

PROJECT INFORMATION DOCUMENT (PID) CONCEPT STAGE

Report No.: PIDC5468

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| Project Name | HT Strengthening Hydro-Met Services (P148259) |
| Region | LATIN AMERICA AND CARIBBEAN |
| Country | Haiti |
| Sector(s) | Flood protection (60%), Irrigation and drainage (40%) |
| Theme(s) | Natural disaster management (60%), Other rural development (20%), Urban planning and housing policy (20%) |
| Lending Instrument | Investment Project Financing |
| Project ID | P148259 |
| Borrower(s) | Republic of Haiti |
| Implementing Agency | Ministry of Agriculture, Natural Resources and Rural Development |
| Environmental Category | B-Partial Assessment |
| Date PID Prepared/ Updated | 09-Sep-2014 |
| Date PID Approved/ Disclosed | 14-Oct-2014 |
| Estimated Date of Appraisal Completion | 06-Feb-2015 |
| Estimated Date of Board Approval | 28-May-2015 |
| Concept Review Decision | Track II - The review did authorize the preparation to continue |

I. Introduction and Context

Country Context

Over the past decade, extreme poverty has declined in Haiti, particularly in urban areas. Nevertheless poverty remains endemic and varies widely within the country. The overall poverty headcount amounts to about 59% and extreme poverty to 24% in 2012 indicating that almost 6.3 million Haitians cannot meet their basic needs. Haiti's urban growth, the fastest in Latin America, has been largely unplanned and resulted in settlements of precarious housing, often in areas deprived of basic services and highly exposed to natural hazards. Today nearly 55% of Haiti's population of 10 million lives in urban areas, and 70% of it in slums.

The devastating earthquake of January 2010 underscored the vulnerability of the Haitian society to external shocks and natural hazards. In addition to causing over 200,000 deaths, more than 1.5 million people were internally displaced and 20% of the entire population suffered loss of income. The earthquake resulted in damages and losses of US\$7.9 billion (120% of GDP). Reconstruction

needs were estimated at US\$11.3 billion. In 2010 the economy contracted by 5.4%, reversing the trend of modest growth of the 5 preceding years

Four years after the earthquake, the overall economy is improving and the government is beginning to implement its vision for turning Haiti into an emerging country by 2030. Growth is estimated to have reached 4% in HFY 13, up from 2.8% observed in HFY12, mainly due to a pick-up in agricultural production, construction and the industrial sector, in particular the textile and garment industry.

In spite of these encouraging signs, Haiti's economic recovery and growth potential will not be sustained without improving its resilience to natural hazards. Haiti was ranked fifth in exposure to risk to two or more hazards by the World Bank's "Natural Disaster Hotspot Study", with over 93% of its territory and 96% of its population at risk of two or more hazards; 56% of its GDP is linked to an area exposed to risk stemming from two or more hazards. Haiti is located in a seismically active zone being intersected by several major tectonic faults and is exposed to weather and climate hazards, especially cyclones (wind damage, flooding, land/mudslides and coastal surges) and droughts. The presence of mountain ranges behind the coastline favors flooding due to rapid runoff during heavy rainfall and heavily impacting the urban areas largely located on the coast. High population density (up to 40,000 per km² in Port-au-Prince), combined with the large number of informal settlements and weak infrastructure, renders Haiti and its population particularly vulnerable.

Climate change may further accentuate the risk of hydro-meteorological hazards by increasing the frequency or intensity of extreme events. Due to a lack of systematic collection of historical data, climate scenarios for Haiti rely solely on regional climate information. Impact of climate change may result in an increase of average temperature up to 3.2°C and significant decrease (-12%) in median annual rainfall by 2100. In addition, an increase of ocean surface temperature may threaten marine ecosystems and particularly coral reefs, which are providing natural protection to the Haitian coastline. Sea level rise, which could reach 50 cm by 2060 according to some studies, may pose a serious threat to coastal areas where the majority of Haiti's population and assets are concentrated.

