011. The SPCR is aligned with Vision 2030 Jamaica, and also builds on gaps and challenges identified in Jamaica's Second National Communication to the United Nations Framework Convention on Climate Change. The SPCR identifies several key issues: inadequate climate data and information to inform policies, development and adaptation strategies; absence of a comprehensive climate risk information platform; lack of coordination and integration of climate change into sectoral plans; inadequate public awareness of climate change impacts and limited sharing of information.

Due to its geographical, geological and socio-economic characteristics, Jamaica is among the countries most vulnerable to the impacts of climate change in the Caribbean region.

Notwithstanding, the country has insufficient capacity to generate, disseminate and use climate data and information to formulate robust strategies to adapt to these changes. A major area of deficiency is the lack of high resolution climate scenarios that are geographically relevant. While climate scenarios currently exist, they are for the most part based on global and regional models which do not accurately reflect Jamaica's unique conditions and specific vulnerabilities. Downscaling is especially challenging for Jamaica due to its hilly topography and the lack of local climate data which is needed to calibrate the models. Thus, downscaled regional climate data models that better reflect Jamaica's conditions in the development of scenarios at the national and sectoral levels, is urgently needed. These scenarios will form the basis of sectoral vulnerability assessments thus improving the understanding of how climate change can affect key sectors and vulnerable populations; and guide the development of strategies necessary to increase resilience to the impacts of climate change.

Another challenge constraining the development of appropriate adaptation measures in Jamaica is the limited capacity and obsolete equipment of the Meteorological Services, Jamaica (MSJ) to make the weather forecasts and provide the early warnings desired to enable vulnerable populations in particular to make adequate preparations. From a network of about 250 manual rainfall stations and 23 climatological stations, the network has declined to less than 180 rainfall stations and 6 climatological stations. Other limitations include the fact that at most locations, rainfall is the only climate parameter that is measured. Though important, rainfall alone cannot define the climate of a country. Additional parameters are needed for regional model validation and to adequately quantify sectoral responses to cope with climate variability and change. Additionally, the MSJ operates a Doppler Weather RADAR which is over twenty years old. While it can still perform the minimum required tasks, there is the need for it to be replaced as soon as possible as the technology has advanced considerably making this equipment almost obsolete to the point that any replacement part must be specifically manufactured, at great cost. Upgrading these systems while taking advantage of current advances (e.g., mobile telephony) in Information and Communication Technology (ICT) would greatly enhance the capacity of the country to predict and prepare for various climate change-related risks and hazards.

An added area of concern is the vulnerability of the health sector, one of the early responders after extreme weather events. To ensure that this sector is not overly devastated and has the capacity to adequately respond, there is the need to make key health facilities resilient to the impacts of climate change. A critical first step along this path is to conduct a detailed vulnerability assessment (including the use of climate scenarios) and outline the necessary actions to be taken.

Relationship to CAS

The project aligns strongly with the Bank's overall approach to Jamaica, as outlined in Country Partnership Strategy 2010-2013 (Report No.: 52849-JM) discussed by the Board of Executive Directors on March 23, 2010. The CPS recognizes that Jamaica is highly vulnerable to climate change-related disasters, in particular to droughts, floods, and hurricanes. Therefore, the CPS's Results Area 3: Contributing to addressing Vulnerability to Natural Disasters and Climate Change, seeks to support Jamaica in integrating climate change adaptation measures into core development programs across sectors, and targeting specific hazards, particularly hazardous or vulnerable places and people within the coastal zones, and the urban and rural poor. The Pilot Program for Climate Resilience (PPCR) is highlighted in the CPS as one of the key instruments for delivering this support to Jamaica.

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

The project development objective is to improve the quality and use of climate related information for effective planning and action at local and national levels.

Key Results (From PCN)

Key Result areas and performance indicators will be:

High resolution national and sectoral Climate Change scenarios developed

Indicator 1: Number of national and sectoral Climate Change scenarios developed

Data gathering network/infrastructure of the Meteorological Services, Jamaica upgraded

Indicator 1: Number of data gathering stations established/upgraded

Indicator 2: Number of climate parameters measured by the new stations

Indicator 3: National early warning system initialized/installed

Vulnerability assessments conducted based on scenarios developed

Indicator 1: Number of completed vulnerability assessments

Indicator 2: Coverage/comprehensiveness of climate risk analysis and vulnerability assessments

Risk Information Platform developed

Indicator 1: Evidence of comprehensive set of risk information

Mechanisms for access to, and for dissemination of climate information established; and a comprehensive public awareness and education program implemented

Indicator 1: User perception of quality of services provided by MSJ (%)

Indicator 2: % of target population reached in training program and adequately trained

III. Preliminary Description

Concept Description

The Project has components that deal with the supply of climate information and its demand. It draws lessons of development from elsewhere which reveal that the mere supply of data does not automatically induce its use. There is thus a need to both provide information and demonstrate its utility for building climate resilience. On the supply side two components are involved with the generation of data and climate information and on the demand side there are components that deal with the use of this information in priority areas. These are the prerequisites to building climate resilience in the economy.

Component 1 (\$3.8 million): Upgrading of the data collection, processing and forecasting system of the Meteorological Services

The current hydro-meteorological system is outdated, obsolete and unsuited to the task of providing timely information of (predictable) weather hazards. This component aims at improving the delivery and quality of climate information. This will be achieved by: (i) replacing the current obsolete RADAR system including the associated hardware, spare parts and software, as well as installation, calibration and training of technicians and engineers; (ii) replacing over 40 manually read rain-gauges with automatic recording systems fitted with satellite interface or data transmission

modems capable of transmitting data in real time into newly installed CliData archiving system; (iii) installing/upgrading the hydrological stations; (iv) identifying and supporting 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; (v) review and update the technical expertise of key personnel and formulate strategies for greater sustainability and more effective customer service products that can assist in building climate resilience. This includes better forecasting and early warning systems with advice on preferred precautionary strategies for those at risk.

This component will also support the development of climate change scenarios and the development of risk and adaptation profiles. Without accurate scenarios of future risks it is impossible to know what to adapt to and how to plan for climate change. Current scenarios are based on global and regional models which do not accurately reflect Jamaica's climate conditions and specific vulnerabilities. Downscaling is especially challenging for Jamaica due to its hilly topography and will involve the use of meteorological data collected in Component 1 of this Project. This will be an iterative process that will need constant refinement. This component would support developing: (i) high resolution climate change scenarios at the national and sectoral levels by downscaling regional climate data models; (ii) sector specific methodologies (guideline documents and manuals) for climate resilient planning and design; (iii) the capacity of professionals to apply the scenarios in development planning.

Component 2 (\$1.2 million): Risk Information Platform and Vulnerability Assessment:

This component will demonstrate use of the information generated in component 1. It will conduct vulnerability assessments using climate scenarios to analyze the expected consequences of climate change for 3 priority sectors. These assessments will enable the convergence of socio-economic data and climate data to more meaningfully devise adaptations strategies. It will use model information as well as historical trends to assess impacts on two ecosystems of high economic value – the marine ecosystem and agronomic ecosystems in the island hinterlands.

Especially vulnerable are the coral reefs that face multiple pressures from rising temperatures, ocean acidification and contamination (sewage and chemicals). There is a need to develop strategies that would address the avoidable problems and help build ecosystem resilience. In addition, over 70 percent of farms in Jamaica are engaged in rainfed agriculture. With the projected increased variability of rainfall there is a need to enhance crop resilience and assist farmers adapt to the inevitable. Information from downscaled models will be used to assess vulnerabilities to agriculture in different parts of the island as a first step in promoting adaptation.

Finally, it will also conduct a detailed vulnerability assessment of risks of losses in the health sector with the costed plan of actions necessary to make key health facilities more climate resilient. Low cost but critical actions to enhance resilience in pilot facilities will be implemented.

This component will develop a risk information platform, as an accessible information hub about climate change data, knowledge and good practices. The platform will also provide guidance to decision-makers and planners and will be based on intensive assessments of end-user needs and updated climate scenarios. It will allow users access to information and data related to crop suitability projections, adaptation practices and climate change sectoral and spatial impacts on agriculture, water resources, coastal and marine ecosystems.

Component 3 (\$1.2 million): Climate Change Education and Awareness:

There have been some successes but significant gaps remain in mainstreaming climate change issues into planning as well as in helping Jamaicans adapt to the impacts. Capacity and awareness remains limited among critical groups and there is limited sharing of information. The public needs more information on how to identify, cope with and respond to climate risks. Information is of limited utility unless it is used and there is wide awareness and hence this component will focus on developing a national climate change communication strategy. This component would support (i) review of climate/hydro-meteorological information and determining current and future user needs; (ii) carrying out consultations with stakeholders and sectors consuming meteorological, climatic and hydrological information to determine, among others, how best to communicate targeted information to users and how to build and strengthen in-country ownership of hydromet services; and (iii) conducting capacity and institutional strengthening, including training for the staff of the MSJ and associated key agencies to enhance service delivery. It will also develop and implement modules on climate change awareness and education activities which will include the use of demonstration projects, as well as the scaling up of “Voices For Climate Change”, an innovative climate change awareness and education project, which was successfully implemented in selected communities across Jamaica.

Component 4 (\$0.6 million): Project Management**IV. Safeguard Policies that might apply**

Safeguard Policies Triggered by the Project	Yes	No	TBD
Environmental Assessment OP/BP 4.01	x		
Natural Habitats OP/BP 4.04			x
Forests OP/BP 4.36		x	
Pest Management OP 4.09		x	
Physical Cultural Resources OP/BP 4.11	x		
Indigenous Peoples OP/BP 4.10		x	
Involuntary Resettlement OP/BP 4.12			x
Safety of Dams OP/BP 4.37		x	
Projects on International Waterways OP/BP 7.50		x	
Projects in Disputed Areas OP/BP 7.60		x	

V. Financing (in USD Million)

Total Project Cost:	7.50	Total Bank Financing:	0.00
Financing Gap:	0.00		
Financing Source			Amount
Borrower			0.70
Strategic Climate Fund Grant			6.80
Total			7.50

VI. Contact point

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