Understanding and reducing hydro-meteorological and climate risks is an imperative to assess social and economic impact and to develop adequate policy responses for Haiti's development. Over the past decade, 17 hurricanes have killed more than 3,600 people and affected 800,000 others. In addition to claiming human lives, hydro-meteorological hazards take a heavy toll on all sectors of the Haitian economy. In 2008, damages and losses resulting from tropical cyclones Fay, Gustav, Hanna, and Ike were around 15% of GDP. Largely rain-fed, Haiti's agriculture sector is the main livelihood in rural areas and vulnerable to hydro-meteorological and climate hazards, hindering the country's ability to meet its food security targets. Possible manifestations of climate change (variations in rain patterns, intensification of cyclones, reduction in rainfall, longer periods of drought, and the salinization of coastal plains following tidal waves) may reduce agricultural productivity and, in conjunction to the volatility of global food prices, pose a significant threat to Haiti's food security. Lack of historical data for floods, landslides and wind makes it hard to run probabilistic risk models and inform planning of new infrastructure, including hydro-electric plants and other renewable forms of energy production.

An effective capacity to monitor hydro-meteorological and climate parameters and estimate potential impact of events is critical for increasing Haiti's resilience, enhance its productivity and

benefit people and society at large. For instance, systematic meteorological and hydrological data collection is critical for providing early warnings and preventing losses of human lives, and to deliver reliable information to farmers. Early warning systems are a critical life-saving tool for tropical cyclones, wind storms, floods, storm surges, droughts, bushfires and other hazards. Globally, recorded economic losses linked to extreme hydro-meteorological events have increased nearly 50 times over the past five decades, while the global loss of life has decreased significantly, by a factor of about 10. This can mainly be attributed to advancements in monitoring and forecasting, early warning and emergency preparedness and response planning at the national and local levels. In addition, comprehensive historical hydro-met datasets are indispensable to improve the resolution of climate models and better understand climate change impacts.

Sectoral and Institutional Context

Haiti's hydro-meteorological services are currently fragmented across several institutions in charge of collecting, storing, processing, and disseminating data. The National Service for Water Resources (SNRE) and the National Center for Meteorology (CNM), both under the Ministry of Agriculture, Natural Resources, and Rural Development (MARNDR) have a primary role in providing hydro-meteorological services. However they both lack a dedicated budget, adequate human resources and operational procedures to fulfil their mandate. CNM de facto relies on the National Civil Aviation Agency (OFNAC), which provides them with office space and personnel. CNM data collection is limited to 3 airports (Port-au-Prince, Cap Haïtien, Jérémie) and forecasting is largely supported by Météo France. SNRE, which until 2003 also included CNM, has been mostly financed through international assistance until it found itself practically made redundant after the 2010 earthquake. Today SNRE manages 48 automatic limnigraphs and 18 automatic rain gauges provided via an Inter-American Development Bank (IDB)-funded project ending in June 2014. The network of national observers no longer exists, with the exception of volunteers of religious institutions which regularly monitor 10 manual rain gauges in the country.

In 2006 a ministerial decree transferred all hydro-meteorological services to the Ministry of Environment (MDE), introducing further complexity in the institutional framework of Haiti's hydro-meteorological services. In principle, within MDE, the National Observatory on Environment and Vulnerability (ONEV) has the mandate for managing all environmental information, while the Water Resource Directorate (DRE) is responsible for monitoring watersheds and water resources. In practice, both departments lack an operational budget to fulfil their mission and depend almost exclusively on project resources. As a result, respective responsibilities of these agencies tend to vary according to resources available, and are not based upon sound operational procedures.

The National Center for Geographical and Spatial Information (CNIGS), whose mission is managing and disseminating geographic information, plays an important role in hydro-met data collection. A semi-autonomous entity attached to the Ministry of Planning and External Cooperation (MPCE), CNIGS is considered as a reliable and effective technical partner in data management by many national and international agencies. Although not formally mandated to collect hydro-met data, today CNIGS finds itself managing 24 automatic meteorological stations provided by a European Union (EU)-financed project.

Today, among the main stakeholders in Haiti, there is a general consensus that a rationalization of the institutional framework for hydro-met services may (i) increase the quantity of data available to multiple actors; (ii) reduce operation costs (e.g. operation cost of an atomized network of stations vs. cost of a national service); and (iii) ensure a better participation of agencies throughout the value

chain. The signing of a Memorandum of Understanding between MARNDR and MDE and the recent creation (November 2013) of an Inter-Ministerial Commission tasked with the reorganization of Haiti's hydro-meteorological services show the existing commitment of the Government to rationalize the organization of this sector. Similarly, a consensus has emerged from the main donors (IDB, EU, WMO, USAID, among others) on the importance of a coordinated support to reform and modernize Haiti's hydro-met services.

Relationship to CAS

The proposed project is fully consistent with the World Bank Group's Haiti Interim Strategy Note (ISN) FY 13-14, which programs a second tranche of the US\$500 million allocated to Haiti from the IDA 16 Crisis Response Window. The project would specifically support two of four objectives of the Haiti ISN: (i) to reduce vulnerability and increase resilience and (ii) build human capital. It will also contribute to the ISN crosscutting theme: Strengthening governance. The project will contribute to achieving the overall Bank goals of reducing extreme poverty and increasing shared prosperity by improving access to reliable data (weather, water, and climate) critical for establishing early warning systems. Emergency preparedness and response actions rely on this information for protecting lives, critical livelihoods (e.g. agriculture) and food security for the most vulnerable.

Furthermore, the project stems directly from the Government of Haiti's National Strategic Program for Climate Resilience (SPCR), approved in 2013, which has in 'Strengthening Knowledge Management of Hydro-meteorological, Water Resources, and Climate Data to Inform Decision Making and Policy Dialogue' one of its four pillars.

II. Proposed Development Objective(s)

Proposed Development Objective(s) (From PCN)

The proposed PDO is to strengthen the Government of Haiti's institutional capacity to provide weather, water and climate services customized to the needs of civil protection and agriculture sectors.

The PDO will be achieved through: (i) integrating existing hydro-met networks into a national data platform; and (ii) understanding weather, water, and climate services' requirements for select end users (including agriculture and civil protection).

Key Results (From PCN)

The achievement of the PDO could be assessed through the following proposed indicators, to be confirmed and refined:

- (i) Data collected by existing hydro-met networks and forecasts are available via a centralized data platform, with secure archiving and scientific validation processes;
- (ii) Number of existing sub-networks feeding data into the shared platform;
- (iii) Population benefiting from new and/or improved services (percentage of population, gender-disaggregated)

III. Preliminary Description

Concept Description

The project will support the Government of Haiti's capacity to increase its resilience today and build its future adaptive capacity by providing access to water, weather, and climate information to

end users. By strengthening the collaboration between relevant institutions and end-users, the focus will be on enhancing accessibility and customization of hydro-met information that is critical for decision making in emergency management and agriculture. In these two sectors, the project will leverage synergies with existing World Bank-IDA operations (e.g. the Re-launching Agriculture 2 and the Disaster Risk Management and Reconstruction projects) which aim to increase resilience to exogenous shocks, including hydro-meteorological hazards.

The project will comprise three components:

(i) Capacity building for sustainable weather, water and climate services; (ii) Understanding requirements of select end users (agriculture and civil protection) and support to decision making; and (iii) Support to project implementation, monitoring and evaluation, and SPCR coordination.

Component 1. Strengthening capacity of the Government of Haiti to collect, validate, archive, analyze data and provide adequate sustainable weather, water and climate services. (US\$3 million)

Main focus areas for the component would be:

- i) Support to Institutional strengthening, capacity building, and partnership development;
- ii) Improving inter-institutional data sharing and coordination.

Component 2. Understanding weather, water and climate services' requirements for select end users (including agriculture and civil protection); (US\$1.8 million)

Component 3. Support to project implementation, monitoring and evaluation, and support to SPCR coordination (US\$ 0.7 million)

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: | 5.50 | Total Bank Financing: | 0.00 |
| Financing Gap: | 0.00 | | |

| Financing Source | Amount |
|------------------------------|---------------|
| Borrower | 0.00 |
| Strategic Climate Fund Grant | 5.50 |
| Total | 5.50 |

VI. Contact point

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